

UPSC MONTHLY CURRENT AFFAIRS

EDITION : August 2022

"The Freebies Debate"

Understanding the difference between welfare schemes and freebies



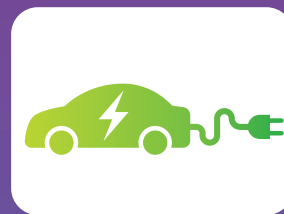
Fiscal Federalism

For efficient and effective growth and development



Arctic Warming

Alarm bells for the earth



Hybrid Electric Vehicles

The inevitable transition in transportation segment



Vulnerability of Mountainous States to Natural Disasters

Need for sustainable development

Outstanding performance by BYJU'S students in IAS 2021

Congratulations to our toppers

03

Ranks in
Top 10

12

Ranks in
Top 25

25

Ranks in
Top 50



RANK 01

Shruti Sharma



RANK 5

Utkarsh Dwivedi



RANK 6

Yaksh Chaudhary



RANK 12

Yasharth Shekhar



RANK 13

Priyamvada
Mhaddalkar



RANK 14

Abhinav Jain



RANK 15

Challapalle
Yaswanthkumarreddy



RANK 16

Anshu Priya



RANK 19

Diksha Joshi



RANK 20

Arpit Chauhan



RANK 21

Dilip Kainikkara



RANK 25

Shruti Rajiakshmi



RANK 29

Bhavishya



RANK 31

Avinash V



RANK 33

Jaspinder Singh



RANK 35

Kartikeya Jaiswal



RANK 37

V Sanjana Simha



RANK 40

Kushal Jain



RANK 44

Anjali Shrotriya



RANK 47

Naman Kumar
Singla



RANK 50

Abhijit Ray

Outstanding performance by BYJU'S students in IAS 2020

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02

Ranks in
Top 10

18

Ranks in
Top 50

36

Ranks in
Top 100



RANK 02

Jagrati Awasthi



RANK 8

Kartik Jivani



RANK 13

Gaurav Budania



RANK 14

Karishma Nair



RANK 17

Sarthak Agarwal



RANK 25

Vaibhav Rawat



RANK 26

Pulkit Singh



RANK 28

Divya Mishra



RANK 30

Divyanshu
Choudhary



RANK 31

Megha Swaroop



RANK 32

Rallapalli Jagat Sai



RANK 35

Aparna Ramesh



RANK 37

Narwade Vinayak



RANK 38

Varuna Agarwal



RANK 41

Aswathy Jiji



RANK 42

Pooja Gupta



RANK 46

Jubin Mohapatra



RANK 50

Abhishek Shukla

Incredible Results

CSE 2019

4 Ranks
in top 10

13 Ranks
in top 50

22 Ranks
in top 100



Rank 3
Pratibha Verma



Rank 6
Vishakha Yadav



Rank 8
Abhishek Saraf



Rank 10
Sanjita Mohapatra

CSE 2018

11 Ranks
in top 50

28 Ranks
in top 100

183 Ranks
in the final list



Rank 11
Pujya Priyadarshni



Rank 16
Dhodmise Trupti Ankush



Rank 21
Rahul Jain



Rank 24
Anuraj Jain



Rank 31
Mainak Ghosh

CSE 2017

5 Ranks
in top 50

34 Ranks
in top 100

236 Ranks
in the final list



Rank 3
Sachin Gupta



Rank 6
Koya Sree Harsha



Rank 8
Anubhav Singh



Rank 9
Soumya Sharma



Rank 10
Abhishek Surana

CSE 2016

8 Ranks
in top 50

18 Ranks
in top 100

215 Ranks
in the final list



Rank 2
Anmol Sher Singh Bedi



Rank 5
Abhilash Mishra



Rank 12
Tejaswi Rana



Rank 30
Prabhash Kumar



Rank 32
Avdhesh Meena

CSE 2015

5 Ranks
in top 50

14 Ranks
in top 100

162 Ranks
in the final list



Rank 20
Vipin Garg



Rank 24
Khumanthem Diana Devi



Rank 25
Chandra Mohan Garg



Rank 27
Pulkit Garg



Rank 47
Anshul Agarwal

CSE 2014

6 Ranks
in top 50

12 Ranks
in top 100

83 Ranks
overall selections



Rank 4
Vandana Rao



Rank 5
Suharsha Bhagat



Rank 16
Ananya Das



Rank 23
Anil Dhameliya



Rank 28
Kushaal Yadav



Rank 39
Vivekanand T.S.

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|---|--|--|--|--|--|
| February (05, 06, 12, 13, 19, 20, 26 & 27) + March (05, 06 & 12) | Polity | | | | |
| March (13, 19, 20, 26 & 27) + April (02, 03, 09, 10, 16 & 17) | Economics | Economics | | | |
| April (23, 24 & 30) + May (01, 07, 08, 14, 15, 21, 22 & 28) | Modern History + Post Independent | Modern History + Post Independent | Modern History + Post Independent | | |
| May (29) + June (04, 05, 11, 12, 18, 19, 25 & 26) + July (02 & 03) | Geography | Geography | Geography | Geography | |
| July (10, 16, 17, 23, 24, 30 & 31) + August (06, 07, 13 & 14) | Ancient India + Medieval India + Art & Culture | Polity | Polity | Polity | Polity |
| August (20, 21, 27 & 28) + September (03, 04, 10, 11, 17, 18 & 24) | International Relations + World History | International Relations + World History | Economics | Economics | Economics |
| September (25) + October (01, 02, 08, 09, 15, 16, 22, 23, 29 & 30) | Environment & Ecology + Science & Technology + Disaster Management | Environment & Ecology + Science & Technology + Disaster Management | Environment & Ecology + Science & Technology + Disaster Management | Modern History + Post Independent | Modern History + Post Independent |
| November (05, 06, 12, 13, 19, 20, 26, 27) + December (03, 04 & 10) | Social Issues & Social Justice + Essay + Compulsory Language Paper | Social Issues & Social Justice + Essay + Compulsory Language Paper | Social Issues & Social Justice + Essay + Compulsory Language Paper | Social Issues & Social Justice + Essay + Compulsory Language Paper | Geography |
| December (11, 17, 18, 24 & 31) + January '23 (07, 08, 14, 15, 21 & 22) | Ethics + Governance | Internal Security + CSAT | Internal Security + CSAT | Internal Security + CSAT | Internal Security + CSAT |
| January '23 (28 & 29) + February '23 (04, 05, 11, 12, 18, 19, 25 & 26) + March '23 (04) | Internal Security + CSAT | Ancient India + Medieval India + Art & Culture | Ancient India + Medieval India + Art & Culture | Ancient India + Medieval India + Art & Culture | Ancient India + Medieval India + Art & Culture |
| March '23 (05, 11, 12, 18, 19, 25 & 26) + April '23 (01, 02, 08 & 09) | Focus Prelims | Focus Prelims | International Relations + World History | International Relations + World History | International Relations + World History |
| April '23 (15,16,23,29 & 30) + May '23 (06,07,13,14,20 & 21) | | Focus Prelims | Focus Prelims | Environment & Ecology + Science & Technology + Disaster Management | Environment & Ecology + Science & Technology + Disaster Management |
| May '23 (27 & 28) + June '23 (17, 18, 24 & 25) + July (01, 02, 08, 09 & 15) | | Ethics + Governance | Ethics + Governance | Ethics + Governance | Ethics + Governance |
| 31st May to 11th June, 2023 | PRELIMS 2023 | PRELIMS 2023 | PRELIMS 2023 | PRELIMS 2023 | PRELIMS 2023 |
| July '23 (16, 22, 23, 29 & 30) + Aug '23 (05, 06, 12, 13, 19 & 20) | | | | | Social Issues & Social Justice + Essay + Compulsory Language Paper |
| 1st September to 30th September, 2023 | MAIN 2023 | MAIN 2023 | MAIN 2023 | MAIN 2023 | MAIN 2023 |

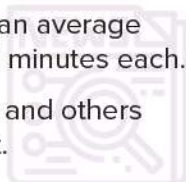


YouTube Channel



The Hindu News Analysis

- Analysis of “The Hindu” in a crisp and well-explained format.
- The videos are short, with an average length of not more than 25 minutes each.
- Ideal for working aspirants and others who have a time constraint.



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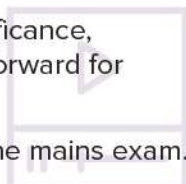
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POLITY

Parliament—conduct of business, powers and privileges and issues arising out of it.

1. Parliamentary Privilege

» Mains: Privileges and functions of Members of Parliament

Context:

The Chairman of Rajya Sabha Shri M Venkaiah Naidu said that MPs could not avoid summons from law enforcement agencies as they do not have immunity from being arrested in criminal cases.

Introduction:

- Opposition parties in the Parliament have been protesting against the alleged misuse of central enforcement agencies such as the Central Bureau of Investigation (CBI) and the Enforcement Directorate (ED) by the government to “frame” political rivals.
- These protests have led to constant disruption in the parliamentary proceedings and wash out of the winter session.
- In this backdrop, the Chairman of Rajya Sabha clarified that, after examining all the precedents and under Article 105, MPs do not enjoy privilege from action by agencies while the session is on.
- He insisted that the MPs should not avoid appearing before any agency when they are called upon by citing reasons of House duty.

Parliamentary Privileges and Constitutional Provisions:

- Parliamentary privilege is a legal immunity given to members of legislatures, in which they are granted protection against civil or criminal liability for actions done or statements made in the course of their legislative duties.
- They are individual and collective privileges to “effectively discharge their functions”.
- Article 105 of the Indian Constitution talks about the powers, privileges, etc. of Parliament, its members and committees while Article 194 deals with the state legislatures.

Nut Graf:

MPs and MLAs as lawmakers shall respect the law and legal procedures of the land as it applies to all, in all cases. They can seek a further date for appearance in front of enforcement agencies when the House is in session instead of avoiding their summons or notices altogether.

Structure, organization and functioning of Judiciary.

2. The working of Supreme Court collegium

» Mains: Collegium system.

Context:

- The forthcoming retirement of Chief Justice of India.

Evolution of Collegium System:

- The First Judges case: The court held that the consultation with the CJI should be “full and effective”.
- The Second Judges case (1993): It introduced the collegium system in 1993. It was ruled that the CJI would have to consult a collegium of his two senior-most judges in the apex court on judicial appointments. It was held that a “collective opinion” of the collegium would have primacy over the Government.
- The Third Judges case (1998): The collegium system ultimately evolved to its present form as a result of this case. It comprises the CJI and four of the senior-most judges in the Supreme court.

National Judicial Appointments Commission:

- The National Judicial Appointments Commission was a proposed body which would have been responsible for the recruitment, appointment and transfer of judicial officers, legal officers and legal employees under the government of India and in all state governments of India.

Working of Collegium System:

- The collegium of the Supreme Court makes recommendations for appointments to the apex court and High Courts.

- It can also veto the government if the names are sent back for reconsideration.
- The basic theory behind the collegium system is that the judiciary should have primacy over the executive in matters of appointments/transfers in order to maintain independence.

Procedure of judicial appointments to the Supreme Court(SC):

- The appointment of the CJI/Judges of the SC is governed by a Memorandum of Procedure.
- Appointment of CJI:
 - * The CJI and the judges of the Supreme Court are appointed by the President under clause (2) of Article 124 of the Constitution.
 - * The appointment to the office of the CJI should be of the senior-most judge of the SC considered fit to hold the office.
 - * The Union Law Minister seeks the recommendation of the outgoing CJI on his successor. Once the CJI recommends it, the Law Minister forwards the communication to the Prime Minister who would advise the President on the appointment.
- Appointment of a Supreme Court judge:
 - * The collegium recommends a candidate to the Union Law Minister prior to the vacancy.
 - * The CJI ascertains the views of the senior-most judges in the Supreme Court, who hail from the High Court from where the person recommended belongs.
 - * The opinions of each member of the Collegium and other judges consulted is made in writing and form part of the file on the candidate sent to the government.
 - * If the CJI had consulted non-judges, he should form a memorandum containing the substance of consultation, which would also be part of the file.
 - * After the receipt of the Collegium recommendation, the Law Minister forwards it to the Prime Minister, who would in turn advise the President for appointment.

Criticism of Collegium system:

- The system has been often criticized, even from within the judicial institution because of its lack of transparency.
- It has also been accused of nepotism.
- The government's efforts to amend the Constitution and bring a National Judicial Appointments Commission was struck down by a Constitution Bench adding to the controversy.

Has the increase in judicial appointments lowered pendency in the Supreme Court?

- The increase in the number of judges has not translated into lower pendency of cases in the apex court over the years.
- A steady rise in arrears regardless of the periodic increase in judicial strength has been a constant phenomenon since 1950.
- The following table shows the pendency of cases with sanctioned strength of judges in SC:

| YEAR | NUMBER OF JUDGES(SC) | NUMBER OF CASES (Approx) |
|------|----------------------|--------------------------|
| 1950 | 8 | 100 plus |
| 1960 | 14 | 3247 |
| 1978 | 18 | 14,000 |
| 1986 | 26 | 27,881 |
| 2009 | 31 | 50,000 |
| 2014 | 31 | 64,000 |
| 2021 | 34 | 69,855 |

Nut Graf:

The retirement of the current CJI and other senior judges in the Supreme Court in the coming months has once again brought the limelight on the collegium system and the high pendency of cases in the highest level of judiciary. Also it is a now proven fact that there is need of other reforms apart from increasing the strength of judges as it has not had a significant impact on the number of pendency.

Separation of powers between various organs, dispute redressal mechanisms and institutions

3. Fair trial goes beyond courts, to the police and media

» Mains: Media- Fourth Pillar of Democracy

Context:

- The Chief Justice of India's objection to the lack of media accountability in coverage of legal issues.

Details:

- CJI's remarks came after the Delhi police admitted to informing the media about the outcome of AltNews' co-founder's bail hearing even before the judicial order.
- The concern was raised that a considerable portion of its news coverage depicted the remarks of the police officer as fact without waiting for the final order.

Issues with the fair trial:

- In sensational criminal cases, the media focuses on the investigation and early trial stages, eventually disconnecting from actual trials which might be months or years long.
- Police as a source:
 - * Unregulated disclosure of case details by an eager police force and disproportionate reliance on this information by the media results in a public stripping of the rights that typically accompany a fair trial.
 - * At times police narratives are designed to achieve political goals.
 - * Lack of dedicated media cells in police departments makes officials of all levels authoritative sources of information.
 - * The urge of the police to demonstrate dynamism and efficiency often results in bypassing the protection of civil liberties.
- Unregulated media:
 - * Issues often arise when reporters absolve themselves of any duty to contextualize information revealed by the police.
 - * With the growing financial pressures on media organizations, reporters specializing in crime and legal reporting are becoming rare.
 - * Another issue is the changing nature of the news responding to competing for social media accounts that now qualify as news.
 - * Government regulation is not uniform for print and television media and enforcement of these regulations, where it occurs, is usually slow.
 - * Self-regulatory bodies like the National Broadcasting Standards Authority and Indian Broadcasting Foundation are membership-based and can be easily avoided by simply withdrawing from the group.
 - * The weak regulatory provisions leave reporting norms to the conscience of reporters and editors.
- Statutory restrictions by the Supreme Court in Romila Thapar vs Union of India regarding disclosure of personal details are often violated.
- Disparate media policy guidelines issued by states and their weak enforcement mechanisms often dilute fair trial.

Implication of unfair trial:

- Unfair trials violate the fundamental right to dignity and privacy of suspects/ accused/victims/witnesses/kins.
- It may also have impacts like social ostracisation and difficulties in retaining employment, further making them vulnerable to exploitation and crime.
- Given the media's ability to shape opinion, law enforcement agencies are often under pressure to selectively reveal certain aspects of the investigation or mischaracterize others as communal or systemic.
- Ignorance of these nuances of the justice system has significant implications for citizens and contributes considerably to

public apprehension and mistrust of the system.

Measures to be taken:

- Media ethics should extend beyond the verification of facts. Apart from making sure that police narratives are accurate before making them public, reporters should bear the burden of misreporting.
- There should be deliberation on how the information should be disseminated while protecting the persons involved in the case.
- A structured and well-designed media policy with adequate training and enforcement mechanisms is the need of the hour for the police.
- The supreme court in an ongoing case of the Peoples' Union for Civil Liberties should deliberate binding directives on police and propose guidelines to regulate media briefings to ensure fair trial.

Nut Graf:

It is in the immediate need for robust justice delivery that a fair trial should be given primacy. The media and the police should proactively take the issue and ensure that ethical practices are not crippled under the ambit of a free press. It is the responsibility of all the stakeholders to uphold the basic principles of our justice system.

Functioning of the criminal justice system

4. Reviewing remission

- » Mains: Remission policies adopted by the state governments and various concerns with it.

Context:

- Activists have challenged the premature release of eleven convicts by the Gujarat government.

Details of the case:

- In Gujarat, 11 convicts were serving life terms for the gang rape of a woman, and the murder of seven persons (including a three-year-old) during the riots of 2002.
- The Gujarat government granted remission to these convicts.
- The activists have challenged the order of the Gujarat government on the account of the judicial review in the Supreme Court.

Legal issues with the remission:

- The remission was based on the judgment by a two-judge Bench of SC on a petition filed by one convict. The matter was whether Gujarat or the Maharashtra government was fit for considering the plea.
- It was ruled by the Court that the Gujarat government (the location of crime) should consider the matter, instead of Maharashtra, where the trial was transferred by the SC to ensure impartiality.
- Moreover, it was also ruled that the remission should be considered under July 1992 policy, as that was the prevailing policy on the date of their conviction (in 2008).
- There are two reasons for the illegality of remission:
 - * The Gujarat government decided without the concurrence of the Centre. As per Section 435 of the Code of Criminal Procedure (CrPC), consultation with the Centre is mandatory in cases probed by the CBI.
 - * Moreover, an ideal remission panel should consist of senior government officials in charge of law or home, the prison superintendent, a district judge, and officers dealing with rehabilitation and probation of offenders. But this was missing and the committee comprised legislators.
- It is also observed that the objection by the district judge was also disregarded.

Nut Graf:

The Supreme court should look at the concerns related to the legality of the case and should also spell out the contours of the parameters of the rational remission policy carefully considering all the aspects like humanitarian grounds, the scope of reform, and sense of remorse.

Representation of People's Act**5. Aadhar-Voter ID Linkage**

- » Mains: Electoral reforms in India

Context:

- Recently, the Election Commission started a campaign to promote the linkage of Voter ID and Aadhaar.

Introduction:

- After recent amendments to Representation of the People Act, 1950 and **Election commission's (EC)** campaign, various reports have surfaced online of instances where block level officers have asked individuals to link their Aadhaar with their Voter IDs, failing which their Voter IDs could be cancelled.
- First days of the campaign saw almost 2.5 crore Aadhaar holders voluntarily submitting their details to the EC.

Is the linking of Aadhaar with Voter ID mandatory?

- The Election Laws (Amendment) Bill 2021 was passed in Parliament enabling the linking of electoral roll data with the Aadhaar ecosystem
- The bill amended certain provisions of the Representation of Peoples Act, 1950 and the Representation of Peoples Act, 1951.
- Section 23(4) was inserted in the **Representation of the People Act, 1950**,
- It authorises the electoral registration officer to ask citizens already enrolled to furnish their Aadhaar numbers. This is done in order to curb the problem of multiple enrolment of the same person in different places.
- To reflect this amendment, in June 2022, the government notified changes to the Registration of Electors Rules, 1960.
- Use of discretionary language throughout the amendments has been accompanied by assurances by both the government and the EC that linkage of the Aadhaar with Voter ID is optional.
- Ambiguities in Form 6B issued under the new Rule 26B have negated the element of choice that has been incorporated in the amendments.

Rationale behind this:

- To weed out duplication of voters, such as migrant workers who may have been registered more than once on the electoral rolls in different constituencies or for persons registered multiple times within the same constituency.
- Aadhaar allows for biometric authentication, Aadhaar based authentication and verification is considered more reliable, quicker and cost efficient when compared to other IDs. At the end of 2021, 99.7% of the adult Indian population had an Aadhaar card.
- It will assist in ensuring that only one Voter ID is issued per citizen of India.

Why is the mandatory linking of Aadhaar to the Voter ID an issue?

- In the Puttaswamy judgement, the Supreme Court of India explored whether the mandatory linking of Aadhaar with bank accounts was constitutional or not.
- The Court in case of mandatory linking of Aadhaar with bank accounts observed that depriving a person of their right to property for non-linkage fell foul of the **test of proportionality**.
- Even though other means of verification and authentication are allowed, if the person does not hold an Aadhaar in case of voter verification, given the wide coverage of Aadhaar, the current design would in effect mandate Aadhaar linkage.
- In this context, it needs to be considered whether requiring an Aadhaar holder to mandatorily provide Aadhaar for authentication or verification would not be considered violative of their informational autonomy (right to privacy) which would allow them to decide which official document they want to use for verification and authentication.
- The Supreme Court in the Lal Babu Hussein case, 1995, had held that the Right to vote cannot be disallowed by insisting only on four proofs of identity — voters can rely on any other proof of identity and obtain the right to vote.

What are the operational difficulties?

- Verifying voter identity against Aadhaar will only help in tackling duplication but will not remove voters who are not citizens

of India from the electoral rolls as Aadhaar is only a proof of residence and not a proof of citizenship.

- The estimate of error rates in biometric-based authentication differ widely. As per the **UIDAI**, Aadhaar-based biometric authentication had a 12% error rate.
- A similar exercise undertaken in 2015 in Andhra and Telangana led to the disenfranchisement of around 30 lakh voters due to biometric authentication. The Supreme Court stalled the process of linkage then.
- This could also lead to the linkage of Aadhaar's "demographic" information with voter ID information, and lead to violation of the right to privacy and surveillance measures by the state.

Way Forward:

- A writ petition has been filed with the Supreme Court challenging the amendments as being violative of the right to privacy. The Supreme Court has transferred the writ to the Delhi High Court.
- Government should clarify through correction in Form 6B that the linking is not mandatory.
- Enforceable data protection legislation to regulate how authentication data will be used.

Nut Graf:

Aadhaar-voter ID linkage proposal fails to specify the extent of data sharing between the ECI and UIDAI databases. This move could be an effective way of improving electoral roll accuracy and voter participation. However, this should be voluntary, given the absence of a robust data protection law.

Constitution of India – features and significant provisions.

6. The jurisprudence of bail

- » Mains: Jurisprudence of bail in India and its significance

Jurisprudence of bail in India:

- The philosophy of justice through bail is guaranteed under **Article 21** of the Indian Constitution which aims to protect life and also liberty.
 - * Article 21 provides that liberty can be deprived only through the procedure established by law which further has to be "just, fair and reasonable".
- The definition of the term bail is not mentioned in the **Criminal Procedure Code (CrPC)** but the term has been used many times and remains one of the most important concepts of the criminal justice system.
- There are various provisions of bail which include:
 - * Pre-arrest bail: According to Section 438 of the Code of Criminal Procedure (CrPC), an accused can approach a Sessions Court or High Court seeking an order to release him on bail in case he is arrested on a non-bailable offence.
 - * Statutory bail: According to Section 167 of the CrPC, the accused is provided with a right to be released if the investigation is not completed within 60 days or 90 days, depending on the severity of the offence.
- Bail provision in India is extended to the accused based on the principle of "presumption of innocence" which is said to be the bedrock of India's criminal jurisprudence.
- Although bail refers to the conditional release of an individual from custody during investigation and trial, it can also be sought during the appellate stage to prevent prolonged detention during the pendency of the appeal.
- However, for certain offences under the **Indian Penal Code (IPC)** and offences under special laws such as the Unlawful Activities Prevention Act, the Narcotic and Psychotropic Substances Act and the Prevention of Money Laundering Act, severe conditions are mentioned for granting bail.

Sections 436 and 437 of CrPC

- Section 436 of CrPC refers to bailable offences
- According to CrPC, bailable offences are those where bail can be granted to an accused and have been made bailable through the First Schedule of the CrPC or by any other other laws or legislations.
 - * Bail is a matter of right in such offences.
- Section 437 of CrPC refers to non-bailable offences
- Non-bailable offenses are serious offenses where bail is a privilege and only the courts can grant it.
- The grant of bail is at the discretion exercised by the judge taking note of the factual aspects of the case.

Significance of the provision of bail:

- The provision of bail is important for an accused to prove his innocence as it provides him with an opportunity to defend himself.
- The provision of bail also ensures that the prolonged detention of an accused under trial is prevented before being acquitted.
- The main aim of the provision of bail in criminal cases is to:
 - * Relieve the accused from imprisonment
 - * Relieve the burden on the prisons in the State
 - * Keep the accused in the custody of the Court to ensure that the accused will obey the jurisdiction of the Court and be in attendance whenever his presence is required.
- According to the Supreme Court, "bail is the rule and jail is the exception".
- The Calcutta High Court has held that "the discretionary power of the Court to admit to bail is not arbitrary, but is judicial as it is governed by established principles".

Judicial discretion and its conditions:

- According to the Supreme Court, the provision of bail is largely regulated and is based on the facts and circumstances of every different case.
- Generally, the grant of bail is subjected to a triple test which includes:
 - * Ascertaining whether an accused can escape if granted bail
 - * Ascertaining the possibility of the accused tampering with evidence
 - * Ascertaining if the accused can influence witnesses if granted bail
- In the P.Chidambaram Case (2019), the Supreme Court added "ascertaining the gravity of the offence" as another consideration while granting bail.

Nut Graf:

The provision of bail plays a significant role in ensuring the right to personal liberty guaranteed under Article 21 of the Constitution and such grant or refusal of bail must be "just, fair and reasonable" in order to prevent arbitrary misuse of the provision.

Government Policies and Interventions and Issues arising out of their Design and Implementation.**7. Challenging the Special Marriage Act, 1954**

- » Mains: Concerns associated with certain provisions of the Special Marriage Act, 1954.

Context:

- The Supreme Court has recently dismissed a writ petition challenging the constitutional validity of certain provisions of the Special Marriage Act, 1954.

Background:

- The Special Marriage Act applies to couples who are looking to undertake inter-faith marriages. The Act is a special law enacted to provide for a unique form of marriage by registration wherein the parties to the marriage do not have to renounce their religion.
- A major concern about this law is the provisions specified under Section 5 of the Special Marriage Act.
 - * Section 5 requires couples to give a notice of 30 days to the Marriage Officer before the date of marriage.

Details:

- Sections 6 to 10 of the Special Marriage Act have been challenged by the petitioners.
 - * Section 6 requires the notice to be entered into the Marriage Notice Book maintained by the Marriage Officer. The Marriage Notice Book can be inspected by any person. These notices have to also be put up in any appropriate place in the office of the Marriage Officer.
 - * Section 7 provides the process for making an objection to an inter-faith marriage.
 - * Section 8 specifies the inquiry procedure to be followed after an objection has been submitted to the inter-faith marriage.

Concerns:**Violative of fundamental rights:**

- The challenged provisions are violative of the right to privacy guaranteed under Article 21 of the Constitution.

- The provisions can also be considered to be violative of Article 14 on the prohibition of discrimination on grounds of religion, race, caste and sex as well as Article 15 on right to equality as the special provisions under SMA, 1954 are absent in personal laws.

Prone to misuse:

- Public notices have been used by anti-social elements to harass inter-faith couples getting married.

Additional burden on the couples seeking inter-faith marriages:

- Some states have provisions with respect to inter-faith marriages which place an extra burden on such couples seeking inter-faith marriages.
 - * Haryana government requires couples seeking inter-faith marriages to issue a notice in a newspaper and such notices also have to be sent to their parents.
 - * In some States, couples seeking inter-faith marriages have to seek a no-objection certificate from their parents.
- The anti-conversion laws or the so-called love-jihad laws passed by around 11 states allow the parents and state to punish and harass couples seeking inter-faith marriages.

Nut Graf:

With respect to concerns associated with certain provisions of the Special Marriage Act, 1954, there is a need for a review of these provisions by the Judiciary as they seem violative of the fundamental rights enshrined in the Constitution.



The advertisement features a central illustration of a person on a laptop screen, surrounded by icons representing various subjects like a rocket, a clock, a lightbulb, a newspaper, a calendar, and a microscope. The text is arranged to the right of this illustration.

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ECONOMY

Indian Economy and Issues

1. Using a rupee route to get around a dominating dollar

- » Mains: The measures undertaken by India and Russia to further the trade relations between them

Context:

- Many countries, including India, are now trying to diversify currencies used in trade to avoid the U.S. dollar and its dominance in settling international transactions.
- Due to sanctions as a result of the annexation of Crimea by Russia in 2014 transactions between Russia and India are continuing on a semi-informal basis through rupee payments by using the Vostro accounts maintained by Russian banks in India.

Measures taken in this regard:

- The Reserve Bank of India took a proactive stand to have rupee settlement of trade – aiming to operationalise the special Vostro accounts with Russian banks in India.
- A Vostro account is an account a correspondent bank holds on behalf of another bank.

Past Experience:

- A comprehensive bilateral trade and payments arrangement existed in 1953 with the Soviet bloc countries.
- The arrangement included: participation by state-trading units alone; fixed exchange rates agreed upon by trade partners, and the offer of credit by trade surplus countries to trade deficit countries.
- The impact of the Soviet Union's credit to India resulted in the setting up of the Bhilai steel plant, other industrial units, oil refineries and pharmaceuticals — all controlled by India's public sector.
- The agreement ended in 1991 following the dissolution of the Soviet Union.

Potential Advantages for India:

- Transactions in dollars can be avoided (as the exchange rate is at all-time high of ₹80) – It, in turn, impacts the economy with:
 - * Inflation
 - * Capital flight from India to the US (aggravated by interest rate hikes by the Fed and possible hikes in the European Union as well)
 - * Reduces the foreign exchange reserves
- It will be cost-efficient to buy oil from Russia with a depreciated ruble.
- Will also result in saving transport time with the use of multi-modal routes using land, sea and air routes.
- Moreover, India can expand trade in sanctions-affected Russia (as it is facing recession and de-industrialisation).
- India's trade deficit with Russia can be balanced.

Challenges:

- Issues of an agreed exchange rate between the rupee and the ruble (R-R)
- Both currencies are volatile
- Acceptance by private parties (companies, banks) for trade and settlements
- Concerns/reactions from other countries especially the U.S.
- Moreover, trade on oil at discounted rates can be considered as 'indirect back door support'/violation of sanctions on Russia.

Nut Graf:

The India-Soviet agreements of the past may provide lessons for future course of action on the 'Rupee – Ruble' trade. It would benefit both trade partners and counter, globally, the ongoing currency hierarchy.

Issues Relating to Planning, Mobilization of Resources, Growth, Development & Employment

2. Swell in Current Account Deficit

- » Mains: Impact of widening Current Account Deficit

Context:

- Provisional trade data released by the Union Commerce ministry for the month of July 2022 shows a widened trade deficit for the third successive month.

Current Account Deficit:

- Current Account Deficit (CAD) is the shortfall between the money received by selling products to other countries and the money spent to buy goods and services from other nations.

Provisional Trade data:

- India's merchandise trade deficit increased to \$31.02 billion in July 2022, as merchandise imports at \$66.26 billion outpaced exports of \$35.24 billion.
- 2022 July's merchandise import was 43.59 % higher than \$46.15 billion of imports in July 2021.
- Merchandise export in this period remained flat, at almost similar levels of \$35.51 billion in July 2021.
- Merchandise exports in the first 04 months of the fiscal (April-July) 2022-23 at \$156.41 billion, while registering a year-on-year increase of 19.35% over \$131.06 billion in the same period of FY 2021-22, was surpassed by merchandise imports.
- The trade deficit during April- July of the financial year 2022-23 was \$100.01 billion.
- Engineering goods exports fell 2.54% year-on-year to \$9.30 billion in July 2022 as compared to \$9.54 billion in July 2021.

Reasons behind widening deficit:

- High global commodity prices and consequent pressure on the Rupee's exchange rate.
- Sustained disruptions of supply chains because of the pandemic and the Russia-Ukraine conflict.
- Tighter measures to control inflation.
- A \$20 billion Year over Year increase in imports was led by petroleum products and coal, negating the relief offered by a decline in gold imports.
- Recessionary trends in the US and Europe which are among the top destinations for engineering exports.
- The export figures have also been affected as the prices of most of the metals and commodities are falling, which has resulted in value-wise export realization.
- The stiff export tax on a range of steel products, to boost their domestic availability, was likely to have constrained exports of this segment of engineering goods.
- Expansion of imports, driven largely by the growing domestic demand for essentials including coal, crude oil, edible oils and electronic items.

Concerns:

- The Stagnant growth of exports reflects a slowdown in overseas demand for Indian merchandise. This affects the competitive advantage gained by the rupee's sizable depreciation against the U.S. dollar.
 - * Decrease in exports can be seen as a result of inflation-control curbs.
- But various key sectors including gems and jewelry, engineering goods, drugs and pharmaceuticals and garments and yarn and textiles which were mostly outside the purview of those measures, also suffered contractions.
- The two consecutive quarters of negative growth have added to the fears that the US may slip into recession.
- Growing trade deficit further widens current account deficit, adding pressure on the rupee at a time when FPI has been negative, and FDI has been significantly weaker. This makes the external sector increasingly vulnerable.

Nut Graf:

India's widening current account deficit caused due to various geopolitical reasons has resulted in inflation and reduced demand for Indian merchandise. This trend is a cause of concern for India which is on the path to recovery from the pandemic-induced slowdown.

Indian Economy and issues relating to planning, mobilization, of resources, growth, development

3. Economic aspect of 'Freebies'

- » Mains: Issue associated with the grant of subsidies and tax preferences

Context:

- As the debate over the "freebies" culture has gained momentum in India, there have been questions about the economic rationale of granting subsidies and the issue of tax preferences.

Subsidies and concerns over the grant of subsidies:

- According to World Trade Organization's **Agreement on Subsidies and Countervailing Measures (ASCM)**, a subsidy is said to be granted if there is a financial contribution by a government wherein,
 - * If the government's measure involves a direct transfer of funds.
 - » Example: through grants, loans or equity infusion
 - * If the government's revenue that is due is foregone or not collected
 - * If a government provides goods or services
- Further, subsidies also involve any form of income or price support extended by the government.
- The aspect of "tax exemption" included in the definition of subsidies has been debated extensively.
- The government through a document/statement called "Revenue Foregone under the Central Tax System" in the Union Budget from 2006-07 gave insights about the grant of direct subsidies and transfer payments.
 - * However, from 2015-16, the term "Revenue Foregone" was replaced and the document in the Union Budget was renamed "Statement of Revenue Impact of Tax Incentives under the Central Tax System".
- With the debate over "freebies" in the limelight, the market fundamentalists have raised concerns over the grant of various subsidies and opine that subsidies are undesirable for the growth of an economy as they have poor outcomes.
- Critics feel that the subsidies result in the wastage of resources.

Issue of tax preferences:

- Tax policy encompasses various aspects such as special tax rates, exemptions, deductions, rebates, deferrals, and credits which are called "tax preferences".
- Tax preferences have a significant impact on the overall level and distribution of tax.
- Such tax preferences are a part of both direct and indirect tax policies for extending specific benefits which are required to ensure the greater public good.
 - * Example: the Income Tax regime contains various tax preferences to enhance the savings of individuals, improve exports from the country, promote R&D, etc.
- However, in the backdrop of debate over the grant of subsidies, such tax preferences are also considered to be indirect subsidies extended to certain individuals.
- The extent of revenue foregone with respect to direct taxes was highlighted by a report of the Comptroller and Auditor General of India (CAG) in 2016 which indicated that the extent of revenue foregone in 2010-11 was close to 21% of direct tax revenue.
 - * Later it was reported that the extent of revenue foregone had increased to 22% of tax revenue in 2019-20.
- In recent years, corporations have been enjoying higher benefits of tax preferences and low tax rates as compared to individuals.
 - * Further, such benefits extended to corporations have not translated into higher private investment as expected and hence few experts call it "freebies".

Way forward:

- The author points out a severe decline in the investment by the government in sectors such as agriculture, public health and education in the last 30 years.
 - * Expenditure on public health has been around 1.5% of GDP, which is very less compared to other major economies.
 - * With respect to education, the government has failed to implement the Kothari Commission's recommendations (1966) of increasing investments to 6% of the national income as soon as possible.
 - * Investments in agriculture stood at 10% in 2000-01 which has been reduced by nearly half in recent years.

- The author feels that the focus on public health and education has been diluted to create opportunities for private players.
- There is an immediate need for the government to increase its investments in key sectors like agriculture, public health and education despite increased criticism of its policies of granting subsidies as these sectors are crucial in ensuring overall welfare.

Nut Graf:

The support or subsidies extended by the government in order to protect lives and livelihoods cannot be termed as "freebies".

Important Terminologies

4. Cantillon effect

- » Prelims: Cantillon Effect

Cantillon Effect:

- The Cantillon effect is named after the 18th century French economist Richard Cantillon who published his ideas in the Essay on the Nature of Trade in General.
- The Cantillon effect refers to the idea that changes in the money supply in an economy cause redistribution of purchasing power among people, distort the relative prices of goods and services, and cause misallocation of scarce resources.
- According to general assumptions in economy and quantity theory of money, an increase in the overall money supply in an economy causes a proportionate rise in the prices of goods and services over the long-run as the total amount of money in an economy plays a crucial role in determining the general price level.
- Cantillon, however, said that when money supply is expanded, the fresh money does not get evenly distributed across the economy as assumed instead the fresh money is injected into particular sections of the economy first and thus people in these sections of the economy are enriched when compared to people in the rest of the economy
 - * The purchasing power of people who first receive the freshly-created money is enhanced at the cost of the rest of society.
- The Cantillon effect has been quoted by economists who criticise the expansionary policies of central banks to counter economic downturns.

Infrastructure

5. Electricity Amendment Bill, 2022

- » Mains: Infrastructure reforms for economic growth

Context:

- Recently, the Union Power Ministry introduced the Electricity (Amendment) Bill, 2022 in Lok Sabha.

Electricity Amendment Bill:

- The Bill amends the Electricity Act, 2003 which regulates the electricity sector in India.
- The intention of the original act (2003) was to consolidate the laws regarding the generation, transmission, distribution, trading and use of electricity.
- The 2003 Act also has provisions to protect the interest of consumers and supply of electricity to all areas, rationalization of tariffs, transparent policies regarding subsidies, etc.
- The Act resulted in the privatization of distributing companies.
- The provisions for "cross-subsidy" — ensuring subsidy to poor households were added to the Bill in 2007.

Key amendments:

- The recent amendment has several changes compared to earlier drafts.
- It amends Section 62 of the Act and makes provision for "mandatory" fixing of minimum as well as maximum tariff ceilings by the "appropriate commission" to overcome predatory pricing by power distribution companies and to safeguard consumers.
- It has various provisions to ensure graded and timely tariff revisions that will help provide state power utilities with enough cash to be able to make timely payments to power producers. This move is aimed at addressing the recurrent problem of default by distribution companies in payment to generation companies.
- Amendment to Section 166 also seeks to strengthen payment security mechanisms and give more powers to regulators by improving corporate governance of Discoms.

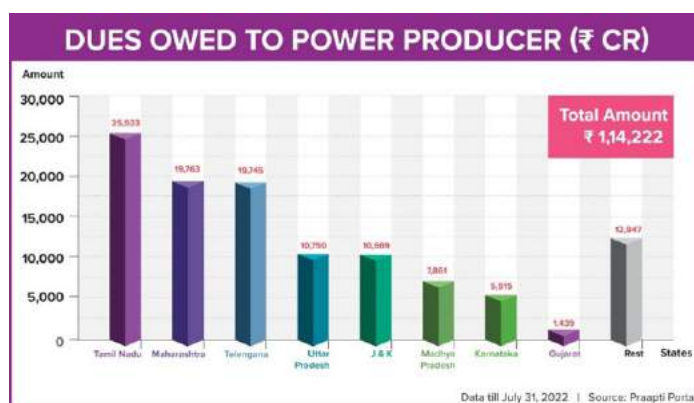
- Several clauses of the amendment can be seen as the Centre's intervention in the area of power distribution, a domain under the State governments.
 - * Clause 5 amends Section 14 of the original Act empowering the Union Government to prescribe the criteria for discoms.
 - * Clause 11 amends Section 42 of the parent Act to permit the operation of multiple Discoms in the same area and avoid parallel networks and optimize usage of the distribution network.
 - » This provision might lead to the monopoly of large private companies and destroy public and smaller networks as we saw in the telecom sector.
- Clause 13 seeks to amend Section 60 of the principal Act to enable management of power purchase and cross-subsidy in case of multiple Discoms in the same area of supply. In case of multiple Discoms, the State Government shall set up a cross subsidy balancing fund which shall be managed by a government company.

Why is there opposition to the Bill?

- Farmers' groups are opposing the Bill as they fear that it will end the subsidies and that power distribution will thereafter come under the control of private companies.
- Power sector employees oppose the Bill citing that privatization of distribution companies and generating units will result in job losses.
- As electricity/power comes under the Concurrent List, the opposition parties are questioning the bill on federalist principles. They want proper consultations with the state governments before the passage of the bill.

How will these amendments help?

- Freebies with respect to electricity offered by political parties among other things have led to various state power distribution companies not being able to raise sufficient resources to make timely payments to power generating companies.



- As per the latest data, Discoms of 3 states — Tamil Nadu, Maharashtra and Telangana have to pay about 57% of the total dues owed to power generating companies.
- State governments owe Discoms Rs 62,931 crore for services and another Rs 76,337 crore as the cost of freebies announced by them.
- Telangana has a cumulative outstanding of Rs 11,915 crore, followed by Maharashtra at Rs 9,131 crore among the states that have defaulted on payments to Discoms.

Nut Graf:

Under the proposed amendments, the union government is providing consumers with a choice of power suppliers like internet and mobile service providers. It also provides for adequate and timely tariff revisions to help state utilities come out of losses and make payments for power in time.

Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.

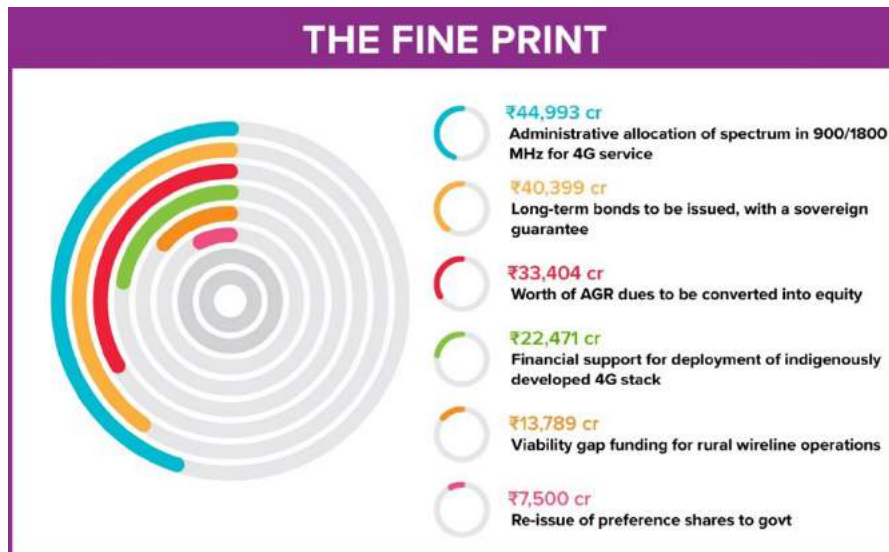
6. Union Government's package for BSNL

- » Mains: The need for a revival package for BSNL and its impact

Context:

- Recently the Union Cabinet announced a ₹1.64 lakh crore package to revive Bharat Sanchar Nigam Limited (BSNL).

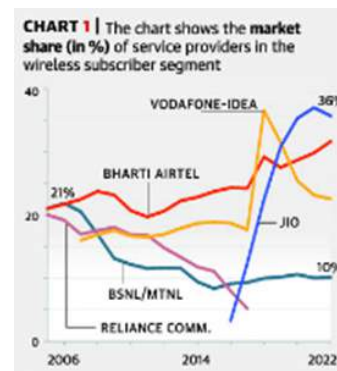
Details:



The need for revival and bail-out package for BSNL:

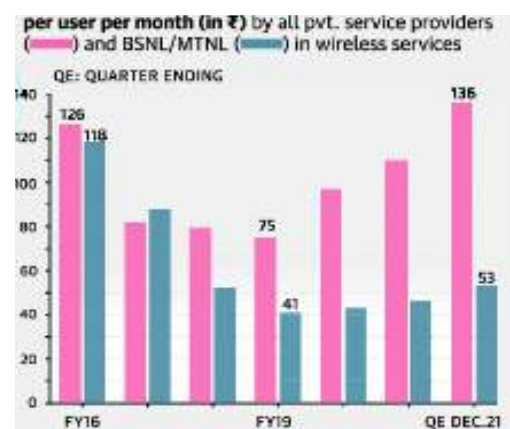
Loss of subscriber base:

- In 2005, BSNL accounted for 21% of the market share which was almost the same as Bharti Airtel and higher than Reliance Communications.
- However, by 2022, BSNL's share dropped to 10% with other private telecom firms dominating the market.



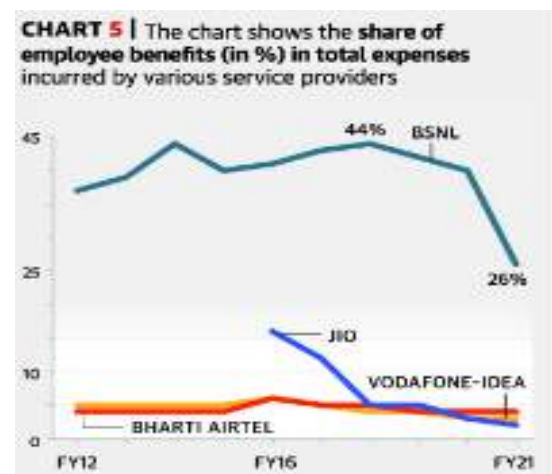
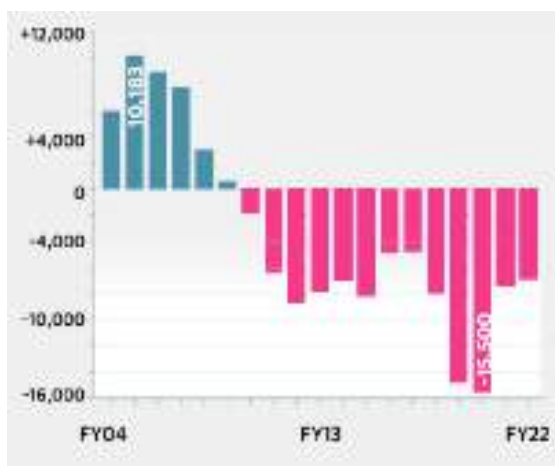
ARPU Suffering:

- In March 2016, the average revenue earned per user per month (ARPU) of BSNL was ₹118 and other private firms earned about ₹126.
- When Jio entered the market with reduced tariffs, the ARPU of BSNL and other private firms was reduced.
- By 2021, BSNL's ARPU reduced to ₹53 while the ARPU of private firms increased to ₹136. This is because when Jio started to increase their tariff rates other private firms also increased theirs while BSNL did not.



Low earnings:

- Along with the erosion of the subscriber base, the low earnings from existing subscribers severely impacted BSNL's revenue.
- The revenue of the state-owned firm dropped from ₹40,000 crores in FY06, to ₹19,052 crores in FY22.
- Further, at the time when revenues dropped, expenses of BSNL breached the ₹30,000 crore mark and had remained so for over 15 years.
- The revenue and expense mismatch resulted in losses. BSNL has incurred losses of close to ₹1.02 trillion in the last 13 years.

**High share of employee benefits:**

- Until FY20, employee benefits accounted for nearly 40% of BSNL's expenses.
- Post-2019's rescue package, wherein a large share of the package was used to fund the Voluntary Retirement Scheme, the workforce was reduced to 64,500 in FY21 from 1.8 lakh in FY18.
- Despite this BSNL's expenses in terms of employee benefits is much more than what is spent by private firms.

Loss in the rural wireless segment:

- BSNL had played a significant role in improving teledensity (connections per 100 people) in rural and far-flung regions.
- However, private firms have replaced BSNL in the rural wireless segment in recent years and BSNL now only operates the rural wireline segment.

Nut Graf:

Acknowledging the significance of BSNL's role in ensuring inclusivity and reducing the digital divide by expanding services to rural areas, the Union Cabinet has announced a ₹1.64 lakh crore revival package for BSNL with an aim to make BSNL profitable in the next five years.

Indian Economy and issues relating to Planning, Mobilisation of Resources, Growth, Development and Employment.

7. Digital lending

- » Mains: Significance and concerns associated with digital lending in India

Context:

- Recently, the Reserve Bank of India (RBI) has come up with a framework for regulating the digital lending segment in the Indian economy.

Digital lending:

- Digital Lending involves lending through web platforms or mobile apps, utilizing technology for authentication and credit evaluation.
- Under digital lending, Lending Service Providers (LSPs) act in partnership with Non-Banking Financial Companies (NBFCs) who disburse credit (or a line of credit) to the customer using the former's platform.

Significance of digital lending segment:

- Given that digital lending utilizes automated technologies for most of its activities, it has the advantage of lower operating costs and can also help ensure speedy disbursement of loans.
- Small borrowers without a documented credit history and thus, not served by traditional financial institutions have found a credit avenue for their short term loan requirements through this segment.
- The digital lending segment can play a major role in supplementing the role being played by the existing financial system dominated by banks in meeting the demand for loans across the credit ecosystem given their scalability.

Concerns with digital lending segment:

- A large number of the lending apps available for Indian android users happen to be illegal in that they are either unregulated by the RBI or have NBFC partners with an asset size of less than ₹1,000 crore. The absence of a standardised regulatory norm for this segment makes it all the more difficult to regulate this segment.
- The Lending Service Providers are found to be resorting to reckless lending practices due to high competitiveness in the segment. They are found to be lending credit beyond a borrower's repayment capacity. This is resulting in higher interest rates for all users.
- There are also serious concerns of mis-selling, unfair business conduct, charging of exorbitant interest rates, and unethical recovery practices by the lending service providers.
- The unbridled engagement of third parties and the sharing of personal information of the borrowers with them amount to possible breach of data privacy of the borrowers. This is a major concern with respect to this segment.
- Considering the multi-sided nature of the business, the RBI has put forth that user consent would be mandatory for sharing any personal information with a third-party.

New regulations:

- Lending must be carried out by entities that are either regulated by the RBI or possess permission to operate under a relevant law. This will limit the operation of any illegal entities in the segment.
- All loan disbursements and repayments are to be executed directly between the bank accounts of the borrower and the entity. This will help eliminate the participation of third parties.
- Lenders would compulsorily have to inform the borrower in a standardised format about all fees and charges and LSPs will not be allowed to raise them without prior consent from customers. This would help address concerns of mis-selling, unfair business conduct, charging of exorbitant interest rates.
- The new regulations mandate a dedicated resolution framework which require the digital lending entity to appoint a grievance redressal officer. This would come under the purview of the RBI's Integrated Ombudsman Scheme (RB-IOS) and all complaints have to be resolved within 30 days of lodging of the complaint.
- All the data collected by the digital lending apps should be "need-based" and must be with prior and explicit consent of the borrower. Users are also allowed to revoke previously granted consent.

Nut Graf:

The new RBI regulations for the digital lending segment will help address some of the serious concerns plaguing this niche segment in India.

Indian Economy and issues relating to employment

8. India's labour reforms

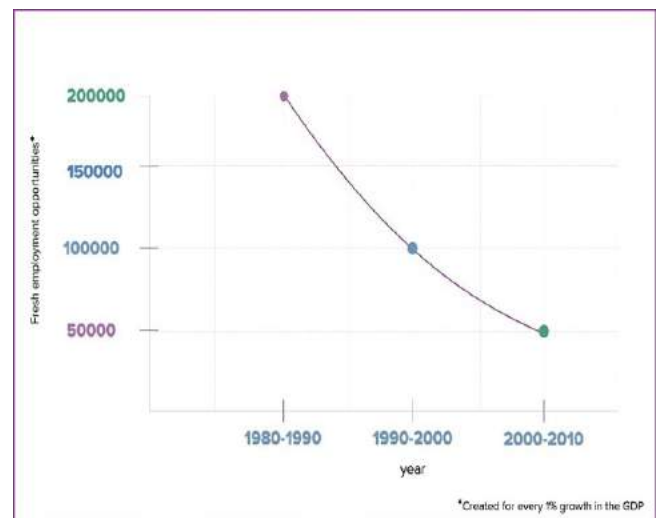
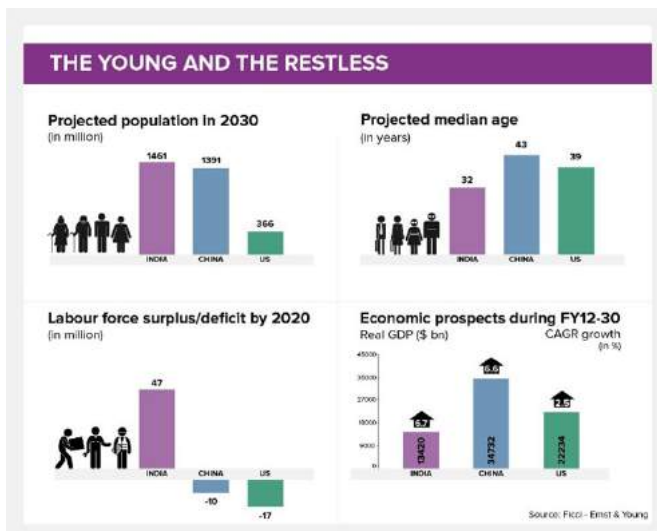
- » Prelims: Labour reforms in India
- » Mains: Critical evaluation of labour reforms in India

Context:

- Against the backdrop of 75 years of Independence, this article assesses and evaluates labour reforms in the country.

Background:

- Several lakhs of citizens lost their sources of income and livelihood during the COVID pandemic. However, there has also been an increase in the number of billionaires in India during the same period.
- One of the biggest socio-economic challenges in India is the inability of lakhs of people to earn adequate income and livelihood.



- Poor quality of employment which includes inadequate incomes and harsh working conditions is said to be a key reason for this situation.
- According to various theories, it is believed that “employment can be increased by improving the ease of doing business, with the expectation that investments in businesses will improve citizens’ ease of earning good livelihoods”.
- Based on such theories various labour reforms and codes have been undertaken in India.

Labour reforms in India:

- As “Labour” is a subject under the Concurrent List in India, the Union Government designed a framework and urged the States to implement the same.
- Labour laws encompass aspects such as payment of wages, safety conditions, social security, terms of employment, and dispute resolution.
- Rajasthan was the first state to introduce labour reforms.
- Labour reforms were then introduced and implemented in the rest of the states of India.

Impact of labour reforms:

- The V.V. Giri National Labour Institute’s report on “Impact Assessment Study of the Labour Reforms undertaken by the States” gives an idea about the impacts of labour reforms in India.
- The report notes that labour reforms are not the sole factor that impacts business investment decisions as investors do not employ more people just because it has become easy to remove them.
 - * Companies are not only dependent on labour but also other factors such as growing market/demand for their products, capital, machinery, materials, land, etc.
- According to the report, labour reforms have had very little impact on increasing employment in large companies or firms.
- The report quoting the example of Rajasthan says that the effects of labour reforms cannot be known immediately as they take more time.

- * Rajasthan being the first to introduce such reforms seems to have benefitted the least from them.
- Further, the report highlights the fact that the percentage of employment in firms with more than 300 employees increased from 51.1% to 55.3% between 2010-11 to 2014-15 when the emphasis was on administrative reforms.
 - * However, the increase was found to be much lesser (from 55.3% to 56.3% in 2017-18) at the time when States undertook various reforms.
- The report suggests that employment in formal enterprises is becoming more informal.
 - * According to the report, “formal employment” means one that includes a written contract, grant of paid leave, and other social security benefits.
 - * Along with the above benefits, the right to be heard and dignity at work must also be provided to employees.
- The report however does not highlight how reforms have helped workers.

Way forward:

- According to reports, between 1980 and 1990, every 1% growth in the GDP growth resulted in the creation of over 2 lakh fresh employment opportunities.
 - * From 1990 to 2000, it reduced to about 1 lakh fresh jobs and between 2000 to 2010, it dropped further to only 50,000.
 - * This proves that growth in the GDP does not automatically translate into more incomes for the bottom classes of society.
 - * In this context, key reforms in the theory of economic growth, employment and labour policies are needed to create better-quality livelihoods for Indian citizens.
- Further, there have to be efforts to assess the impacts of the already implemented labour reforms from the workers’ perspectives as the main objective of these reforms is to safeguard the rights of workers.

Nut Graf:

Labour reforms that involve changes in the current framework that govern employment and labour policies are required to create a better quality of income and livelihoods for people in India.

Renewable Energy

9. Wind Power Projects in India

- » Mains: India’s achievements in the renewable energy sector

Context:

- India Wind Energy Market Outlook 2026 was recently published by the Global Wind Energy Council (GWEC) and MEC Intelligence (MEC+).

Introduction:

- GWEC and MEC+ published “Renewing wind growth to power the energy transition: India Wind Energy Market Outlook 2026”.
- It is the third annual edition looking at the wind energy outlook in India.
- It highlights wind energy’s critical link to India’s green energy transition.

Significance of Wind Energy Development:

- India’s power demand is projected to grow at 6% annually towards 2030, driven by economic growth, which will continue to shoot emissions upward without rapid displacement of fossil fuels by Renewable Energy (RE).
- 56% of greenhouse gas (GHG) emissions in India come from power generation. The decarbonization of the power sector in India, including the phaseout of coal and fossil fuels and the acceleration of RE, will be a key factor for India’s overall energy transition.
- As per India’s Intended Nationally Determined Contributions (INDC), India has committed to sourcing half its electricity in 2030 from non-fossil fuel sources and installing 60 gigawatts (GW, or 1000 MW) of wind power by 2022. So far, only 40 GW of wind power capacity has been established.
- The outlook suggests that India can add another 23.7 GW of capacity within the next 5 years provided necessary enabling policies, facilitative instruments, and the right institutional interventions are put in place.

Highlights of the report:

- In India, wind energy makes up a major share of the Renewable Energy (RE) generation mix, with 37.7% (40.1

GW) of cumulative installed RE capacity as of March 2022.

- India has a high potential of 302 GW technical onshore wind resource at 100m height and 695 GW technical onshore wind resource at 120m.
- However, the overall estimated potential dwarfs the current installed capacity.

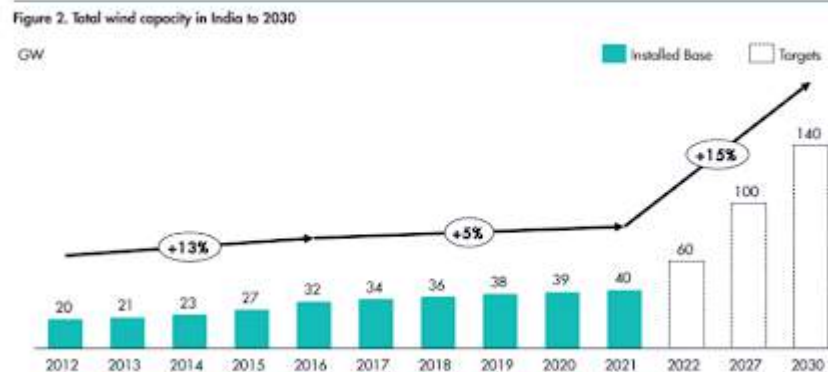


Image Source: Wind Energy Market Outlook 2026

Slowdown in installed capacity:

- Over the last five years (2017-2021), wind energy installations have drastically slowed down to a 5% growth rate, in comparison with ~13% growth over the period of 2012-2016.
- There has been a slowdown in installed capacity since the advent of the auction regime in 2017 to award tenders which led to large orders but highly competitive bids.
- Also, the markets are concentrated around a few substations of Gujarat and Tamil Nadu, which were home to the strongest resource potential and lowest cost of land. This created bottlenecks and slowed down project activity.
- The low cost of solar-based power is creating a wider gap with wind-based energy and hence delays in the signing of Power Supply Agreements for already auctioned projects.
- Supply chain instability caused by the Covid19 pandemic and the impact of the Ukraine war have led to availability issues of cargo ships and a spike in fuel costs, resulting in an increase in logistics prices.

Recommendations:

- There is a huge untapped wind energy potential that will be crucial for advancing India's clean energy transition. The outlook provides insight into how it can unlock the full potential of wind resources with five broad recommendations:
 1. Promote technology exchange and alignment to the global wind supply chain.
 2. Exploit repowering opportunities that offer an efficient pathway for India to maximize productivity and socioeconomic benefits from sites already designated for onshore wind power production.
 3. Strengthen consensus and coordination between central and state governments.
 4. Address the legacy challenges which have disrupted the development of wind energy.
 5. Finalize and implement offshore wind development roadmaps.

Nut Graf

While the attempts to ramp up public investment to aid economic revival in India are welcome, there continues to remain doubts over the efficacy of such a policy given the associated concerns and challenges when it comes to public investment in India.

Agriculture Food processing and related Industries in India.

10. Financial assistance to develop Regional Agricultural Produces

- » Prelims: Schemes for promoting Food Processing in India.

Context:

- The Ministry of Food Processing Industries (MoFPI) incentivises the setting of food processing industries

Details:

- The Ministry of Food Processing Industries (MoFPI) incentivises the setting of food processing industries through the following schemes/initiatives:
 - The Pradhan Mantri Kisan SAMPADA Yojana (PMKSY) is a central sector umbrella scheme.
 - * A component scheme of PMKSY is the Creation of infrastructure for agro-processing clusters, which is aimed at:
 - » Development of modern-day infrastructure and common facilities to encourage entrepreneurs in setting up food processing units based on a cluster approach.
 - » Creation of infrastructure for food processing near the production areas.
 - » To provide integrated infrastructure facilities beginning from the farm gate to the ultimate consumer.
 - Production Linked Incentive Scheme for Food Processing Industry (PLISFPI).
 - PM Formalization of Micro Food Processing Enterprises (PMFME), centrally sponsored scheme:
 - * Under it, One District One Product (ODOP) approach is popularized
 - » ODOP is run in partnership with the States.
 - » It provides financial, technical and business support for upgradation of existing micro food processing enterprises.
 - » ODOP approach is adopted to reap the benefit of scale in terms of procurement of inputs, availing common services and marketing of products.

Moreover, initiatives taken for food processing under the Ministry of Agriculture and Farmers' Welfare are:

- 55 clusters of selected high-value horticulture crops were identified and 12 clusters launched, under the Horticulture Cluster Development Programme (HCDP).

Schemes/Initiatives of the governments

11. Medical Device Parks

- » Prelims: Medical Device parks.
- » Mains: Key initiatives undertaken by the Government to boost the Pharmaceutical Sector

Context:

Final approval for setting up of medical device parks has been given to the States of Uttar Pradesh, Tamil Nadu, Madhya Pradesh and Himachal Pradesh.

Details:

Provisions of "Promotion of Medical Devices Parks":

- Total financial outlay of Rs. 400 crore.
- The maximum assistance of Rs. 100 crore would be provided for one Medical Device Park.
- Tenure of the scheme is five years, till 2025.
- The project will be implemented by a State Implementing Agency (SIA).=

Various measures taken by the Government to boost the pharmaceutical sector and reduce import dependence are:

- Production Linked Incentive (PLI) Scheme for promotion of domestic manufacturing of critical Key Starting Materials (KSMs)/ Drug Intermediates (DIs) and Active Pharmaceutical Ingredients (APIs), providing financial incentives for 41 identified products.
- The Production Linked Incentive Scheme for Pharmaceuticals, ensuring financial incentives to 55 selected applicants for manufacturing of identified products.
- The Scheme for Promotion of Bulk Drug Parks for establishing Bulk Drug Park in three states.

- Scheme of Strengthening of Pharmaceutical Industry (SPI), to facilitate infrastructure support for pharma MSMEs and for technology upgradation of individual pharma MSMEs.
- The sub-scheme "Assistance to Medical Device Industry for Common Facility Centre" for establishment of Common Facility in Superconducting magnetic coil testing and research facility in Andhra Pradesh.
- The Production Linked Incentive (PLI) Scheme for Promoting Domestic Manufacturing of Medical Devices.

Other measures taken by Government:

- To attract investments in this sector, the Government has allowed:
 - * 100% foreign direct investments (FDI) in the medical devices sector.
 - * 100% FDI in greenfield projects under the automatic route.
 - * For the brownfield projects, up to 74% FDI investments under automatic route and beyond that under government approval route.
- Setting up of Standing Forum of Medical Devices Associations, to deliberate on various domains with all the stakeholders.

Government schemes and initiatives

12. Swadesh Darshan Scheme

- » Prelims – Swadesh Darshan scheme- provisions

Context:

- Ministry of Tourism under its SDS has sanctioned 10 projects under the theme of Coastal Circuit.

Details:

- The Ministry of Tourism under its 'Swadesh Darshan' scheme provides financial assistance to State Governments/Union Territory (UT) Administrations/Central Agencies etc. for the development of tourism infrastructure in the country.
- The projects under this scheme are sanctioned subject to availability of funds, submission of suitable Detailed Project Reports (DPR), adherence to scheme guidelines and utilisation of funds released earlier, etc. The Ministry of Tourism under its Swadesh Darshan Scheme (SDS) has sanctioned 10 projects under the theme of Coastal Circuit.
- The Ministry of Tourism has now revamped its Swadesh Darshan scheme as Swadesh Darshan 2.0 (SD2.0) in order to develop sustainable and responsible destination centric approach with the following objectives:
 - (a) To enhance the contribution of tourism to the local economies.
 - (b) To create jobs including self-employment for local communities.
 - (c) To enhance the skills of local youth in tourism and hospitality.
 - (d) To increase private sector investment in tourism and hospitality.
 - (e) To preserve and enhance the local cultural and natural resources.

Indian Economy and issues relating to planning and mobilisation, of resources

13. Fiscal Federalism

- » Mains: Critical evaluation of the tax devolution between the Union and the states in India

Context:

Recently, the Union government released over ₹1.16 lakh crore to the States, equivalent to 2 monthly installments of tax devolution.

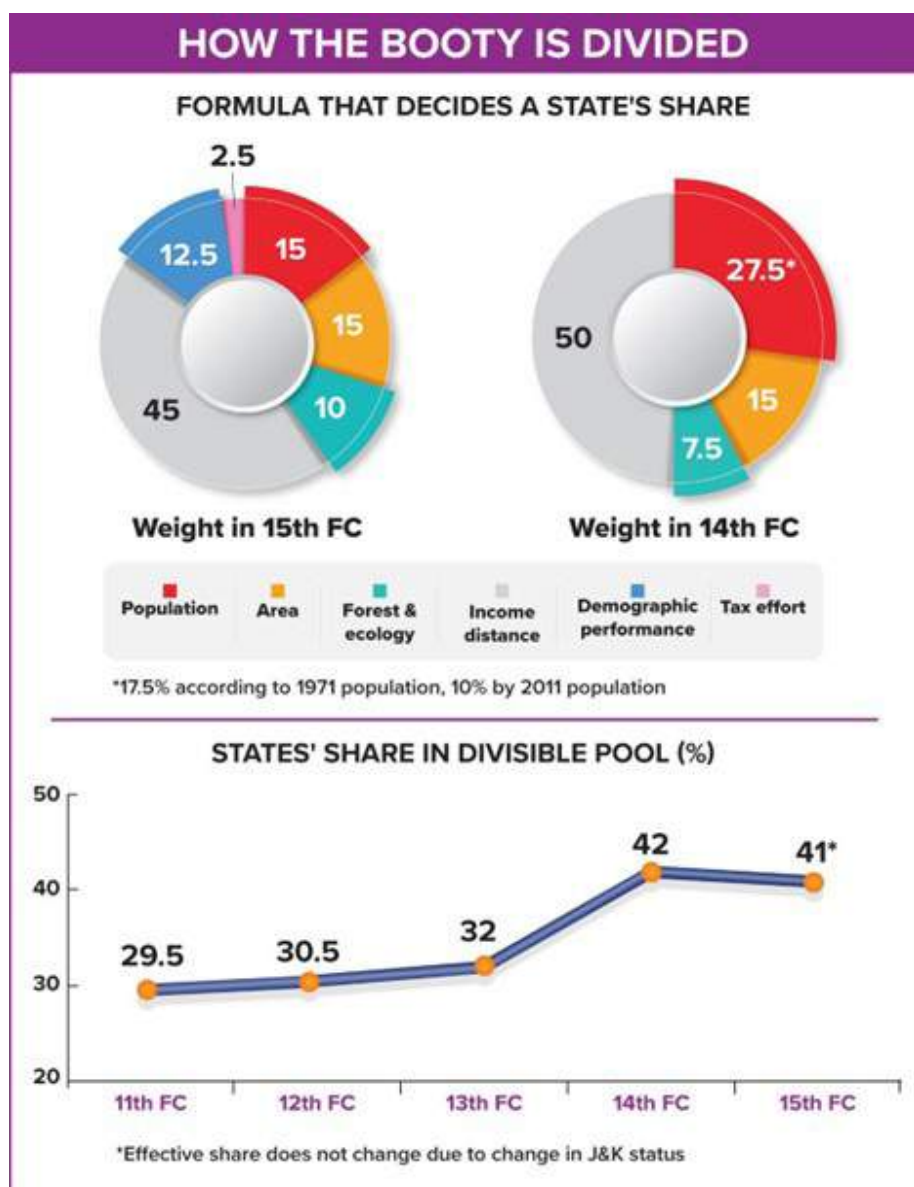
Key Details:

- The Union Finance Ministry transferred two instalments together amounting to ₹1,16,665.75 crore as against the normal monthly devolution of Rs.58,332.86 crore.
- As per a report by the Investment Information and Credit Rating Agency of India (ICRA), the tax devolution by the Union government is likely to increase to ₹9.3 lakh crore exceeding the budget estimate of ₹8.2 lakh crore.
- Uttar Pradesh has got the highest amount followed by Bihar.

Tax devolution in India

- One of the core tasks of a Finance Commission as stipulated in Article 280 (3)(a) of the Constitution is to make recommendations regarding the distribution between the Union and the states of the net proceeds of taxes.

- This is the most important task of any Finance Commission, as the share of states in the net proceeds of Union taxes is the predominant channel of resource transfer from the Centre to states.
- At present, 41% of the tax collected is devolved in 14 installments during a financial year.



Significance of the move:

- The advance release of the tax devolution amount is expected to ease the fiscal pressure on states and increase their capital spending abilities, especially after the end of the compensation mechanism under the Goods and Services Tax (GST) regime.
 - * As per the GST Act, 2017, the states were guaranteed compensation at the compounded rate of 14% from the base year 2015-16 for losses arising due to the implementation of GST, for 5 years since its rollout. This came to an end on June 30, 2022.
- Given that projects and capital spending require a considerable lead time, an early reassessment of the devolution amount being shared with the states will help them to boost their capital spending.
- A large part of tax devolution was paid out to States in the 4th quarter previous year, which ended up reducing State government borrowings for that period.

Case Study of Tamil Nadu and Kerala:

- Tamil Nadu has been able to negate the inflation to great extent due to :
 - * Efficient Public Distribution System.
 - * Welfare schemes like free bus travel for women.
- Tamil Nadu and Kerala also occupy leading positions on several socio-economic indicators like female participation in the labor force and graduate enrolment ratio.
 - * This can be attributed to a proactive stance in launching socio-economic programmes.

- However, in the last few years, there has been substantial erosion in Tamil Nadu's fiscal autonomy.
 - * A developed State of Tamil Nadu gets only 30 paisa in return for every rupee it contributes to the Union in contrast to Uttar Pradesh and Bihar which get ₹2 to ₹3 for every rupee contributed.
- States' fiscal resources are further reduced due to arbitrary increases in cess and surcharge, which are non-divisible with States. The share of cesses and surcharges in the gross tax revenue of the Union government has nearly doubled between 2011-12 and 2020-21.
- Additionally, the increasing reliance of the Union government on indirect taxes such as the GST has directly contributed to price rise and inequality.

Status of indirect taxation in India

- Direct taxes are non-transferable taxes paid by the taxpayer to the government. Whereas the indirect taxes are transferable taxes where the liability to pay can be shifted to others.
 - * Income Tax is an example for direct tax while Goods and Services Tax (GST) is an example for indirect tax.
- The share of indirect taxes in the gross tax revenue in FY2019 increased by up to 50% as compared to 43% in FY2011.
 - * Whereas, in OECD countries indirect taxes on average do not contribute more than 33% of their tax revenue.
- Indirect taxes are regressive as they tax both the rich and the poor equally. The poor get taxed a higher proportion of their income compared to the rich.
- While indirect taxes have increased, direct taxes like corporate tax have been reduced from 35% to 22%, leading to a loss of about ₹2 lakh crore to the exchequer.
- India's increasing reliance on indirect taxes has coincided with rising inequality and lower growth.
 - * According to the World Inequality Report 2022 report, the top 1% of India's richest held 22% of the total national income as of 2021 and the top 10% owned 57% of the income.

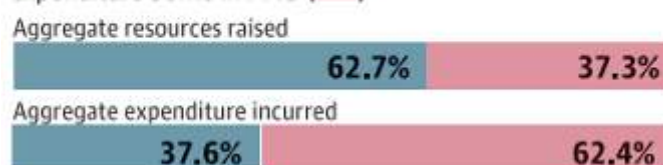
Factors adversely impacting the state's financial health:

- Implementation of the Ujjwal DISCOM Assurance Yojana.
 - * Ujjwal DISCOM Assurance Yojana is the financial turnaround and revival package for electricity distribution companies of India initiated by the Government of India.
- Farm loan waivers implemented by some state governments.
- The slowdown in economic growth in 2019-20 affecting the tax revenue prospects of the states.
- Heightened expenses during the pandemic.

Concerns associated with the current form of fiscal federalism:

- Recently at NITI Aayog's governing council, several Chief Ministers raised concerns about their shrinking resources and sought more funds from the Union through an extension of the GST compensation period and a higher share in the divisible pool of taxes.
- Lower resource raising powers despite larger expenditure responsibility:
 - * The share of the States in the divisible pool remains low despite them having to carry a higher burden of expenditure in terms of development and welfare-related responsibilities.
 - * The Union government has higher taxation powers as compared to the states. According to the 15th Finance Commission's report, the Union government raised 62.7% of the total resources raised by the Union government and States, while States had borne 62.4% of the aggregate expenditure for the 2019 fiscal year.

Chart 1 | The chart shows the Union government's (—) and States' share in total resources raised and total expenditure borne in FY19 (—)

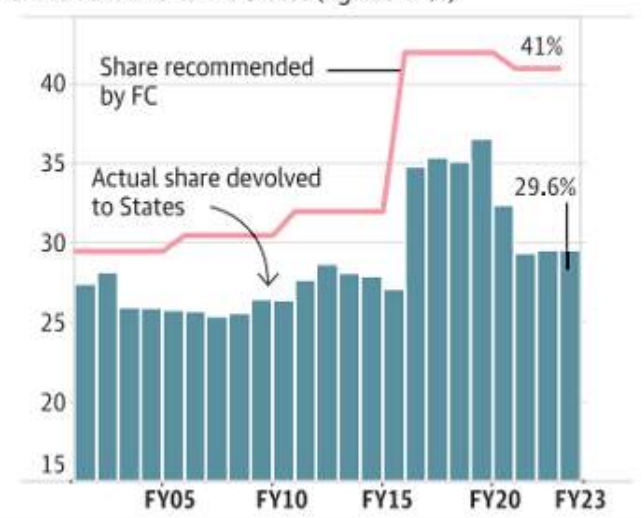


- Failure to ensure mandated devolution to states as per Finance Commission recommendations:
 - * Despite the Finance Commission's recommendations for increasing the States' share in Central taxes, the actual share of states has never reached the mandated level as per Finance Commission recommendations. In fact, the gap between the actual devolution and the level recommended by the Finance Commission has widened to more than 11 percentage points, the highest in at least two decades.
 - * Though successive Finance Commissions have recommended an increase in the divisible pool, the share of the States in the divisible pool has been almost stagnant at around 29% after having reached a peak of 36.6% in FY19.

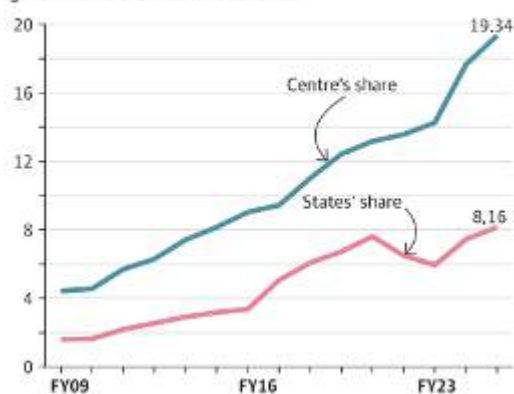
- Increasing use of cesses and surcharges:
 - * In the past few years, the share of cesses and surcharges in gross tax revenue has risen significantly. The Union government has been able to beef up its revenue by levying cesses and surcharges which are not shareable with the States.
 - * This is the reason why States' share of gross tax revenue witnessed a sharp decline in the 2020 and 2021 fiscal years, though the share of the Union government's share continued to rise.
 - * Notably, over the years, a large chunk of the cesses levied have not been transferred to the Reserve Funds for their intended purpose.

Chart 2

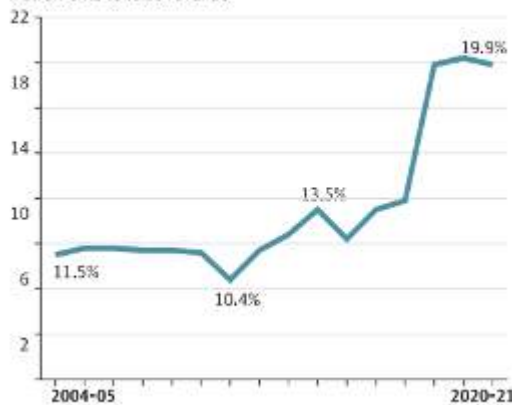
The chart shows the States' share in the divisible pool of taxes mandated by the Finance Commission and the actual share devolved to the States (figures in %)



The chart shows the States' and Union government's share of gross tax revenue in ₹ lakh crore. States' share of Centre's taxes recorded a steep fall in FY20 and FY21. But, the Union government's share continued to rise



The chart shows the share of cesses and surcharges in gross tax revenue. From 10.4% in FY12, their share climbed up to 20% by FY21, suggesting an excessive reliance by the Centre on these instruments to raise revenue



Nut Graf

There is an urgent need for course correction on the part of the Union government to ensure a healthy federal structure. The proactive states should be incentivised with fiscal autonomy, as it is the state that mostly implements schemes and provides basic necessities to the citizens.

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INTERNATIONAL RELATIONS

Bilateral, Regional and Global Groupings and Agreements Involving India and/or affecting India's Interests.

1. Bringing Eurasia Closer

- » Prelims: Important International institutions, agencies and their structure, mandate

Context:

- Recently, two containers from Russia's Astrakhan port reached Nhava Sheva port in Mumbai

International North-South Transport Corridor:

- It is a 7,200-km long multi-modal transport corridor combining road, rail and maritime routes.
- It connects Russia and India via central Asia and Iran.
- Purpose : To consolidate the Eurasian Free Trade Area
- The legal framework of INSTC was established under trilateral agreement between Russia, India and Iran
- Other Countries to sign the instrument of accession: Armenia, Azerbaijan, Belarus, Kazakhstan, Oman, Syria and Tajikistan.

Significance:

- INSTC would reduce the cost of freight by 30% and time of journey by 40% as compared to the conventional deep sea route via the Suez Canal.
- Also untoward incidents like halting maritime traffic in the Suez Canal route (between Mediterranean sea and red sea) can be avoided.

Significance for India:

- Allow accessibility to Afghanistan and central Asia.
- Indian companies will be offered the opportunity to expand their business through a special economic zone around Chabahar.
- Reliance on Pakistan to access Afghanistan, central Asia and beyond will not be required.
- It can counter the BRI (Belt and Road Initiative) of China.

Challenges associated:

- Both Iran and Russia are under western sanctions.
- Quad Summit overshadowed the INSTC by pressing for the need for a free and open Indian ocean region.

Nut Graf

INSTC launch has great potential for India in expanding its trade to Central Asia as well as to counter China's BRI.

Regional and global groupings involving India

2. A new global vision for G20

- » Prelims: G20
- » Mains: India's G20 Presidency, Challenges to India's G20 Presidency and Key recommendations

Context:

- India is slated to take over the G20 Presidency in December 2022.

G20:

- The G20 or Group of Twenty is an intergovernmental forum comprising 19 countries and the European Union.
- The member countries include Argentina, Australia, Brazil, Canada, China, Germany, France, India, Indonesia, Italy, Japan, the Republic of Korea, Mexico, the Russian Federation, Saudi Arabia, South Africa, Turkey, the UK, and the US.

India's G20 Presidency:

- The Group of 20 or **G20** plays a crucial role in building and improving global architecture and governance of key international economic issues.
- G20 acknowledges that global prosperity along with economic opportunities and associated challenges are interdependent.
- As per the Ministry of External Affairs, India during its Presidency will host about 190 meetings and aim to strengthen international support for crucial sectors in developing countries such as energy, agriculture, trade, digital economy, health, environment, employment, tourism, anti-corruption, women empowerment, etc.

Challenges to India's G20 Presidency:

- Existing and well-established multilateral commitments on aid and trade which are important for cooperation between the countries are losing their relevance as international institutions like the United Nations and the World Trade Organization are losing their influence in securing cooperation between countries.
- The shift in the global power balance on account of increasing polarization.
 - * At present, there are three socio-economic systems on the global scale namely the G7, China-Russia, and India and the others.
- The Ukraine war and its adverse repercussions are being felt across the globe in terms of furthering economic instability, and food and energy insecurity.
- The increasing influence of the trade and value chains dominated by the U.S. and China, and the following hesitancy of the developing countries to take sides in this competition is also a key challenge to a multilateral grouping like G20.

Key recommendations for India:

- India must work towards building collaborations on key focus areas such as science and technology by taking forward the resolutions made by the United Nations General Assembly (UNGA) and other international bodies.
 - * Science and technology play a key role in economic diversification and sustainable development which are important for overall human welfare.
- India must undertake measures to bring in a sense of equality and highlight common concerns and challenges which have been recognised in the case of climate change, in other areas as well.
- India should also highlight the success story of the BRICS model of governance to prove that a narrow group of countries that is dominated by one power will not be efficient in shaping the global agenda.
- India should look to build on conventions such as the Vienna Declaration on Human Rights 1993, 2030 Agenda for Sustainable Development and Principles of common but differentiated responsibilities.
- There is a need for fresh thinking on employment and environmental issues worldwide.
- India must look to harness the total potential of digital-information-technology which requires open access and universal service.
- Space is another sector that requires increased attention as it provides key solutions to problems of climate change, natural disasters, and urban and infrastructure planning.
 - * This calls for collaboration and sharing of advanced technologies such as AI and machine learning between the countries.
- Challenges such as antimicrobial resistance and rapid spread of infections on a global scale which was seen in the case of COVID-19 and MonkeyPox must also be discussed.
- The Global Financial Transaction Tax which was proposed by the G20 in 2011 must be revived and needs to be paid to a Green Technology Fund for Least Developed Countries.
- At this time of chaos and instability in the peace and order of the world, India must work proactively to diffuse the ongoing rivalries and conflicts.

Nut Graf

The G20, which accounts for about 85% of global GDP, 75% of global trade and 65% of the global population, must be reoriented to address the current changes in the multilateral global order and India's G20 presidency is an opportunity to reinvigorate, reinvent and re-centre the multilateral order and ensuring that multilateral institutions like G-20 stay intact.

Effect of politics and policies of developed and developing countries on India's interests

3. The controversial visit of a Chinese vessel to Hambantota

- » Prelims: About Hambantota port and Yuan Wang 5 vessel
- » Mains: The conflict between India and China's geostrategic interest in Sri Lanka.

Context:

- Sri Lanka gave its approval for the arrival of the Chinese Yuan Wang 5 vessel to its Hambantota port.

Hambantota port

- Hambantota is the second largest international port in Sri Lanka after the Port of Colombo.
- It is located in the southern part of Sri Lanka and is touted to be one of the most important ports for its strategic location.
- The port was developed by Sri Lanka with the help of loans from China.



Image Source: The Hindu

Yuan Wang 5 Vessel:

- Yuan Wang 5 is a Chinese vessel involved in space and satellite tracking.
- The Yuan Wang 5 was built by Jiangnan Shipyard of China and it was commissioned into service in 2007.
- Yuan Wang-class vessels of China are involved in tracking and supporting satellite and intercontinental ballistic missiles.
- The Yuan Wang 5 is equipped with world-class tracking technology for transoceanic aerospace observation.
- China currently has about seven such tracking ships, which are capable of operating throughout the Pacific, Atlantic, and Indian oceans.

The Chinese vessel's visit to Hambantota Port:

- The Yuan Wang 5 is supposed to enter the Chinese-built Hambantota Port in Southern Sri Lanka.
- Sri Lanka had described Yuan Wang 5 as a scientific research ship and it was supposed to conduct satellite control and research tracking in the northwestern part of the Indian Ocean Region.

India's reaction:

- India had expressed concerns over the scheduled visit of a Chinese satellite vessel and had shared it with the Sri Lankan President.
- The Indian Foreign Minister also discussed this matter with his Sri Lankan counterpart during the recent ASEAN summit in Cambodia.
- India had said that it is carefully monitoring the developments in the Hambantota Port as such visits might have implications on India's security and economic interests.
- In a bilateral meeting in Phnom Penh, the U.S. Secretary of State also discussed the issue with Sri Lanka's Foreign Minister.

Chinese response:

- Amid India's concerns, the Sri Lankan government had said that it would like to defer the visit "until further consultations" were held and this invoked strong reactions from China.
- China urged India to not disturb normal exchanges between the two countries.
- Chinese Foreign Ministry officials have said that:
 - * Sri Lanka is a transportation centre in the Indian Ocean and vessels have entered the ports of the island nation for scientific research from various countries in the past.
 - * Sri Lanka is a sovereign nation and has the right to engage with other nations bilaterally for its development and condemned the "interference" of "third party".
 - * China has always believed in freedom of the high seas in accordance with the law and respects coastal countries' jurisdiction over such scientific research activities.

Sri Lanka's Stand:

- In the wake of India's concerns, the opposition parties in Sri Lanka had urged the government not to aggravate India's strategic concerns.
- Sri Lanka's government had also said that it would like to defer the visit "until further consultations" were held.
- However, the Sri Lanka government gave clearance for the arrival of the Chinese vessel.
- According to reports, Sri Lanka had asked the U.S. and Indian envoys to provide adequate reasons for their objections to the entry of the Chinese vessel to its port and it is said that Sri Lanka was not satisfied with the reasons provided.

Nut Graf

At the time of a severe economic crisis in Sri Lanka which requires urgent economic assistance from countries like India, the US and China, the latest developments have shown that Sri Lanka is in a catch-22 position.

Bilateral Groupings and agreements affecting India's Interest**4. A road map for India-EU ties**

- » Mains: India – EU relations

India – Europe Ties:

- India – EU has completed 60 years of diplomatic relations.
- A cooperation agreement of 1994 took the bilateral relations beyond trade and the economic sphere.
- The first India-EU Summit was conducted in June 2000.
- In the 2004 India-EU Summit, the relationship was upgraded to a 'Strategic Partnership'.
- A Joint Action Plan was adopted in 2005 to strengthen the dialogue and consultation mechanisms in both the economic and political spheres, improve trade and investment, and bring together people and cultures.
- A common road map to guide joint action for the next five years was formulated at the 15th India-EU Summit (2020). It highlights engagement across five domains: trade and economy; foreign policy and security cooperation; sustainable modernization; global governance; and people-to-people ties.

Areas of cooperation between India and the E.U.:

- The total trade among the two exceeded \$116 billion in the year 2021-22.
- EU is the second largest trading partner of India after the U.S.
- Moreover, it is the second largest destination for Indian exports.
- There are approximately 6,000 European ventures in India that directly and indirectly generate 6.7 million jobs.
- Avenues of collaboration between the two:
 - * The 'green strategic partnership' between Denmark and India to address biodiversity loss, pollution, and climate change issues.
 - * The India-Nordic countries deliberated on green technologies and industrial transformation which are important for sustainable and inclusive growth.
 - * Defense cooperation has also increased substantially.
 - * India and the EU also conduct joint naval and military exercises reflecting their commitment to an open, free, inclusive, and rules-based order in the Indo-Pacific region.

- * European defense equipment manufacturers are partnering with Indian companies for supporting the 'Make in India' program.
- * Another emerging area is the start-up and innovation field.
- * Moreover, the Science and Technology Joint Steering Committee focuses on areas like Artificial Intelligence, healthcare, and earth sciences.
- * An agreement for research and development cooperation in the peaceful uses of nuclear energy was signed in 2020 between the Government of India and the European Atomic Energy Community.

Challenges in India – E.U. cooperation:

- India's stand on Russia – Ukraine issues, and its increasing cooperation with Russia, has been an area of disagreement between the two.
- Similarly, India has accused the EU of double standards for the purchase of 45% of its gas from Russia.
- There is also concern with respect to the EU's way of tackling the issue of China and its muted response to the Galwan clash.
- Moreover, it is the second largest destination for Indian exports.
- There are approximately 6,000 European ventures in India that directly and indirectly generate 6.7 million jobs.

Nut Graf

India and the EU should proactively resume the relationship in ambitious India-EU free trade and investment agreement, as it will be beneficial for both sides and ensure greater convergence in the international arena.

Bilateral, regional and global groupings or agreements involving India and/or affecting India's interests.

5. The ocean diversity pact

- » Mains: Exploration and protection of Marine Biodiversity

Context:

- An agreement to protect marine biodiversity in the high seas/oceans that extend beyond countries' territorial waters, is being discussed in New York by delegates from India and other UN members.

Details on the Pact:

- It comes after a resolution by the UN General Assembly on marine biodiversity protection.
- This pact will help conserve biodiversity in areas beyond national jurisdiction (BBNJ) that lie outside countries' 322-kilometre exclusive economic zones.
- It is anticipated to be the last in a series of steps started in 2018 to design an international legally binding instrument under the 1982 United Nations Convention on the Law of the Sea(UNCLOS).
- The rights of companies that conduct high seas biological exploration regarding their discoveries, resources they extract and profit-sharing provisions are being decided under the agreement.
- They also include provisions regarding royalties and intellectual property shared with UNCLOS.

High Seas Mining:

- Nearly 45% of the surface of the Earth is covered by the high seas.
- Gas hydrates, precious metals, and other fossil fuel resources have been mined in the ocean.
- Numerous businesses see possibilities in unusual bacteria and other species that live in the deep ocean and could be exploited for medications and vaccines thanks to advancements in biotechnology and genetic engineering.

'Blue Economy' policy of India:

- It is a policy with a budget of rupees 4000 crores spread over five years. The primary emphasis will be on studies on the sustainable exploitation of deep sea bio-resources.
- This will, among other things, work on "bio-prospecting of deep-sea flora and fauna including microbes" and create a manned submersible vehicle.

Nut Graf

Universal and sustainable pact on protection and exploration is crucial when international firms are engaged in a "race" for marine biological resources. This should be in line with the development and climate goals of the countries.

Effect of Policies & Politics of Developed & Developing Countries on India's Interests

6. India's policy on the Rohingya

- » Mains: India's refugee policy

Context:

- Recently, the Union Housing Ministry and the Union Home Ministry gave contradicting statements regarding basic amenities such as housing and protection to Rohingya refugees.

Introduction:

- The Union Housing Minister recently tweeted that Rohingya refugees would be shifted to flats meant for economically weaker sections (EWS), and provided with basic amenities and police protection in spirit of UN Refugee Convention 1951 which provides refuge to all, regardless of their race, religion or creed.
- The Ministry of Home Affairs issued a clarification saying that no such direction had been given to provide EWS flats to "Rohingya illegal foreigners".

Where do the Rohingya refugees in India live at present?

- The Rohingya live in huts in the densely populated areas in Delhi which are contiguous with Uttar Pradesh.
- Around 1,200 Rohingya have been identified and provided with refugee cards in India.
- As the Delhi government was spending ₹7 lakh per month for the tents, water and electricity, it was decided in June 2022, to shift all Rohingya families to EWS flats which were to be designated as a detention center and would be put under constant police watch.

How is the Delhi government involved?

- The Foreigners Regional Registration Office (FRRO) under the administrative control of the Ministry of Home Affairs is responsible for tracking foreigners and their visas.
- FRRO is constrained to restrict the movement of illegal foreigners and immigrants due to acute paucity of space.
- In June 2021, the New Delhi Municipal Council was requested to allot a Baraat Ghar along with EWS flats to accommodate the foreign inmates with "basic minimum housing facilities."
- In July 2022, in order to find a "medium to long-term" residential solution for Rohingya refugee families, Delhi administration decided to shift all Rohingya families to EWS flats.
- Since Delhi is a Union Territory, law and order is under the Union government, in this case, the Home Affairs Ministry.

Who are Rohingyas?

- The Rohingya people are a Muslim minority group residing in the Rakhine state (in the south western Myanmar), formerly known as Arakan and are considered to be a variation of the Sunni religion. They speak Bengali dialect.
- Myanmar has classified them as "resident foreigners" or "associate citizens." They were forced to leave Myanmar in large numbers after several waves of violence, which first began in 2012.
- The Myanmar army revived the attacks in 2017 and lakhs took shelter in Bangladesh. Around five lakh Rohingya fled to Saudi Arabia in 2012. According to the July 29 minutes of the meeting, the Rohingya first came to Delhi in 2012.
- As per Home ministry data in december 2017 there are around 40,000 Rohingya in India, of which around 5,700 are in Jammu and also in Telangana, Punjab, Haryana, Uttar Pradesh, Delhi and Rajasthan. Of these, only 16,000 are said to be registered with the UN refugee agency.

Concern to Security:

- The Indian government has serious apprehensions on Rohingya refugees as intelligence data has shown links between some Rohingya Muslims and Pakistan-based terror groups and other international terror organizations which can be serious threat to national security.
- And there is a serious possibility of eruption of violence against Buddhists in India by radicalized Rohingya.

Process of deportation in India:

- Illegal immigrants are detected, detained and deported under provisions of the Foreigners Act, 1946 or Passport Act, 1920.
- The powers to identify and deport them have also been delegated to State governments and Union Territories.
- Apprehended 'foreigner' will be produced before the local court. If found guilty, they can be imprisoned for 03 months to 08 years. After completing their sentence, the court orders deportation.
- The foreign inmates are moved to detention centers till the country of origin verifies and accepts them. There are no separate rules for deportation of the Rohingya.

India's stand on refugees:

- Currently there is no national law on refugees in India. Only standard operating procedures that are issued by the Union Home Affairs ministry.
- India is not a signatory to the 1951 UN Convention relating to the Status of Refugees and the 1967 Protocol.
- All undocumented foreign nationals are governed as per the provisions of The Registration of Foreigners Act, 1939, The Foreigners Act, 1946, and The Passport (Entry into India) Act, 1920.
- Any foreign nationals who enter into the country without valid travel documents are treated as illegal immigrants.
- In some instances, such as in the case of Pakistani Hindus who live in camps in Delhi, Rajasthan, Gujarat, Chhattisgarh, Punjab, and Tibetans and Tamils from Sri Lanka, relief assistance is provided by the Center that includes monthly cash assistance, clothing materials, subsidized ration, utensils, grants for cremation and last rites and infrastructure facilities in camps.
- As on December 31, 2014, the number of stateless persons in India was 2,89,394 which included over 10,000 Bangladeshis and 10,000 Sri Lankans.
- Despite not being a signatory of the UN Refugee Convention, India has practised a humane approach while handling refugees from Tibet, Sri Lanka, Afghanistan, Bhutan and Myanmar.
- However, critics feel that the Rohingya refugees have been handled differently due to various political and security reasons.

Nut Graf

So far, the Indian approach towards the Rohingya crisis has been viewed as contradicting its traditional position on refugees. India is focusing on finding long-term solutions to the issue as these actions will be key in determining India's regional and global standing.

Effect of politics and policies of developed and developing countries on India's interests, Indian diaspora**7. Executions in Myanmar**

- » Mains: Developments in Myanmar post the military coup and important recommendations for India.

Context:

- Recently a kangaroo court in Myanmar sentenced Aung San Suu Kyi to six additional years of imprisonment over the existing 11 years.

Background:

- Ever since the military coup in Myanmar in 2021, the Tatmadaw (Myanmar military) that seized power has been employing stringent measures to quell the opposition.
- The execution of democracy activists, the confinement of Suu Kyi, the prolonged detention of Australian economist Sean Turnell, and the use of heavy weaponry against the opposition groups reflect the harsh measures used by the Tatmadaw.

Increased chaos in the country:

- A parallel government called the National Unity Government (NUG) has been established by the elected members of legislatures. NUG also has an armed division called the People's Defence Force (PDF), which is supported and trained by several armed ethnic groups fighting against the military regime.
- Ethnic-based armed organisations (EAOs) have been involved in a long-standing conflict with the military, and the ceasefire negotiations have been stopped post the coup.
 - * Several EAOs have increased their operations against the military regime since the coup and a major portion of Myanmar is not under Tatmadaw's control.
- Tatmadaw has allegedly mobilised its military troops to curtail the uprising. However, despite limited resources, the EAOs and PDFs have been showing resilience in tackling the military operations of the regime.
- All these prove that there is an increased activity among the opposition groups.

Support from China:

- As various countries including the members of ASEAN have imposed sanctions on the Tatmadaw regime and are looking to employ more stringent measures, the regime is confident about its survival because of the support from China.
- China is said to be interested in enhancing its economic engagements with Myanmar.
- Post the military coup, the Chinese Foreign Minister received Myanmar's foreign minister in China and later the Chinese Foreign Minister visited Myanmar which reflects Chinese intentions.

Recommendations for India:

- Experts recommend a three-pronged strategy for India that involves:
 - * Gaining international support from like-minded countries such as ASEAN countries.
 - * Urging the military regime in Myanmar to initiate a much-needed reconciliation process.
 - * Strengthening the resources in Northeast India to provide humanitarian assistance to the affected people across the border.

Nut Graf

The political crisis and instability in India's neighbourhood will have severe spillover consequences for India and it is important for India to initiate efforts to establish stability and democratic polity in Myanmar.

Effect of policies and politics of developed and developing countries on India's interests**8. Reinvigorating the Chabahar port**

- » Prelims: About Chabahar port
- » Mains: Geostrategic significance of Chabahar port, India's strategic vision for Chabahar port and the reasons for the delay in its development

Context:

- The visit of the Union Minister for Ports, Shipping and Waterways of India to Chabahar port.

Details:

- After months of slow progress, India now looks to scale up its efforts in developing Iran's Chabahar port which helps in providing crucial connectivity to Afghanistan and Central Asia for trade and other purposes.
- Chabahar is also an important gateway for India to trade with several Europe countries, Russia and Commonwealth of Independent States (CIS) countries.
- Experts feel that the visit of the Union Minister will provide an opportunity to strengthen ties and the maritime relationship between India and Iran.
- The Union Minister reviewed the progress of developmental works and handed over six mobile harbour cranes to improve the efficiency of the works.



Image Source: India Today

India's strategic vision for Chabahar port:

- The first agreement for Chabahar was signed by India in 2003 by former Prime Minister Atal Bihari Vajpayee. The key objectives of the plan included:
 - * Developing India's first offshore port and showcasing India's infrastructure prowess in the Gulf region.
 - * To develop a trade route that bypasses Pakistan and also develop a sustainable sea trade route.
 - * To create an alternative to the existing land route to Afghanistan via Pakistan as India was looking to rebuild ties after the defeat of the Taliban in 2001.
- Later, during the leadership of Prime Minister Manmohan Singh, India built the Zaranj-Delaram Highway in the south of Afghanistan and handed it over to the Afghan government in 2009. This helped to connect the trade route from the border of Iran to the main trade routes to Herat and Kabul.
- In 2016, Prime Minister Narendra Modi visited Tehran (Capital of Iran) and signed the agreement to develop Chabahar port along with the signing of the Trilateral Agreement for trade through Chabahar with Afghanistan.
- In recent years, with China's Belt and Road Initiative making huge progress in the region, the development of the Chabahar route has become another strategic objective for India as India aims to provide the Central Asian region with an alternate route to the China-Pakistan Economic Corridor (CPEC) through Iran (Chabahar) for future trade.
- Further, India's vision to develop the Shahid Beheshti port (Chabahar) as "a transit hub" and link it to the existing International North-South Trade Corridor (INSTC), will help establish smoothened connectivity to Russia and Europe.

Reasons for the delay in the development of Chabahar port:

- There have been constant hurdles in the development of the Shahid Beheshti terminal.
- One of the key challenges to the development of the port has been the strained relationship between Iran with the US and other western countries.
 - * The progress of the developmental works in the Chabahar port has been slow amidst increased sanctions against Iran from the west.
- In 2018, when the U.S. administration walked out of the Joint Comprehensive Plan of Action (JCPOA) and imposed a fresh set of sanctions against Iran, there was increased pressure on India and the Indian government stopped its oil imports from Iran which was a major supplier to India till then. This resulted in the weakening of the ties with Iran.
- Despite the U.S. making special exemptions on sanctions for Chabahar, it has been practically difficult to source resources for the development of the port as many infrastructure, shipping and insurance companies are still worried about secondary sanctions.
- Further, India's hesitance in engaging with the Taliban regime in Afghanistan has also impeded the developmental works at Chabahar port.

Nut Graf

The development of Chabahar port would result in an overall increase in trade and shipment volume to key markets in Europe and Central Asia along with easing the existing connectivity routes to Russia and Afghanistan. In this context, India has to rev up its efforts to develop the Chabahar port at the earliest.

Regional and Global Grouping**9. Russia-China Cooperation in Arctic**

- » Mains: Changing world order and foreign policy approach

Context:

- NATO Secretary General recently expressed his concerns over Russia's military buildup and China's increasing interest in the Arctic region.

The Competing Strategic Visions of Russia and China in the Arctic:

- Thawing of the Arctic has increased its geopolitical prominence and potential economic viability.
- Russia and China have emerged as major players in the future of the region. Their partnership on Arctic affairs, both formally and informally, suggest a tidal shift is on the horizon, which does not necessarily include the United States.
- Russia is advocating for the development of the Northern Sea Route along its Siberian coast as an alternative to southern routes through the Suez Canal and investing in the construction of the only icebreakers capable of operating in the Arctic Ocean.

- Earlier in 2022, both countries agreed to consistently intensifying practical cooperation for the sustainable development of the Arctic.
- China's 'Belt and Road Initiative' also involves the Arctic, where China wants to develop 'Polar Silk Road' through developing shipping lanes opened up by global warming.
- Russia has the world's largest fleet of major icebreakers. China also recently introduced its new icebreaker, Xuelong 2 to assist with the MOSAiC expedition.

NATO's concerns:

- The shortest path to North America for Russian missiles and bombers is over the North Pole.
- Russia has set up a new Arctic Command and has opened hundreds of new and former Soviet-era Arctic military sites, including airfields and deep-water ports.
- Russia is building up its military with new bases, new weapons systems and also using the Arctic to test their most advanced weapons, including hypersonic missiles.
- China has also declared itself a "near Arctic" state.
- China is also planning to build the world's largest icebreaker and is investing in energy, infrastructure and research projects in the Arctic to explore mineral resources and new shipping routes as ice caps recede with rising temperatures.

Conclusion:

- The Arctic region is strategically important for Euro-Atlantic security. With Finland and Sweden joining, seven of eight Arctic states will be NATO members. Therefore NATO is planning to respond to Russia and China with an increased presence in the Arctic and investment in new capabilities.

Nut Graf:

Increased presence and practical cooperation of Russia and China in the Arctic is posing a challenge to NATO's values and interests. Climate change is making the Arctic more accessible for militaries and changed the way countries look at the Arctic.

India and Neighbourhood relations

10. The many ways of helping Sri Lanka

- » Mains: India- Sri Lanka relations

Context:

- Sri Lanka's economic crisis.

Details:

- The civilians and the government authorities of Sri Lanka are tremendously appreciative of India's response to the economic crisis of the island nation.
- India has provided assistance of nearly \$4 billion to Sri Lanka.
- However, India's engagement with Sri Lanka should not be restricted to liberal loans and should cover more dimensions.

Areas of engagement for the future:

- India can share technical expertise/knowledge, and help the country in upgrading skills in various areas of economic activity.
- Agriculture and allied activities: It is an area where India can make a significant difference.
 - * For example, Sri Lanka imports dairy products worth \$315 million annually.
 - » The country's self-sufficiency in the dairy sector would not only have saved precious foreign exchange but also would have reduced the despondency of the citizens during the peak of the economic crisis.
 - » Moreover, Sri Lanka's climatic conditions, with an average annual rainfall of nearly 185 cm show its enormous potential in the dairy sector, which is still untapped.
 - * Similarly, the poultry sector deserves special focus as it is unable to come to terms with rising input costs and faces shortages of veterinary medicines.
 - » The domestic production of maize, which is the most common primary ingredient of poultry feed, is still low in production.
 - » India through its agricultural universities can share its knowledge to help increase production as well as productivity.

- * Agricultural machinery is another area where India can provide help to Sri Lanka.
- Energy: India's participation in energy projects will be desirable, considering how the problem unfolded in this sector on the island. But participation in this sector is equally dependent on Sri Lanka's political leadership's response.
- MSME sector: India can provide technological leverage to the MSME sector of Sri Lanka. As it has not achieved its potential as per the annual report of the Central Bank of Sri Lanka, 2021, India can provide help through 'Digital MSME' and 'RAMP' (Raising and Accelerating MSME Performance) programmes.
- School education: This is another area where India's presence can help a lot.
 - * India can provide help in establishing modern computer labs and smart classrooms, especially in Tamil-dominant regions.
 - * Indian universities can consider establishing satellite campuses in the neighbouring country.
 - * Moreover, a collaborative programme can be taken up for training employees of the public sector entities.
- Cultural Front: India can provide help in this aspect by allowing more Buddhist monks to visit religious places in Sri Lanka.
- India should give special assistance to the Northern and Eastern Provinces as these areas are inhabited by the Tamil and Muslim ethnic minorities, and are badly hit.

Nut Graf

There is much greater scope for India to engage with its southern neighbour in a constructive way. A politically and economically stable neighbour will be in India's interest too, as Sri Lanka is known for performing much better than other neighbouring countries of India.

Effect of policies and politics of developed and developing countries

11. China and Taiwan issue

» Mains: China-Taiwan conflict and important lessons for India

Context

China is conducting large scale military drills around Taiwan.

Details



Image Source: The Japan Times

- Following the visit of United States House Speaker Nancy Pelosi to the Island nation, China is undertaking one of its biggest ever exercises in waters off Taiwan that will effectively close down Taiwan's airspace and waters for about four days.
- China feels that Pelosi's visit distorted the peace and order in the Taiwan Strait, strained US-Chinese relations and violated China's sovereignty and territorial integrity.
- China claims Taiwan as its territory and opposes any engagement by Taiwan with foreign governments or officials.

China's retaliation to the US House Speaker's visit to Taiwan

- China is expected to launch a series of military operations and exercises around Taiwan, in retaliation to the visit by the US House Speaker.
 - * China will begin large-scale exercises in six areas in the waters and airspace to the north, east, southwest and southeast around Taiwan.
- Earlier, the Chinese Air Force flew a contingent of 21 warplanes which included fighter jets, toward Taiwan.
- China has also undertaken a few punitive economic measures on Taiwan which include an import ban on agricultural products such as fish and fruits.
 - * However, experts feel that these economic measures are quite small because of China's current domestic economic challenges and its dependence on Taiwan for semiconductor chips.
- Additionally, China has announced a ban on the export of sand to Taiwan which is an important material in the semiconductor industry for manufacturing chips.
- As China continues to conduct military drills in six areas around Taiwan, China is also looking to sanction the U.S. House Speaker for her visit to Taiwan and suspend eight key dialogue mechanisms with the U.S. The cancelled dialogues include:
 - * Theatre Commanders Meet
 - * Defence Policy Coordination Talks
 - * Talks under the Military Maritime Consultative Agreement (MMCA)
- China is also expected to suspend bilateral talks on climate change, and pause cooperation on the repatriation of illegal immigrants, legal assistance in criminal matters, transnational crimes, and counternarcotics.
- Further, the military exercises have shut down the waters and airspace in areas around Taiwan which have caused severe disruptions in shipping and operation of flights.

Taiwan's response

- Taiwan has said that Chinese acts of sealing off Taiwan by air and sea, severely violate Taiwan's territorial sovereignty.
- Taiwan also condemned China's actions as "irresponsible, illegitimate behaviour" for conducting drills on one of the busiest international waterways and aviation routes.
- The Taiwanese President said the island country would surrender to the Chinese aggression.
- The President further said that Taiwan will not back down and continue to hold the line of defence for democracy.
- Taiwan also thanked the US for undertaking concrete actions for supporting Taiwan at a critical moment.

Lessons for India from the Taiwan standoff

- Resilience of Taiwan – India has to deeply observe how Taiwan, which is a small island with just 2.3 crore population, is standing up and defending itself against one of the strongest military and economic powers in the world.
 - * India being a more powerful nation with nuclear capabilities and a significant number of military personnel continues to be hesitant about Chinese territorial misadventures.
- Stressing the threshold levels and sovereign positions in a clear cut manner – India must unambiguously emphasize the threats from China as a lack of such clarity will be used by China to push India's limits.
 - * Due to various domestic political challenges, there is a lack of clarity about the standoff that took place in the Line of Actual Control (LAC) in 2020 and the events that followed the incident.
 - * This lack of national position or narrative has given a psychological advantage to China.
 - * Further, an unambiguous narrative will help India gain support from its friendly countries and other international communities.
- Appeasement is a bad strategy – Taiwan by facilitating the visit of the US Speaker to the country has shown that appeasement is not the way to counter Chinese aggression.
 - * With China being a revisionist power that is challenging the existing global power balance, appeasement tactics might work only in the short term.
 - * India must make note of this as India is continuing to host Chinese military leaders despite them violating territorial norms. China can view this as India's acquiescence despite provocations.

- * Also, India must restart having diplomatic ties with Taiwan and Tibet which India had halted respecting China's political reservations.
- * Further, experts say that India was also about to abandon joining the Quad for appeasing China.
- Increasing economic and trading relations does not help India – It is said that growing trade between India and China can help address the growing tensions between them. However, it is to be acknowledged that the trade deficit is in China's favour.
 - * The latest standoff in Taiwan has shown India that trade can continue despite tensions and without India compromising on its territorial sovereignty.
 - * China is the largest trading partner of Taiwan and accounted for over \$2.5 billion worth investments from 2009 to 2021 in Taiwan. Despite such huge dependence, Taiwan has not surrendered to Chinese aggression.
 - * India being a bigger economy and a military power must not worry about the economic relationship with China while dealing with Chinese aggression.

Path ahead

- Despite escalating tensions between China and the US, the US is expected to continue its operations in the seas and skies of the Western Pacific.
- International relations experts feel that neither side wants, nor can afford, a full-fledged military confrontation that will eventually diffuse the current tensions.

Nut graf:

The visit of US House Speaker to Taiwan has triggered a crisis near Taiwan Strait, with China convening a large-scale military action near Taiwan which according to China is protecting its sovereignty and integrity. This latest standoff has important lessons for India about how to deal with the challenges posed by a belligerent China.

Optional Subject Coaching

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ART AND CULTURE

Salient aspects of Architecture from ancient to modern time

1. Lingaraj temple

Context:

- Devotees were seen queuing up inside the Lingaraj temple to offer holy water.

Lingaraj temple



Image Source: Odisha Tourism

- Lingaraj Temple is one of the oldest temples dedicated to lord Shiva in Bhubaneswar, Odisha.
- The construction of the temple was started by King Jajati Keshari in the 10th century AD and completed by King Lalatendu Keshari in the 11th century.
- The central tower of the temple is about 180 ft tall, making it the largest in Bhubaneswar.
- The temple is a classic example of the Kalinga School of Temple Architecture.
- The temple can be divided into four main halls, which include:
 - * Garbha Griha (sanctum sanctorum)
 - * Yajana Mandapa (prayer hall)
 - * Natya Mandapa (music hall)
 - * Bhoga Mandapa (place for offerings)

The temple is built in the Deula style, has a square plan and is built of sandstone and laterite.

Lingaraj is referred to as 'Swayambhu' which means self-originated Shivling.

The Bindusagar Lake is located in the temple complex.

Salient aspects of Architecture from ancient to modern time

2. Qutub Minar

- » Prelims: Medieval and Indo-Islamic Architecture

Context

- Recently, the Archaeological Survey of India (ASI) opposed the intervention application filed by a person seeking legal rights over the land where the Qutub Minar complex and the Quwwat-ul-Islam mosque are situated.

Qutub Minar:

- It is the second-tallest historical monument in India. It is a 73-meter tall tower with 379 staircases and a five-storey building.
- It was built as a Victory Tower, to celebrate the victory of Muhammad Ghori over the Rajput king, Prithviraj Chauhan, in 1192 AD, by his then viceroy, Qutb-ud-din Aibak, later the first Sultan of Mamluk dynasty.

- It is a UNESCO World Heritage Site.
- It is made in a unique architectural style using red sandstones and marble.
- The construction of Qutub Minar was started by Qutab-ud-din Aibak of the Slave dynasty in 1192 A.D and completed by his son-in-law in 1200. A.D
- It was named after a Sufi saint Khwaja Qutb-ud-din Bakhtiyar Kaki.

Art forms

3. Yakshagana

- » Prelims: Folk dance forms

Context

- The all-night Yakshagana performances by more than a century-old theatre troupe 'Kateel Durgaparameshwari Prasadita Yakshagana Mandali' will be changed to a short duration format in the background of the recent Karnataka government circular which has banned the use of loudspeakers during night time.

Yakshagana:

- Yakshagana is a traditional theatre form popular in Coastal Karnataka districts.
- It is a temple art form that depicts mythological stories and Puranas.
- It is performed with massive headgears, elaborate facial make-up and vibrant costumes and ornaments.
- It is performed with percussion instruments.

IAS टेबलेट कार्यक्रम

सर्वोत्तम व्याख्यान की कहीं भी और कभी भी उपलब्धता



500 से अधिक घंटों का प्रारंभिक और मुख्य परीक्षा के पाठ्यक्रम को आवृत करता हुआ व्याख्यान



हमारे मार्गदर्शकों द्वारा प्रत्येक छाल हेतु मार्गदर्शन और व्यक्तिगत प्रतिपुष्टि



मानक पुस्तकों सहित समग्र और अद्यतन अध्ययन सामग्री



पुनरीक्षण नोट्स के साथ चर्चित मुद्दों पर सप्ताह में दो बार साह्य वेबिनार व्याख्यान



साप्ताहिक वेबिनार, चर्चित मुद्दे, सम्सामयिकी पत्र /पत्रिका और प्रैक्टिस सेट का छाल पोर्टल उपलब्ध

SCIENCE AND TECHNOLOGY

Indigenization of technology and developing new technology.

1. The technology powering hybrid electric vehicles

- » Mains: Adoption of EV's in Indian Auto Market

Context

- In recent months, several automakers have launched hybrid electric vehicles in India, offering consumers more choices in the electric vehicle market.

FAME Scheme:

- The Faster Adoption and Manufacturing of Electric Vehicles (FAME) scheme was launched in April 2015 under the National Electric Mobility Mission, to encourage electric and hybrid vehicle purchase by providing financial support. Its first phase ran for four years until 2019.
- Government has approved Phase-II of FAME Scheme with an outlay of Rs. 10,000 Crore for a period of 3 years commencing from 1st April 2019. Out of total budgetary support, about 86 percent of fund has been allocated for Demand Incentive so as to create demand for xEVs in the country. This phase aims to generate demand by way of supporting 7000 e-Buses, 5 lakh e-3 Wheelers, 55000 e-4 Wheeler Passenger Cars (including Strong Hybrid) and 10 lakh e-2 Wheelers.

What is a hybrid electric vehicle?

- A hybrid electric vehicle (HEV) uses electric motors along with an Internal Combustion Engine (ICE-Petrol/Diesel Engine) to run.
- It is powered by the electric motor alone, which uses energy stored in batteries, by the ICE, or both.
- Major Components of HEV:
 - * A low-voltage auxiliary battery.
 - * A traction battery pack to store electricity.
 - * An electric generator.
 - * An AC/DC converter.
 - * An ICE

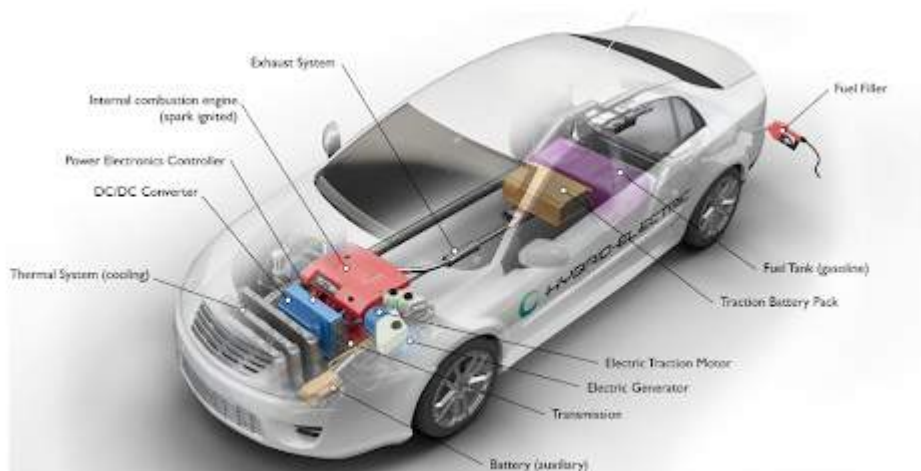


Image Source: afdc.energy.gov

Working of HEV powertrains?

- HEV powertrains are designed to power cars in 03 methods. They are,
 - * Parallel
 - * Series
 - * Series-parallel (power split).

- A parallel HEV uses the best power source to power the vehicle based on the driving condition. It will alternate between the electric motor and the ICE to power the car.
- A series HEV uses only the electric motor to drive the wheels, while the ICE powers the generator, which in turn recharges the battery.
- A series-parallel HEV delivers a combination of both models and allows to split power. Here, power is routed from the ICE alone or from the battery to the electric motor to run the vehicle.

Moreover, in all three designs, the battery is charged through Regenerative Braking Technology/System(RBS)

How does regenerative braking work?

- Energy recovery happens in multiple ways based on the type of RBS.
 1. A kinetic system can retrieve the energy lost during braking and then use this energy to recharge the battery.

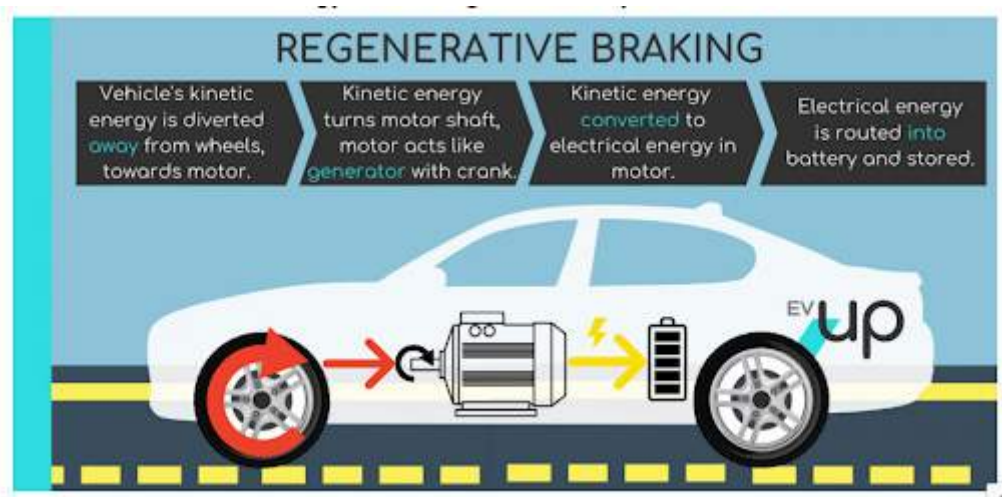


Image Source: evup.com

- An electric system generates electricity through a motor during sudden braking.
 - * A hydraulic system uses pressurized tanks to store the vehicle's kinetic energy and can offer a high energy recovery rate which is ideal for heavy vehicles.
 - * The amount of recoverable energy is decided by factors like stopping pattern and vehicle speed.
 - » The ability to recover as much energy as possible while braking determines the efficiency of HEVs as higher energy recovery results in lower fuel consumption
 - » Advantages of RBS:

Advantages of RBS:

- Better braking efficiency in stop-and-go traffic enhances fuel economy.
- Operating efficiency of vehicles will be enhanced through reduced fuel consumption and the extended range of batteries.
- RBS also helps in energy optimisation resulting in minimum energy wastage and reduced carbon emissions.
- RBS technology is also used in electric railways.
 - * Frequent acceleration and braking of trains across many stations increases the potential for braking energy recovery enhancing energy efficiency.

Types of HEVs:

- Based on degree of hybridisation, the HEVs are categorized into micro, mild and full hybrid vehicles.
- A full HEV will have a more powerful electric motor with a larger battery compared to other types.
 - * Therefore, it can power the vehicle for longer distances using just electric mode.
- A mild HEV use battery at traffic lights to support ICE as they cannot drive using only the electric motor.
- Micro hybrids do not offer electric torque assistance as they lack an electric motor, but they have an idle stop-start system and energy management functions.

- Plug-in hybrid electric vehicles (PHEVs):
 - * These can be charged using a wall outlet, as they have an onboard charging port.
 - * They generally use the electric motor until the battery is almost drained, and then automatically switch to the ICE.
 - * Out of 1.95 million global shipments in 2022, 23% are PHEVs.

Advantages of using hybrid technology:

- Better fuel efficiency
- More power- High Torque at low speeds
- Minimum emissions.

Challenges:

- High vehicle cost, especially in a price sensitive market like India.
- Battery and the RBS adds to the higher cost of an HEV.
- The batteries in hybrids contain a high voltage, which can increase the risk of electrocution in the event of an accident.

Conclusion:

- Increase in the adoption of clean mobility solutions, rise in fossil fuel prices, and strict government rules for emission control is boosting the growth of the global EV market.
- HEVs will play a crucial role creating a local EV parts manufacturing ecosystem while simultaneously safeguarding the vast existing infrastructure and employment related to ICE manufacturing thus ensuring a faster and disruption-free technology transition.

Nut Graf

The automotive industry is transitioning, with an increasing focus on hybrid and battery electric vehicles. New hybrid electric vehicles and their advantages over conventional internal combustion engine (ICE)-powered vehicles are helping in the transition from ICE market to EV's in India.

Awareness In the fields of Space

2. How the maiden flight of ISRO's SSLV went awry

- » Prelims: About Small Satellite Launch Vehicle (SSLV), elliptical orbit and circular orbit
- » Mains: Purpose of the SSLV-D1/EOS-2 mission and the reason for its failure

Context:

- ISRO's first developmental flight of the SSLV-D1/EOS-2 mission.

Background:

- Recently, the launch of ISRO's first development flight of SSLV-D1/EOS-2 took place from Sriharikota.
- The Small Satellite Launch Vehicle (SSLV) D1/EOS-2 mission was aimed towards placing two satellites namely the Earth Observation Satellite-2 (EOS-2) (135 kgs) and AzadiSAT (8 kgs) in a circular low-Earth orbit at a height of about 350 km above the Equator.
- The initial part of the mission was successful as the launch vehicle operated smoothly. However, the mission failed to place the satellites in their required orbits as the satellites were detached early from the launch vehicle and were lost.

Small Satellite Launch Vehicle (SSLV)

- ISRO has developed a small satellite launch vehicle (SSLV) to cater the launch of up to 500 kg satellites to Low Earth Orbits (LEO).
- SSLV is configured with three solid stages.
- It takes only about 72 hours to integrate SSLV, unlike at least 70 days taken now for other launch vehicles.
- SSLV requires only six people to integrate it instead of 60 people or other launch vehicles.
- The development of SSLV will only cost about Rs 30 crores.

To know more about – SSLV and its advantages

Purpose of the SSLV-D1/EOS-2 mission:

- EOS-2 satellite – It was developed by ISRO.
 - * If placed in the required orbit it would have performed advanced optical remote sensing operations.
 - * It was intended to operate in the infrared region and could have served many purposes such as imaging, climate studies, and monitoring Earth.
- AzadiSAT – It was a collection of 75 small payloads that weighed around 50 grams each, and were integrated by students.
 - * It included tiny experiments which helped in measuring the ionising radiation in its orbit and were also equipped with a transponder working in the ham radio frequency to enable amateur operators to access it.

Progress of the mission:

- The SSLV is a three stage launcher powered by solid fuels and these three stages performed their function as planned.
- However, during the stage at which satellites are placed in orbit, there was a glitch that resulted in the satellites being lost forever.
- Later, ISRO said that the malfunctioning of a sensor resulted in placing the satellites in an elliptical orbit, rather than the intended circular orbit.
- As the closest distance to the Earth is only 76 km in the elliptical orbit, there would be an atmospheric drag on the object which requires adequate thrust to counter the drag.
 - * If not, the object will lose height and fall towards the Earth because of gravity and will eventually burn as a result of friction.
- Latest rocket technologies include the development of sensors that indicate that the course of the rocket is deviating from its intended path
 - * Post which a course correction process can be initiated that helps in restoring the trajectory of the rocket.
 - * There are also backup sensors that will perform this function if main sensors fail.
 - * With respect to the recent incident, the official announcements said that there was “failure of a logic to identify a sensor failure and go for a salvage action that caused the deviation.”

Difference between circular and elliptical orbits:

- The elliptical orbit is in the shape of an oval or an ellipse is elongated in one direction and compressed in another which are called major and minor axes.
- Most of the objects placed in the elliptical orbit are temporary. They are usually pushed into the circular orbit or further accelerated to change their trajectory into hyperbola which helps the object escape Earth’s gravitational force.
- Satellites orbiting the Earth are usually placed in circular orbits as remote sensing satellites used for Earth imaging require fixed distances from the Earth and if the distance changes it is difficult to keep the cameras focused.

Nut Graf

SSLVs are expected to play a crucial role in further space missions from India as it is less expensive and easier to handle as it is powered by all stage solid fuels as compared to other launch vehicles.

Science and technology developments and their effects.**3. High points in science, technology and innovation**

- » Mains: Council of Scientific and Industrial Research (CSIR).

Reasons for investing in Science and Technology post-independence:

- In 1947 India started as a poor country, with a GDP of just ₹2.7 lakh crore.
- The food-grain production was lowest at 50 million tonnes (MT).
- The challenges of educating and feeding the population along with advocating democracy, promoting trade and industry, and ensuring the country’s security were immense.

Evolution of CSIR:

- The Council of Scientific and Industrial Research (CSIR) was established in 1942.
- The CSIR started 5 of its laboratories with the help of the government and industry and raised resources through crowdsourcing.

- Moreover, collaborating with the Sir Dorabji Tata Trust and the Government of Bombay, the CSIR established the Tata Institute of Fundamental Research, with the CSIR ensuring substantial financial support in the starting years.

Contribution of CSIR:

- Harmonization of varied systems of the calendar: Meghnad Saha Committee report published by the CSIR in 1955, led to its acceptance of the national calendar.
- Free and fair elections: In promoting democratic elections and preventing frauds, double voting, etc. the CSIR's National Physical Laboratory developed the indelible ink made up of silver nitrate. The indelible ink is used to date and even exported to many countries.
- Contribution to developing the leather industry: The making of finished leather products was difficult in the absence of relevant technologies. The CSIR-Central Leather Research Institute (CLRI) founded in 1948, developed technologies for manufacturing finished leather products transitioning from semi-finished ones. Moreover, it trained the manpower. As a result, more than 40% of personnel employed were trained by the CSIR-CLRI.
- The Green Revolution in the Agriculture sector: CSIR helped in the development of agrochemicals and machines. The indigenous manufacture of the Swaraj tractor at the CSIR-Central Mechanical Engineering Research Institute (CMERI), led to the emergence of Punjab Tractors Ltd. in 1970.
- In the pharmaceutical industry: The production of anti-HIV drugs by processes originated in CSIR laboratories giving the desired impetus to the generic pharmaceutical companies' growth.
- Food and nutrition sector: In the 1950s, while solving the infants' food issue, the CSIR developed technologies to transform buffalo milk into powder and commercialized it with the support of Amul Industries.
- The latest Aroma Mission of the CSIR is seen as transforming the lives of many farmers across the country. The lavender cultivation in Jammu and Kashmir attracted attention across the world as India's 'Purple Revolution'.

Measures to be taken in the future:

- Ensuring that all industrial processes are circular thus making technologies environmentally sustainable.
- Reducing dependency on natural resources.
- Integrating science and technology with ancient wisdom and spirituality.

Nut Graf

There is a multitude of examples of science, technology, and innovation that have simplified life and helped India transcend the path of growth and self-reliance. The Council of Scientific and Industrial Research has played an important role in this field. However, even today the role of science and technology-led innovation cannot be overlooked as the future path is still full of challenges.

Awareness about various diseases

4. Lumpy skin disease

- » Prelims: Lumpy skin disease

Context:

Lumpy skin disease has been reported in thousands of bovines in Rajasthan and Gujarat.

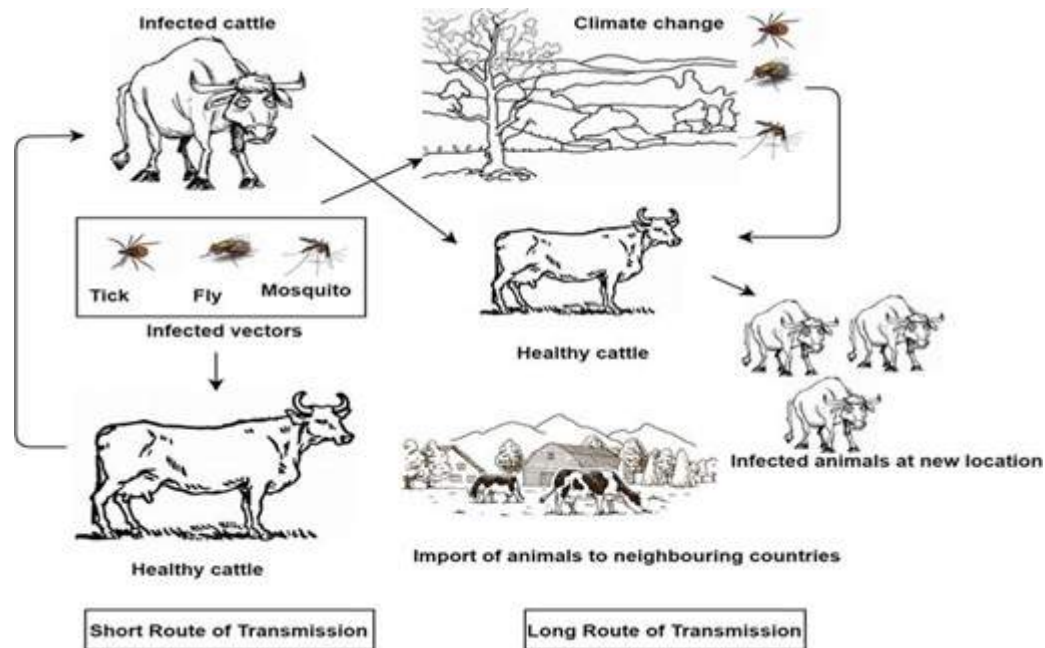
Lumpy skin disease (LSD)

- LSD is a viral disease caused by the Capripox virus of the Poxviridae family which is also called the Neethling virus.
- LSD causes prolonged morbidity in bovines such as cattle and buffaloes.
- LSD was first reported in Africa (Zambia) in 1929 and has now emerged as a transboundary animal disease as it has spread to Asia and Europe.

Symptoms of LSD

- LSD causes fever and nodules all over the body, especially around the head, neck, limbs, udder and genitals.
- The animals infected with the LSD virus usually lose weight suddenly and develop other symptoms like fever and lesions in the mouth, along with a reduced milk yield.
- Other symptoms such as excessive nasal, salivary secretion and miscarriage are also associated with LSD.
- According to the World Organisation for Animal Health (WOAH) LSD has a mortality rate of 1 to 5%.

Transmission of LSD



Source: www.researchgate.net/

- LSD spreads through blood-feeding insects like flies, mosquitoes and ticks.
- LSD is not a zoonotic disease which means that it does not spread from animals to humans and hence Lumpy skin disease does not affect humans.

Treatment for LSD

- LSD is curable and recovery will be fast if treatment is given at the early stages of the infection.
- There are three licensed vaccines for LSD which include lumpy skin disease virus (LSDV) Neethling vaccine, Kenyan sheep and goat pox (KSGP) O-180 strain vaccines and Gorgan goat pox (GTP) vaccine.
- Vaccination against LSD is covered under the Livestock Health and Disease Control Programme of India.

Impact of LSD

- The disease has serious economic implications for a country like India which is the top country in the number of cattle and buffaloes in the world as it decreases milk production, increases the chances of abortions and infertility and damages hides due to cutaneous nodules and fibrous tissue growth.
- The World Organisation for Animal Health (WOAH) has declared LSD a "notifiable disease". This compelled a country to inform the OIE about the outbreak of the disease.

Awareness in the field of IT and computers

5. Crypto currency regulation

- » Prelims: About Cryptocurrencies and Stablecoins
- » Mains: Regulation of Markets in Crypto-Assets, or MiCA and details about Stablecoins

Context:

Ongoing debates on the Finance Minister's answer to a question in Parliament about the Indian government's stance on cryptocurrencies.

Background

- The European Parliament and Council have come to a provisional agreement on long-awaited regulations on crypto, namely, the Regulation of Markets in Crypto-Assets (MiCA).
- Major global regulators are working on regulations to enforce strict controls on the companies distributing cryptocurrencies classified as stablecoins.

- * After recent instabilities in the Cryptocurrency market, the Financial Stability Board (FSB) promised to push for stablecoin regulation and supervision.

Cryptocurrencies

- A cryptocurrency is a virtual currency secured by cryptography.
- Cryptocurrency is a digitised asset spread through multiple computers in a shared network.
- It is designed to work as a medium of exchange, where individual ownership records are stored in a computerised database.
- The decentralised nature of this network shields them from any control from government regulatory bodies. Hence they are not controlled or issued by any enterprise.
- Key features of Cryptocurrencies include:
 - * Absence of any centralised authority and is maintained through distributed networks.
 - * The system maintains records of cryptocurrency units and who owns them
 - * The system decides whether new units can be created and in case it does, decided the origin and the ownership terms
 - * Ownership of cryptocurrency units can be proved exclusively cryptographically.
 - * The system allows transactions to be performed in which ownership of the cryptographic units is changed.

Present status of crypto penetration worldwide:

- Slightly over 19 million bitcoins are in circulation at present, out of the total capped supply of 21 million bitcoins.
- There are 75 million crypto wallet holders.

The Regulation of Markets in Crypto-Assets, or MiCA

- The European Parliament and Council came up with a provisional agreement on long-awaited regulations on crypto called MiCA.
- The target of MiCA is to regulate crypto asset services and crypto asset issuers.
- The intent is to provide:
 - * Consumer protection
 - * Transparency
 - * Governance standards
- MiCA fixes the liability on crypto asset service providers, in case of loss of investors' assets and makes them subject to European market-abuse regulations, including those on market manipulation and insider trading.
- It also put forth specific regulations for stablecoins (cryptocurrencies designed to have a relatively stable price by pegging them to a commodity/currency or having its supply regulated by an algorithm).
 - * The issuers of stablecoins are subject to a greater degree of compliance and declaration.
 - * They have to maintain reserves to cover all claims of the coins and must implement a process for their immediate redemption.

What are stablecoins?

- A stablecoin is a cryptocurrency whose value is usually pegged to a 'stable' asset, such as gold or the U.S. dollar .
- They are designed to be protected from the wild volatility that makes it difficult to use digital assets for payments or as a store of value.
- They form a link between old-world money and new-world crypto. They also promise to function like perfectly safe holdings.
- Stablecoins have a market cap of around \$170 billion, making them a comparatively small part of the overall cryptocurrency market(\$1.2 trillion).
- For a cryptocurrency trader, tracking stablecoin flows can help them gauge the state of the market.

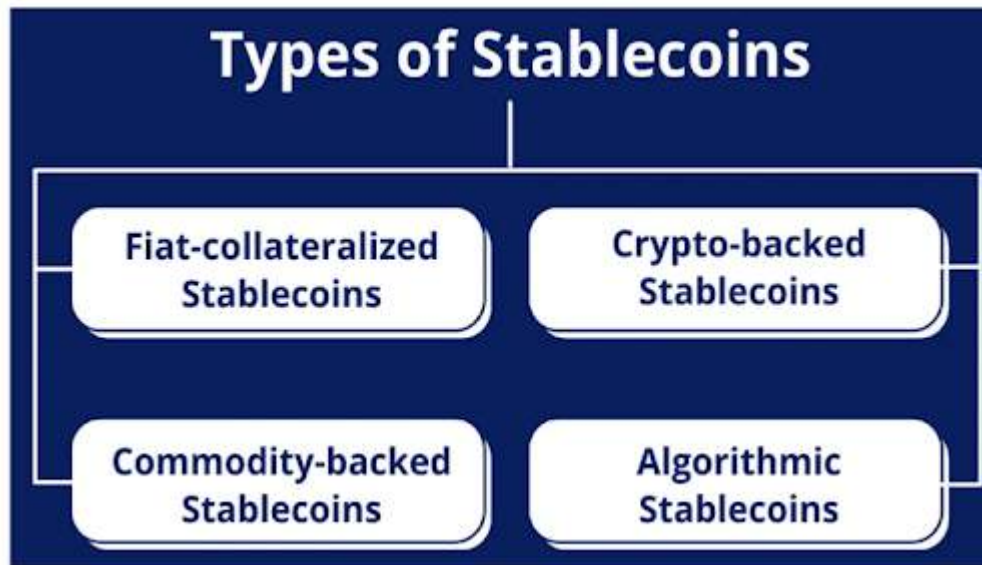
Types of Stablecoins:

Image Credit: 101 Blockchains

- The largest stablecoin today is Tether (USDT), whose market cap is close to \$66 billion, putting it below Ethereum, the second largest cryptocurrency.
- Tether also recently launched a stablecoin pegged to the British pound.

What are the use cases for stablecoins?

- Stablecoins makes moving small amounts of money across borders is often efficient and inexpensive.
- Payments in stablecoins circumvent the 2-3% transaction fees that come with the intermediary processing fees by financial institutions.
- Stablecoins have a value that is designed to be stable over any period which makes them an ideal safe haven asset especially because they have full custody of their assets.
 - * This has recently been illustrated with the politico-economic crisis in Venezuela, where many citizens fleeing the country have stored their savings in Bitcoin to avoid confiscation of their fiat money.
- They can offer full transparency into the process by which they are backed through regular audits.
- In countries such as Nigeria, Argentina and Turkey where the local currency is losing value rapidly, converting funds to stablecoins is one way for residents to protect their earnings.
- In countries like Afghanistan and Iran where global sanctions have blocked remittance channels, stablecoin transfers have helped a few crypto users to secure their earnings.

How 'stable' are stablecoins?

- Stablecoins are not authorized for use by country regulations or central banks, which means that investors take on considerable legal and financial risk to hold them.
- Tether had surged from just \$4.1 billion at the start of 2020 to \$80 billion in April 2022 which potentially threatened the balance of the US dollar.
- Recent regulations and penalties on Tether by various American agencies resulted in the decrease of Tether's market cap from around \$80 billion in April 2022 down to around \$66 billion in July 2022.
- After the recent crash of TerraUSD(UST) which lost nearly 100% of its value due to various market factors and company failures, several other stablecoins like USDT also lost value temporarily as investors panicked.
- The U.S. Federal Reserve in its recent biannual financial stability report warned stablecoins are increasingly used to facilitate leveraged trading in other cryptocurrencies.
- For this reason, the crypto community does not want stablecoins to be controlled by centralized laws or standards

Nut Graf:

Due to the recent cryptocurrency market crash and associated issues, various regulators across the globe have increased the scrutiny and are working towards more regulations on stablecoins. The risks within the stablecoin ecosystem are very high. And now, as regulators step in, the market is expected to make traders more fearful.

Indigenisation of Technology & Developing New Technology**6. What will it take to fulfil India's solar power dream?**

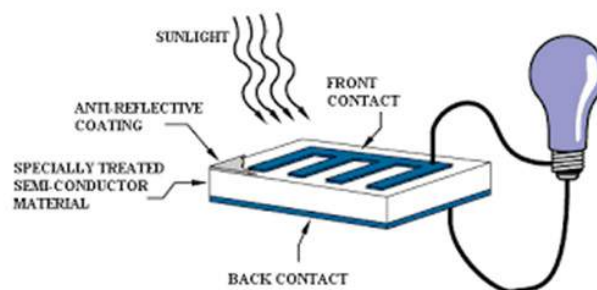
- » Prelims: Solar photovoltaics
- » Mains: Intended Nationally Determined Contributions (INDC) targets

Introduction:

- India has added Solar photovoltaics (PV) capacity of over 50 GW by 2022 from less than 10 MW in 2010.
- India is aiming for 280 GW of renewable energy from solar PV by 2030, which will necessitate the deployment of nearly 30 GW of solar capacity each year until 2030.
- However, there are obstacles that must be overcome in order for the PV economy to be sustainable.

Photovoltaic Cell:

- Photovoltaic cells consist of two or more layers of semiconductors with one layer containing positive charge and the other negative charge lined adjacent to each other.
- Sunlight, consisting of small packets of energy termed as photons, strikes the cell, where it is either reflected, transmitted or absorbed.
- When the photons are absorbed by the negative layer of the photovoltaic cell, the energy of the photon gets transferred to an electron in an atom of the cell.
- With the increase in energy, the electron escapes the outer shell of the atom. The freed electron naturally migrates to the positive layer creating a potential difference between the positive and the negative layer. When the two layers are connected to an external circuit, the electron flows through the circuit, creating a current.

**Obstacles:**

- High Import dependence:
 - * India currently does not have enough module and cell manufacturing capacity therefore Indian companies depend heavily on imports for solar deployment or installation.
 - * India's current solar module manufacturing capacity is limited to around 15 GW per year.
 - * India has no manufacturing capacity for solar wafers and polysilicon ingots, and currently imports 100% of silicon wafers and around 80% of cells at the current deployment levels.
- Uncompetitiveness in technology and cost:
 - * Only 3-4 GW of modules out of 15 GW of module manufacturing capacity are technologically competitive and worthy of deployment in grid-based projects.
 - * The majority of the Indian industry is currently set up to handle small wafer sizes.
 - » The larger size has an advantage in terms of silicon cost per wafer because it means less silicon loss during ingot to wafer processing.

- Raw materials supply
 - * Silicon wafer, the most expensive raw material, is not manufactured in India.
 - * More than 90% of the world's solar wafer manufacturing currently happens in China.
 - * Other key raw materials such as metallic pastes of silver and aluminium are almost 100% imported.

Current government policy:

- The government has rolled out various policy initiatives to push the industry towards self-reliance in solar manufacturing, both for cells and modules.
- Key initiatives include a 40% duty on the import of modules and 25% duty on the import of cells, and a PLI scheme to support manufacturing capex.
- It is mandatory to procure modules only from an approved list of manufacturers for projects that are connected to state/central government grids; so far, only India-based manufacturers have been approved.

Way Forward:

- India is more of an assembly hub than a manufacturing hub. Moving up in the value chain by producing components can help influence the price and quality of both cells and modules.
- Land, the most expensive component of solar projects, is scarce in India.
 - * Hence, the Indian industry has no choice but to shift toward newer, superior, innovative and efficient technologies as part of its expansion plans.
- India should work on collaborating on technology to produce the right grade of silicon for solar cell manufacturing.
- India has made few investments in high-quality, high-technology centres like IMEC Belgium or the Holst Centre in the Netherlands, which can assist the industry in trying and testing new technologies at a low cost.
- Academics and industry must collaborate to establish state-of-the-art manufacturing and testing facilities for cells, modules.

DEFENCE AND INTERNAL SECURITY

Defence Equipment

1. INS Vikramaditya

» Prelims: INS Vikramaditya

Context:

- INS Vikramaditya is undergoing its first major refit since December 2020.

INS Vikramaditya:

- INS Vikramaditya is a modified Kiev-class aircraft carrier of the Indian Navy that entered into service in 2013.
 - * INS Vikramaditya is converted from the Russian's decommissioned Admiral Gorshkov vertical take-off and landing (VTOL) missile cruiser carrier.
- INS Vikramaditya is the Indian Navy's largest short take-off but assisted recovery (STOBAR) aircraft carrier and warship.
 - * Vikramaditya is capable of launching Aircraft without Catapult, unlike in US Aircraft Carriers. This type of launching and recovery of Aircraft is called Short Takeoff but Arrested landing (STOBAR). In this procedure, the aircraft lines up with the ski ramp and opens full throttle while applying brakes at the same time. When the throttle is completely open, the pilot releases the brakes and the Aircraft Takes off with the help of the Ski ramp.
- INS Vikramaditya can carry over 30 long-range multi-role fighters with anti-ship missiles, air-to-air missiles, guided bombs, and rockets.
- Not only Vikramaditya is heavily armed, but it also hosts a variety of soft-power assets such as a fully equipped hospital, survey systems and can also serve as humanitarian relief & disaster relief (HADR) platforms to deal with any natural calamity such as tsunami, earthquake etc.

Defence Equipment

2. Dornier aircraft

» Prelims: Dornier Aircraft

Context:

- India has gifted a Dornier aircraft to Sri Lanka.

Dornier 228 aircraft:

- The Dornier 228 (DO – 228) aircraft is a multi-purpose light transport aircraft specially developed to meet the needs of maritime surveillance.
- The aircraft is also used in utility and commuter transport, third-level services and coast guard duties.
- Dornier 228 is a twin-turboprop STOL (Short-Take-off and Landing) aircraft.
- It was designed by DASA Dornier, Fairchild – Dornier (previously Dornier GmbH from 1918-1998. In 1983, a production licence was bought by Hindustan Aeronautics Limited (HAL) who set up a manufacturing unit of these aircrafts in Kanpur. About 124 aircrafts were built here.
- The Dornier 228 has been marketed as a general-service aircraft capable of operating in many roles such as military transport, commuter aircraft or cargo hauler.

Defence equipment

3. AGM - 88 HARM

» Prelims: AGM-88 HARM

Context

- The United States confirmed that it has supplied "anti-radiation missiles" to Ukraine in ongoing conflict with Russia.
- This confirmation has strengthened Russian allegations that an American anti-radar missile, AGM-88 HARM, which is part of NATO's inventory, has been used in the theatre of conflict.

AGM-88 HARM Missile:

- The acronym 'HARM' in the AGM-88 HARM stands for High-Speed Anti-Radiation Missile.
- It is an air-to-surface missile. It is fired from fighter aircraft, and has the capacity to find and move directly towards the radiation emitted by hostile radar stations that have surface-to-air detection capabilities.
- It was originally developed by 'Texas Instruments', but is now produced by the 'Raytheon Corporation'.
- It is 14 metres in length, but only 10 inches in diameter. It weighs around 360 kg and carries a fragmentation type warhead that is optimised for radar targets.
- The missile has a range of more than 100 km.

Anti-radiation Missile:

- An anti-radiation missile is used to detect an enemy's source of radio emission. These are mostly manufactured to be used against the enemy radar.
- Such missiles are designed to detect and home in on an enemy radio emission source. Typically, these are designed for use against an enemy radar, although jammers and even radios used for communications can also be targeted in this manner.
- The objective with which these missiles are designed is to break the enemy defence during the first leg of the battle so that the chances of surviving the further waves by the strike aircraft could be doubled.
- In October 2020, India successfully tested indigenously manufactured RUDRAM, the new generation anti radiation missile (NGARM).
- RUDRAM is a long range, air launched missile.

Linkages between development and spread of extremism**4. The fragility of the Northeast's integration**

- » Mains: Northeast India development and integration

Details:

- Post the First Anglo-Burmese War (1824-26), the Treaty of Yandabo was signed and Assam was annexed into British Bengal.
- The "Partially Excluded" and "Excluded" areas comprised the unadministered hills of Assam. These were segregated from its revenue plains by an "Inner Line permit" created in the Bengal Eastern Frontier Regulation 1873.
- In 1874 Assam was separated from Bengal and made a Chief Commissioner's Province.
- The Northeast (NE region) always remained alien and wanted assimilation.
- This was reflected in two administrative measures:
 - * The Sixth Schedule of the Constitution 1949.
 - * The Armed Forces (Special Powers) Act (AFSPA) of 1958.

Historical Views:

- The British contemplated leaving this "Mongolian Fringe", a term coined by British India Foreign Secretary Olaf Caroe. This region comprised hill regions of the Northeast as well as Upper Burma.
- The then Governor of Assam, Robert Reid once exclaimed that "neither racially, historically, culturally, nor linguistically", NE had any affinity with mainland India.
- David R. Syiemlieh also expressed similar views.

The Sixth Schedule of the Constitution:

- Post-independence, inspired by the works of Verrier Elwin, India came up with the Sixth Schedule for undivided Assam's tribal area.
- The Sixth Schedule mandated the creation of Autonomous District Councils in which customary laws of tribals were given primacy.
- An insurgency broke in the region for the want of sovereignty, which further resulted in AFSPA, giving sweeping powers to the armed forces.
- The Naga Hills district was merged with the Tuensang and Mon subdivision of the North Eastern Frontier Agency (NEFA), or present-day's Arunachal Pradesh, forming Nagaland in 1963.
- Most of the autonomous regions were bifurcated from Assam in 1972. Meghalaya was made a State. On the other hand, Arunachal Pradesh and Mizoram became Union Territories. They were upgraded to States in 1987.

- Manipur and Tripura, which were initially Part C States, were made States in 1972 after the merger with India in 1949.

Positive measures taken by the government for inclusion:

- The outlook towards nationalism and national identity underwent moderations.
- The region was no longer required to leave its cultural streams to fit into the mainstream.
- The North Eastern Council (NEC) was founded as an advisory body in 1971.
 - * Initially, the Governors of the Northeastern States were its members.
 - * In 2002, the act was amended. The council became an infrastructure planning body for the NE. Sikkim was also brought within its ambit. Its executive structure also expanded to include Chief Ministers, addressing the aspirations of local electorates.
- Moreover, DoNER was formulated by the Central Government in 2001, and in 2004 it was made a Ministry.
- India's Look East Policy of 1991 stated the objective of connecting the Northeast region with South East Asia.
- A protected area regime that restricted visits to Manipur, Mizoram, and Nagaland was relaxed in 2010.

The associated concern of the Northeast region:

- The national identity question remained unresolved for a long time.
- Frequent insurgencies raised apprehensions about mainstreaming with India.
- The suspicion of the "Mongolian Fringe" by the Indian state, and the latter's fear of being forced out of their traditions and customs persisted.
- The grassroots sentiment reflected in the recent two cases of opposition to the Citizenship (Amendment) Act (CAA) in Assam and the sensitive issue of AFSPA in Manipur has once again flared counter-cultural tendencies.

Nut Graf:

The integration of the Northeast region has been a prolonged sensitive issue in the Indian context. Even after a series of positive steps taken by the government, the issues are raised time and again due to the insurgencies, and sensitive issues like the draconian use of AFSPA. The measures further taken should be integrative and assure the residents that their customary laws and liberty won't be breached.

Cyber Security

5. The cyber threat to mobile banking

- » Mains: Cyber security.

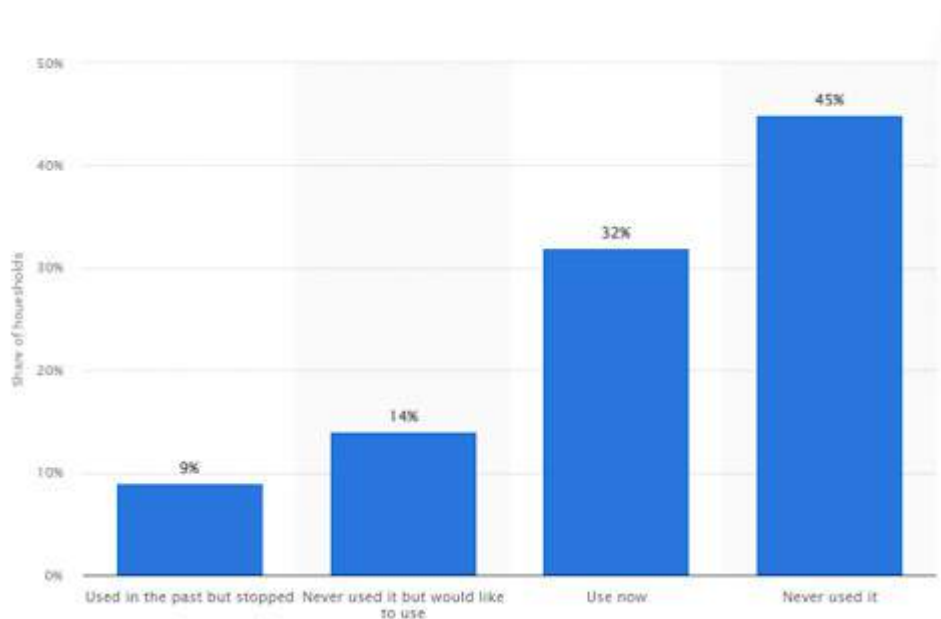
Context

- The rising cases of cyberattacks on mobile banking.

Details:

- As per the Statista survey 2020, which covered 25 States of India, out of five thousand surveyed households, two-thirds reported owning a smartphone. Half of these said they transacted digitally, and around 31 percent had a mobile banking app. And approximately 14% said they used their mobile phones for banking-related purposes.
- This number further increased owing to the COVID-19 pandemic.
- The benefits of convenience and speed in payments also played a role in accelerating this trend. However, it brings with it a threat of vulnerability on mobile devices.

Share of Indian households that used digital payments in 2020



Source: Statista

Associated threats:

- Kaspersky, a Global cybersecurity firm warns about increasing cyberattacks on smartphones in the Asia Pacific (APAC) as more people are adopting mobile banking in the region. Nearly half a million attacks were reported in the APAC region.
- As per Kaspersky's senior malware researcher, mobile banking Trojans are dangerous malware that has the potential to steal money from mobile users' accounts by disguising the malicious application as a legitimate one and luring unsuspecting mobile users to install it.
 - * A Trojan is malicious software or code that seems to be legitimate but can take control of the host device.
 - * Some examples of Trojans are:
 - » Anubis has been targeting Android operators since 2017. It infects the mobile through high-ranking and legitimate-looking malicious apps on Google Play. Source: Statista
 - » Roaming Mantis targets mobile banking users and spreads malicious code by hijacking domain name systems (DNS) through smishing exploits. Smishing means phishing messages sent through SMS.
- The interoperability of various platforms further compounds the problems.
- The inadequate cybersecurity and the shortage of human talent in banks can potentially lead to rising number of cyberattacks on smartphones.
- The shortage of engineering, technology, and data security experts in the banks further accentuates the problem.

Measures Ahead:

- One needs to be extremely careful and cautious while using mobile phones for business transactions.
- The users should also religiously follow usual digital hygiene practices like rebooting and regular phone updates.
- Consumers should also ensure they use mobile banking only when the device is connected to a secure VPN.
- The iOS 16 users can switch on the 'Lockdown Mode' to restrict the device's functionality and secure it from any potential malware attacks.
- The experts and the bank professionals should be employed. Moreover, there should be appropriate skilling, re-skilling, and up-skilling of the workforce to keep pace with the technology.

Nut Graf:

The use of mobile banking has increased the speed and efficiency of transaction manifold making life easier for the public. But it has come with its own set of challenges of cyberattack. All the stakeholders- the consumers, service providers, and the banks should cautiously look at the matter so that the users are not financially impacted.

Role of External State & Non-State Actors in Creating Challenges to Internal Security

6. Government Crackdown on Chinese firms

- » Mains: Impact of the increased scrutiny of Chinese firms in India.

Context

- In recent months, with an aim of checking Chinese corporate influence in the country, the offices of Chinese tech firms such as Huawei, Vivo, ZTE, Xiaomi and Oppo have been searched by income tax officials.
- As a result the major Chinese telecom company 'Huawei' is planning to downsize operations at its research and development (R&D) facilities in India.

Why is Huawei downsizing?

- Huawei is facing a series of government actions, including income tax searches and audits of 20 years of company records, investigations into "national security" aspects of its operations.
- In July 2022, the income tax department filed a case against top officials of the company, including its chief executive officer of India's marketing operations for allegedly withholding crucial information necessary for computation of taxes and rerouting huge amounts to the parent company as dividends, reducing its taxable income in India.
- A look-out circular was issued against its chief executive officer, India's marketing operations, which prevented him from traveling abroad.
- It was also excluded from recently held 5G telecom trials.

Key allegations against Chinese firms

- Various Chinese firms have been accused of resorting to tax evasions, discharging illegal remittances, forging identifications and incorrect disclosures while operating in India.
- Recently, the Enforcement Directorate (ED) seized nearly ₹5,551.27 crores from a Xiaomi unit in India.
 - * It was said that the tech firm had remitted foreign currency worth ₹5,551.27 crores to three foreign-based entities which also included a Xiaomi group entity, under the disguise of "royalty".
 - * It was alleged that the firm had not availed any service from these three entities and the remittances were sent to benefit its group entities and this is said to be a violation under the provisions of the Foreign Exchange Management Act, 1999.
- Later, the ED also undertook search operations at various offices of Vivo in India after an FIR was filed by the Ministry of Corporate Affairs which alleged that the Grand Prospect International Communication Pvt Ltd (GPICPL) (one of Vivo's associated companies) had forged identification documents and gave false addresses at the time of incorporation.
 - * These searches found the presence of a shell company created for the purpose of tax evasion and Vivo India is accused of remitting over 50% of its total sale proceeds to China to disclose huge losses in Indian-incorporated companies to avoid paying taxes.
 - * This is said to be a violation of the Prevention of Money Laundering Act, 2002.
- Another tech firm Oppo was also issued a show-cause notice after the Directorate of Revenue Intelligence (DRI) found out customs duty evasion of nearly ₹4,389 crores.
 - * The DRI's searches found that Oppo had wilfully declared incorrect descriptions of certain imported items for manufacturing their mobile phones in India to avail of duty exemption benefits.
 - * Further, the import of intellectual rights acquired from outside the Indian territory was not declared in their balance sheets for imported products.
 - * This violated certain provisions of the Customs Act, 1962 and Customs Valuation (Determination of Value of Imported Goods) Rules, 2007.
- Chinese telecom major Huawei has also experienced several income tax searches, exclusion from 5G telecom trials and increasing restrictions on research collaborations.
 - * The case against Huawei is part of a series of government measures aimed at checking Chinese corporate influence in the country. This comes especially after the Violence in the Galwan Valley on the India-China border.

Informal restrictions

- The Indian government, especially the union Education and Home Affairs Ministries, have placed informal restrictions on any collaborations by “critical ecosystem players” such as universities, start-ups and analytics firms with Huawei.
- Huawei’s experts from China are not able to get visas to visit India, ostensibly due to reciprocal restrictions by the Chinese government. As a result, Huawei has already moved some of its critical projects back to China and redeployed Indian teams to existing projects.

Reasons for the constant scrutiny on Chinese firms

- Several companies have their data saved in cloud servers, where information about the Indian entities’ accounts is directly being shared with Chinese parent companies.
- Chinese firms have been discouraged from providing critical infrastructure for crucial telecom services in various countries across the world such as the US, the UK, Australia and New Zealand.
- Experts feel that the exclusion of Chinese firms from critical projects despite them offering lower prices is because China is accused of carrying out cyberattacks and cyber-espionage campaigns through its telecom network and fibre optic communications infrastructure provided by its companies.
- Recently, the US administration investigated Huawei over concerns that cell towers in the US were equipped with gear that could record sensitive and confidential data from military bases and transmit it to China.
- There have been multiple instances of accusations against China for undertaking cyberattacks that are aimed at collecting information on a sovereign country’s critical infrastructure.
 - * Example: Cybersecurity firms say that the Mumbai blackout that took place in October 2020 was undertaken as a follow-up act to the Galwan Valley clash and was carried out by “RedEcho” which is a hacker group linked to China
- Even private companies like Vodafone and Microsoft have alleged about China carrying out such attacks.
 - * Example: In March 2021, it was reported that Chinese state-backed hacker groups targeted the IT systems of Indian vaccine providers Bharat Biotech and Serum Institute of India.

Consequences of increased scrutiny

- Due to increased instances of scrutiny on Chinese firms in India, such firms are looking to downsize their operations in India.
- Without the 5G market in India, Huawei is out of the telecom market to service 2G, 3G and 4G networks as it isn’t on the Indian government’s list of trusted partners.
- Existing projects are being completed and no new projects are being contracted at present.
- Huawei invested over \$150 million to set up an R&D facility near Bengaluru in the year 2000. It currently employs 3,500 engineers who work on diverse products and development activities. The move to downsize can affect these jobs that it has created in India over 20 years.
- With plans to cut down the number of software engineers and product design teams, and another possible plan to lease out parts of its sprawling campus, the future of other jobs also appears to be on the line.
- These actions could “harm” Chinese interests, indicating that investment in India and the “Make in India” programme could be affected.
- The significant growth of Chinese companies in India is attributed to their price competitiveness in a price-sensitive market. Hence there is an immediate need to find a replacement for such products in case of an exit of Chinese firms from the Indian market.
- India along with various other countries has become extremely reliant on Chinese products as these Chinese firms have monopolised the lower ends of the global value chains i.e. basic components of finished products like for example “pen caps for pens”.
- Experts also feel that imposing an outright ban on Chinese smartphones is also impractical as the proposed replacements are currently lacking aspects such as a strong portfolio, distribution, and after-sales services.

Nut graf:

With Chinese tech firms attracting wider scrutiny from various agencies in India, there are assumptions about Chinese firms exiting the Indian market. However, considering the level of dependence of India on Chinese products and the lack of suitable replacements for such products, experts feel that it is unlikely that these firms would exit the Indian market anytime soon.

Various Security forces and agencies and their mandate

7. New Naval Ensign

- » Prelims: New Naval Ensign
- » Mains: Evolution of the maritime heritage of India

Context

Prime Minister Narendra Modi will unveil the new naval ensign (flag) for the Indian Navy on the sidelines of the commissioning of India's first indigenous aircraft carrier INS Vikrant at Cochin Shipyard Limited.

- Details:
 - * The naval ensign has been changed four times since 1950.
 - * The latest change can be seen as an act of doing away with the colonial past and befitting the rich Indian maritime heritage.
 - * The new naval ensign will replace the present ensign that carries the Saint George's Cross with the Tricolour in the canton (top left corner of flag).
- Present ensign is a successor to the pre-Independence ensign of the Indian Navy which had the red George's Cross on a white background with the Union Jack of the United Kingdom on the top left corner.

Old ensign



The pre-Independence ensign



Saint George's Cross

- The red cross is named after a Christian Warrior Saint who is believed to have been a crusader during the third crusade.
- This cross also serves as the flag of England which is a constituent of the United Kingdom.
- The flag was adopted by England in 1190 to identify English ships entering the Mediterranean.
- Most Commonwealth countries retained the Red George's Cross at time of their independence, but several have done away with it on their respective naval ensigns over the years.

Previous Changes:

- In 2001, the George's Cross was replaced with the naval crest in the middle of the white flag with Tricolour on the top left corner.

The Indian naval ensign, adopted in 2001



- In 2004, the ensign was again changed back to the Red George's Cross as blue of the Navy crest merged with the skies and the sea and made it indistinguishable.
- And the state emblem derived from the Lion capital of Ashoka was added in the middle.
- In 2014, the words 'Satyamev Jayate' were included on the flag below the Ashoka emblem in Devanagari script.

Indian Navy's new ensign

Image Source: Indian Express

- In a move to do away with the “colonial past”, the Saint George’s Cross has been removed from the new ensign.
- The new ensign features two main components which include the national flag in the upper left canton and a navy blue-gold octagon at the centre of the fly side (away from the staff).
- The octagon has two golden octagonal borders encompassing the golden National Emblem which is under-scribed with “Satyamev Jayate” in blue Devanagari script which sits on top of an anchor and is superimposed on a shield.
 - * Below the shield and within the octagon, the Navy’s motto of “Sam No Varunah” is inscribed in golden Devanagari script.
- The two octagonal borders of the new ensign are inspired by the seal of Maratha king Chhatrapati Shivaji who was credited for building a credible naval fleet during his reign.
- The octagonal shape of the national emblem in the ensign represents eight directions, symbolising the multi-directional reach and multi-dimensional operational capability of the Indian Navy.

ENVIRONMENT AND ECOLOGY

Environmental Pollution and Degradation

1. Arctic warming

- » Prelims: Arctic amplification
- » Mains: Arctic amplification – causes and consequences

Context:

- A recent study conducted by Finnish Meteorological Institute researchers notes that the Arctic is heating four times faster than the rest of the planet.

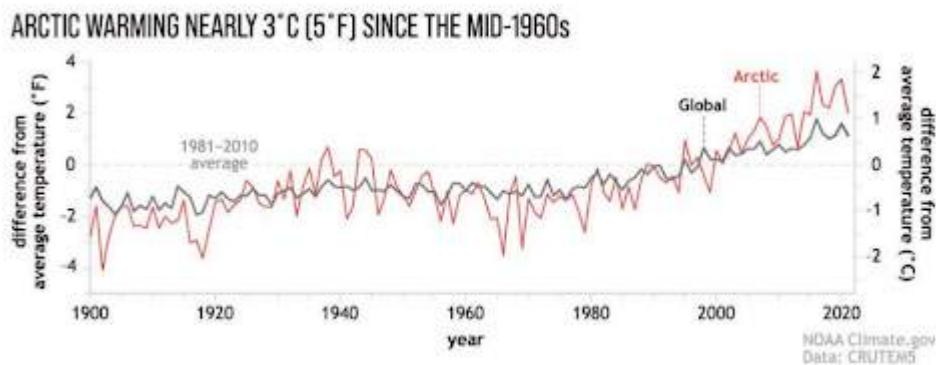


Image Source: The Hindu

- It takes note that this arctic warming is all the more concentrated in the Eurasian part of the Arctic, consisting of the Barents Sea north of Russia and Norway. This region is found to be warming at almost seven times faster than the global average.

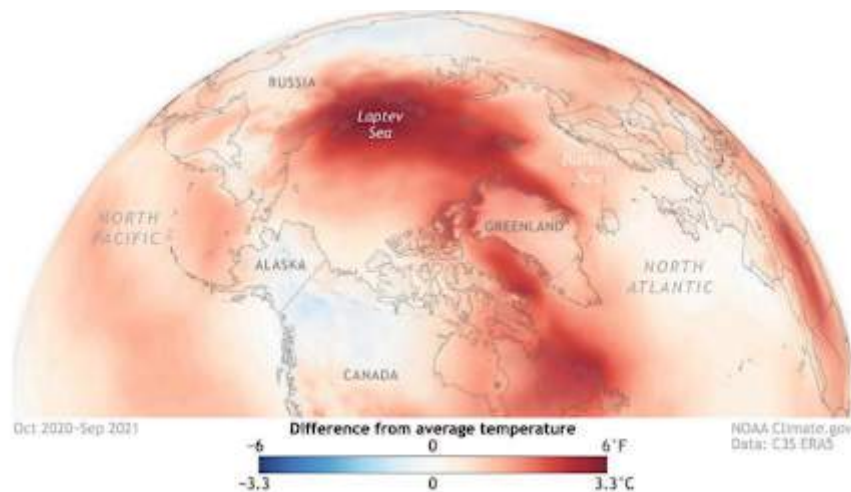


Image Source: The Hindu

- Multiple studies have observed this trend of differential rate of heating and this has been described as polar amplification or arctic amplification.
 - * The Inter-governmental Panel on Climate Change in its 'Special Report on the Ocean and Cryosphere in a Changing Climate' in 2019, noted this arctic warming.
 - * The Arctic Monitoring and Assessment Programme (AMAP) in its 2021 report noted the faster Arctic warming as compared to the global average. The report noted that the average annual temperature in the region increased by 3.1 degrees Celsius compared to the 1 degree Celsius for the planet.

Polar amplification and arctic amplification:

- Polar amplification is the phenomenon that any change in the surface air temperature and the net radiation balance contributing to global warming, tends to produce a larger change in temperature near the poles than in the planetary average. This is commonly referred to as the ratio of polar warming to tropical warming.
- Notably, these changes are more pronounced at the northern latitudes and are known as Arctic amplification.

Causes of arctic amplification:**Ice-albedo feedback:**

- Sea ice has a high albedo.
 - * Albedo is the fraction of light that is reflected by a body or surface and is thus a measure of the reflectivity of the surface.
- Notably, Arctic sea ice cover has been declining owing to global warming. Open water reflects less sunlight than sea ice and absorbs more incoming solar radiation, thereby driving the amplification.

Lapse rate feedback:

- The atmosphere's temperature decreases with height in the troposphere. This is referred to as the lapse rate.
- Since the emission of infrared radiation varies with temperature, longwave radiation escaping to space from the relatively cold upper atmosphere is less than that emitted toward the ground from the lower atmosphere. Thus, the strength of the greenhouse effect depends on the atmosphere's rate of temperature decrease with height.
- The lapse rate or the rate at which the temperature drops with elevation decreases with warming.
- However, in regions with strong inversions, such as the polar regions, one observes positive lapse rate feedback because the surface warms faster than at higher altitudes, resulting in inefficient longwave cooling. This contributes to polar amplification.
- Studies show that the ice-albedo feedback and the lapse rate feedback are responsible for 40% and 15% of polar amplification respectively.

Water vapour feedback:

- A lot more water vapour is being transported northward by big swings in the jet stream. Since water vapour is a greenhouse gas that traps heat in the atmosphere, this is contributing to polar/arctic amplification.
- Also, water vapour in the atmosphere can condense into droplets and form clouds. Since clouds also trap more heat than a cloudless sky, this is also contributing to polar amplification.

Ocean heat transport:

- Changes in atmospheric and ocean circulation have been noted due to global warming. A more pronounced poleward flow of ocean currents has been noted which could be contributing to arctic amplification.

Consequences:**Decreasing sea ice:**

- Global warming in general and the arctic amplification can result in the disappearance of sea ice from the region in summers. This can lead to a vicious cycle of further temperature rise through the ice-albedo feedback mechanism.

Melting of Greenland ice sheet:

- The Greenland ice sheet is melting at an alarming rate. The melting of the Greenland ice sheet is a big contributor to the global rise in sea level. If the sheet melts completely, the global sea level would rise by seven metres. This would lead to the submergence of island countries and major coastal cities.
 - * The Greenlandic ice sheet holds the second largest amount of ice, after Antarctica.
- This is all the more critical for a country like India with a long coastline and major cities with substantial populations along its coastal borders. According to the World Meteorological Organization's report, 'State of Global Climate in 2021', the sea level along the Indian coast is rising faster than the global average rate.

Impact on flora and fauna:

- Polar warming also affects many ecosystems, including marine and terrestrial ecosystems. This will have an adverse impact on the fauna of the region, including both the marine species and land species and the dependent species. This will impact the biodiversity of the region.

Permafrost thawing:

- Due to the polar amplification, the permafrost in the Arctic is thawing.
- This will result in the release of greenhouse gases like methane which will further increase global warming.
- The thaw and the melt may also release the long-dormant bacteria and viruses that were trapped in the permafrost and can potentially give rise to new diseases.

Impact on climate systems:

- The arctic amplification can change the existing climate systems like monsoons in the Indian subcontinent.
- A study by a group of Indian and Norwegian scientists has found that the reduced sea ice in the Barents-Kara sea region can lead to extreme rainfall events in the latter half of the monsoons, in September and October.
- This can have serious consequences for India due to the likelihood of more frequent and more intense extreme weather events and their impact on water and food security.

IndARC:

- IndARC is India's first underwater moored observatory in the Arctic region. It was deployed in 2014 at Kongsfjorden fjord, Svalbard, Norway which is midway between Norway and the North Pole. Its research goal is to study the Arctic climate and its influence on the monsoon.

Nut Graf

The arctic amplification could have serious consequences for humans in terms of changes it could cause in ecosystems and climate systems. All efforts must be made to better understand this phenomenon to better predict the temperature rise.

Environment Pollution and Degradation**2. Climate Change and Extreme Weather Events**

» Mains: Weather forecasting in India

Context:

- Monsoon rainfall this year has been uneven across the country due to climate change which has severely affected the ability of forecasting agencies to accurately predict severe events.

Erratic Monsoon:

- Due to climate change, there has been an erratic pattern of monsoon rainfall in India which is making forecasting of severe weather events difficult.
- The number of light rainfall events had decreased and the number of heavy rainfall events had increased due to climate change.

Impact of Climate change:

- 2021 was the 05th warmest year since 1901 and the decade was also the warmest ever in India.
- Climate change has increased the instability in the atmosphere, leading to an increase in convective activity — lightning, thunderstorms and heavy rainfall.
- Climate change has increased the instability in the atmosphere, leading to an increase in convective activity — lightning, thunderstorms and heavy rainfall.
- The severity of cyclones in the Arabian Sea is also increasing.
- Frequent and extreme heat waves are leading to longer and wider wildfires.
- Extreme and uneven rainfall in recent years is mainly because of late withdrawal of the monsoon, a higher-than-normal number of low-pressure systems during the period and the interaction of active western disturbances with low-pressure systems in October.
- The severity of cyclones in the Arabian Sea is also increasing.
- Frequent and extreme heat waves are leading to longer and wider wildfires.
- Extreme and uneven rainfall in recent years is mainly because of late withdrawal of the monsoon, a higher-than-normal number of low-pressure systems during the period and the interaction of active western disturbances with low-pressure in October.
- The annual rainfall over states of Uttar Pradesh, Bihar, West Bengal, Nagaland, Meghalaya, Arunachal Pradesh and Himachal Pradesh has shown significant decreasing trends in rainfall during the recent 30-year period (1989-2018).
- This extreme weather events will have a significant impact on agriculture – crop yields, input costs, safety of farmers etc
- Climate change is also increasing the fragility of the Himalayas. Glacier melting and increasing frequency of mini-cloud bursts in the Himalayas is leading to recurrent flash floods.

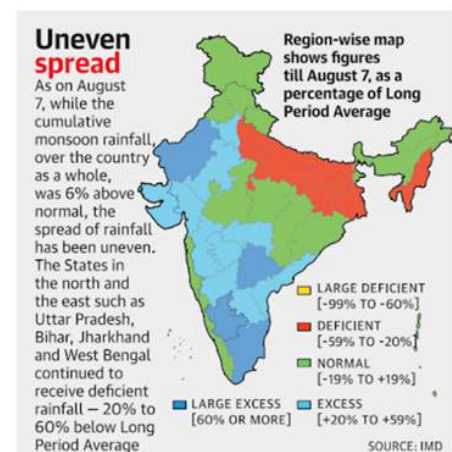


Image Source: The Hindu

How does this affect weather predictions?

- Increase in the frequency of extreme weather events is posing a challenge to forecasters.
- There is no significant trend in the monsoon pattern of India as a whole. But, parts of north, east and northeast India show a decrease in rainfall, while some areas in the west, such as west Rajasthan, show an increase.
- The monsoon pattern is random and it shows large-scale variations which makes accurate predictions of events difficult.

IMD's forecast accuracy:

- The IMD is augmenting its capacity with more radars, automatic weather stations and rain gauges and satellites to improve predictability.
- Its forecast accuracy had improved by about 30% to 40% for severe weather events in the past 05 years due to an improvement in the observational network, modeling and computing systems.
- The number of deaths due to cyclones and heat waves had also reduced over the years because of an improvement in the early warning lead time and preparedness, prevention, planning and mitigation approaches.
- IMD is aiming to give Panchayat level cluster forecasts in coming years.
- The Ministry of Earth Sciences also plans to upgrade its high-performance computing system to run more data at higher resolutions and greater precision.

Conclusion:

- Climate change is a fact and we need to plan all our activities accordingly. According to a study by the World Meteorological Organization, these extreme weather events cost the global economy around \$200-300 billion yearly with millions of lives lost. Therefore, greater efforts are required to improve the prediction skill and utilize these much better predictions in catastrophe management.

Nut graf:

Extreme weather events because of Climate change is a cause of concern as they become more and more difficult to predict. Various organizations like IMD, Union Ministry of Earth Sciences are working towards augmenting their capacity to provide more accurate and timely predictions of these events.

Conservation, Environmental Pollution and Degradation**3. Sticking to commitments**

- » Prelims: About UNFCCC, Conference of the Parties and Nationally Determined Contributions (NDC)
- » Mains: India's Nationally Determined Contributions (NDC)

Context:

- The Indian Cabinet has approved the commitments made by the Prime Minister at the COP26 in Glasgow.

Details

- The Union Cabinet has approved India's Nationally Determined Contributions (NDC) with the 27th Conference of the Parties of the UNFCCC (COP 27) scheduled to take place in El-Sheikh, Egypt, in November 2022.
- The Paris Agreement of 2015 mandated nations to announce measures to ensure that the globe does not heat beyond 2°C, and mitigate it below 1.5°C by 2100.
- The COP of UNFCCC persuades countries to make compromises on the cuts they can undertake with the least impact on their developmental priorities.
- Countries are required to submit NDCs every five years, about their contributions towards minimising fossil-fuel emissions.

India's Nationally Determined Contributions (NDC)

- India announced eight targets in its first NDC, in 2015, which include:
 - * Reducing the emissions intensity of GDP by 33%-35% (of 2005 levels) by 2030
 - * Achieving 40% of its installed electricity capacity through renewable energy
 - * Developing an additional carbon sink of 2.5-3 billion tonnes of CO₂ equivalent through forest and tree cover by 2030.

- At COP 26 in Glasgow, the Indian Prime Minister announced five commitments which are famously called "Panchamrit". They include:
 - India will increase its non-fossil energy capacity to 500 GW (gigawatt) by 2030
 - Meeting 50% of India's energy requirements through "renewable energy" by 2030
 - Reducing the total projected carbon emissions by one billion tonnes till 2030
 - Reducing the carbon intensity of India's economy by over 45%
 - Achieving the target of "net zero" by the year 2070, when there will be no net carbon dioxide emitted from energy sources



Way forward

- India has shown its intent towards mitigating the adverse effects of climate change through various laws and legislations which regulate the use of energy efficiently and with several corporations having committed to phasing away from the use of fossil fuels.
- Going forward, India must follow and implement these established grounds and become an example for balancing energy use, development and meeting climate goals.

Nut graf:

As India looks to establish a framework for achieving its NDCs, India should make sure that it does not promise more than what it can deliver as it erodes the moral authority that India brings to future negotiations.

Conservation, Environmental Pollution and Degradation

4. Achieving 2070 net-zero target could boost India's GDP: report

- » Prelims: India's commitments at COP26 held in Glasgow
- » Mains: Significance of achieving the "net zero" emission target for India and the way forward

Context:

- Release of a report by the High-level Policy Commission on Getting Asia to Net Zero.

Significance of achieving the "net zero" target set by India:

- A recently released report by the High-level Policy Commission on Getting Asia to Net Zero points out that achieving the "net zero carbon" emission target by 2070 will help boost India's Gross Domestic Product (GDP) by more than 4.7% of the projected baseline growth by 2036 which accounts for over \$371 billion.
- As per the report, sticking to the deadline and undertaking concrete efforts could also help generate close to 15 million new jobs by 2047.

- A reduction in the demand for fossil fuels on account of shifting towards non-fossil fuels will help improve the trade balance of the country by about \$236 billion.
- The report further says that by achieving the net zero targets by 2050, India could improve its annual GDP by about 7.3% which accounts for over \$470 billion and help generate 20 million new jobs by 2032.

Way forward:

- Achieving the net zero emissions targets by 2070 would require an investment of over \$10.1 trillion.
 - * Whereas achieving the targets by 2050 would require \$13.5 trillion as an investment.
- Apart from the investments, proper implementation of viable policy options to decarbonise India's energy infrastructure and economy can help India to reach its net zero targets by mid-century.
- Repost points out that comprehensive planning will help attract additional investments which will help in freeing up the existing resources to address adverse impacts of climate policies such as carbon taxes.
- Abandoning the use of new coal by 2023 and shifting away from unabated coal power by 2040 will also help India achieve its targets much earlier.

Nut Graf:

Achievement of India's net zero emission targets will not only help the country to fight against the adverse impacts of climate change but also help promote sustainable and inclusive development as it has the potential to boost the growth in the economy, generate employment opportunities and improve health.

Environmental Pollution and Degradation

5. U.S. Bill on Climate Action

- » Mains: Commitments to address climate change

Context:

- Recently, the United States Senate passed a bill called 'The Inflation Reduction Act (IRA) 2022'. It is a scaled-down version of President Joe Biden's Build Back Better Act, which the Senate did not approve.

Inflation Reduction Act 2022:

- This bill has a special focus on healthcare, climate and tax provisions to address inflation.
- This bill contains packages worth \$369 billion for clean energy transition which makes this the largest American investment towards clean energy.
- The Bill provides several tax deductions to low and middle-income households to promote electric energy and reduce electricity bills.
- It also aims to encourage the domestic production of heat pumps and critical minerals.
- The Bill funds various zero-emission technologies to increase the climate resilience of disadvantaged poor and tribal communities.
- Major tax credits are provided for wind and solar energy projects.
- It also imposes a fee on methane leaks from oil and gas drilling.

Why does the U.S. want to invest in addressing climate change?

- The U.S is currently facing extreme climate threats in the form of wildfires, heatwaves, floods, hurricanes and cyclones, that have become frequent and intense in the past few years.
- The ongoing floods because of heavy rainfall and the wildfires in California induced by dry lightning have become a major concern for the country.
- There is a link between extreme weather events and climate change.
- Additionally, this bill is in line with President Joe Biden's various climate commitments.
 - * In 2021, he committed to cutting down emissions by 50-52% below 2005 levels by 2030.
 - * He also signed a new methane deal to restrict methane emissions from the gas and oil industry.
 - * His 'Build Back Better' plan was a multi-trillion deal with key provisions for climate change.
- As per the estimates, these investments could reduce greenhouse gas emissions by 31 to 44% by 2030.
- This will make the U.S. compete with China in terms of renewable production, especially solar energy which can also facilitate the creation of domestic jobs.

- Thus, the Bill is very crucial for global climate action as the U.S. is one of the largest emitters of greenhouse gases globally.

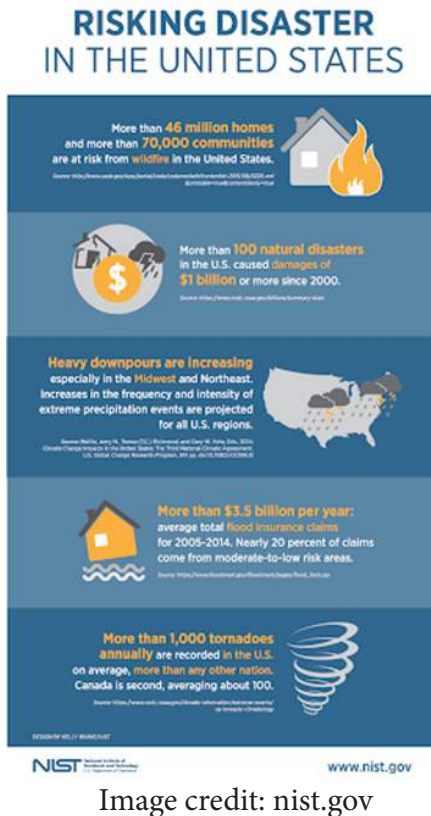


Image credit: nist.gov

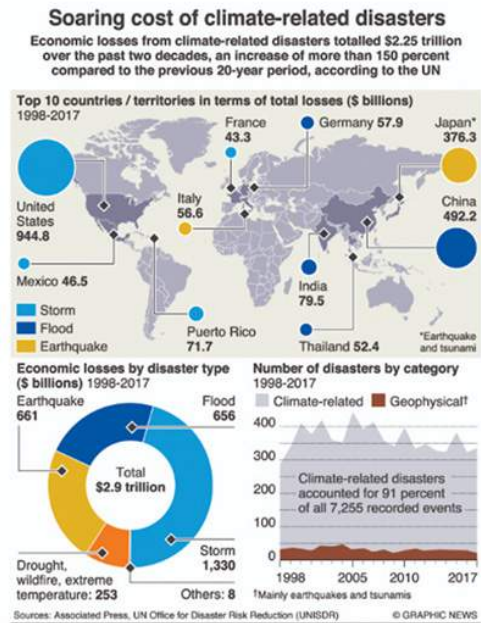


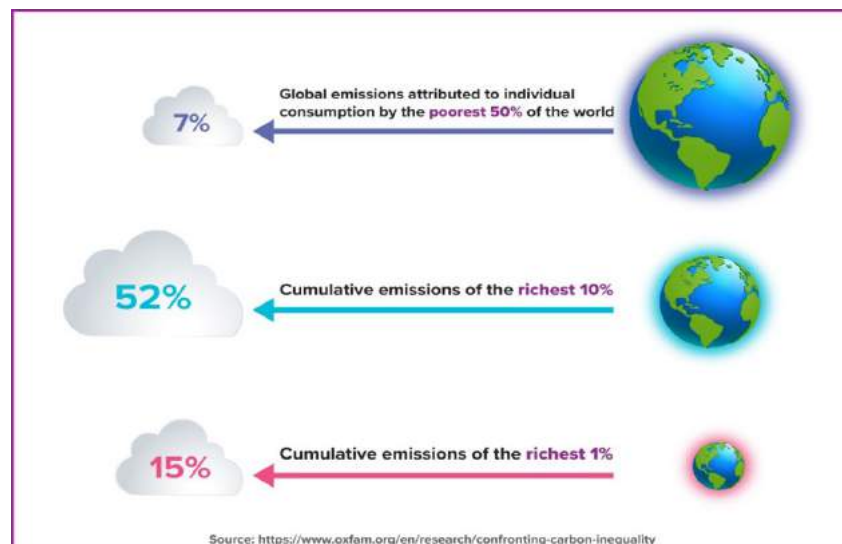
Image credit: my republica

Who is opposing the bill?

- Fossil fuel supporters, climate advocates, Republicans and some senators within the Democrats are opposing the bill for various reasons.
- Fossil fuel supporters are against the bill as it completely neglects the people that are dependent on the fossil fuel industry for their income.
- Climate advocates oppose the bill for coupling the development of renewable energy with land leasing for oil and gas drilling and the Bill still contains giveaways to the fossil fuel sector.
 - * The Bill seeks to expand oil and gas drilling, with the federal government offering land for onshore and offshore drilling as a prerequisite for developing renewable energy.

Similar climate packages:

- 'Invest in Kisida' plan by Japan aims for a \$1.1 trillion investment to strengthen the Japanese economy. Announced in 2022, it aims to transition towards clean energy and achieve a 46% reduction in greenhouse gas emissions by 2030.
- In June 2021, the European Union proposed a 'Fit for 55' plan to reduce emissions by 55% by 2030.



Conclusion:

- It is a crucial step in achieving the climate target agreed upon in the Paris Agreement. Even though the Bill is not enough to address global climate finance which is a major roadblock to global climate action, such historic initiatives by global leaders in greenhouse gas emissions can be a benchmark for other large emitters to push their climate action programmes.

Nut Graf:

The passage of the Inflation Reduction Act in the US is a significant step towards addressing climate change and related disasters. Being the largest emitters, both the U.S. and the EU can play a significant role in taking responsibility for historical emissions. This bill is the right step in finding sustainable solutions to climate change as it increases revenue, creates more domestic jobs and addresses the climate crisis.

Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment**6. Have coastal ecosystem norms been violated?**

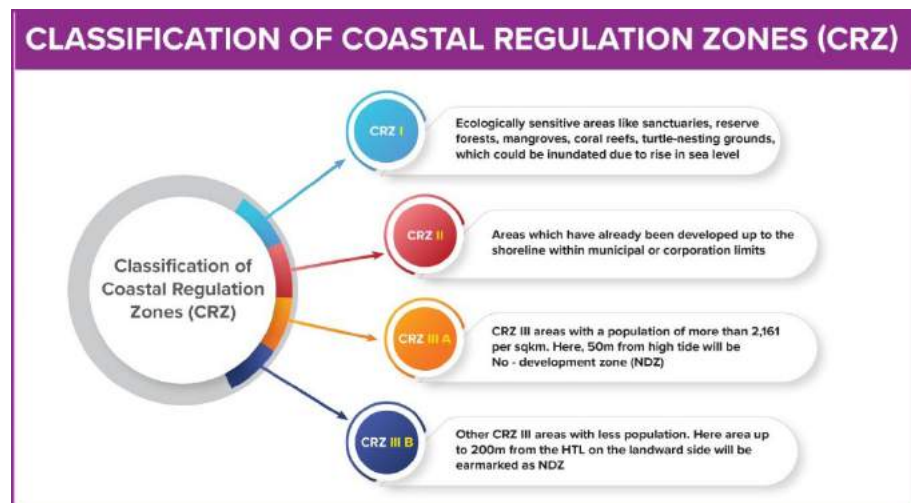
- » Prelims: Coastal Regulation Zone notification, 2019
- » Mains: Concerns pointed out in the audit report of the CAG

Context:

- The Comptroller and Auditor General (CAG) of India has tabled a report based on the observations from an audit of 'Conservation of Coastal Ecosystems from 2015-20' in Parliament. The report evaluates the effectiveness of the conservation process being followed by Centre and States in coastal ecosystems.
 - * The CAG has a constitutional mandate to undertake 'performance audits' of publicly funded programmes.

Background:

- The Union government is empowered under the Environment Protection Act, 1986 to regulate activities along India's coasts. In this respect the Union government had come up with the Coastal Regulation Zone Notification (CRZ) 2019.
- Under this the coastal area is classified into different zones for regulation. The framework envisages an institutional mechanism for the implementation of the CRZ with an overall objective of Integrated Coastal Zone Management Programme (ICZMP).

**Observations made in the audit report:**

- The "pre-audit studies" conducted by the CAG found large-scale Coastal Regulation Zone violations in the coastal areas. This included illegal construction activities, effluent discharges from local bodies, industries and aquaculture farms into the sensitive coastal ecosystems. In this context, the CAG undertook a detailed investigation.
- The National Coastal Zone Management Authority (NCZMA) envisaged as the apex institution for the implementation of the CRZ policy has been functioning as an ad-hoc body due to the failure of the Environment Ministry to notify NCZMA as a permanent body. It is being reconstituted every few years. This has had an adverse impact on its functioning and its effectiveness.

- The Expert Appraisal Committees —committee of scientific experts and senior bureaucrats designated to evaluate the feasibility of an infrastructure project and its environmental consequences — were found to be absent during some project deliberations in clear violations of the policy guidelines. Also in some instances, the members of the EAC participating in the deliberation were fewer than half of the total strength.
- In some states like Karnataka, State Coastal Zone Management Authority had not been reconstituted after the expiry of its term and there was delayed reconstitution in States like Goa, Odisha and West Bengal. This is in clear violation of the CRZ policy provision which mandates that every coastal State and Union Territory have a Coastal Zone Management Authority.
- The District Level Committees (DLCs) mandated for every district that has a coastal stretch and where the CRZ notification is applicable were not established in Andhra Pradesh and these important institutions lacked participation from local traditional communities in states like Tamil Nadu.
- There were serious concerns with respect to Environment Impact Assessment (EIA) report preparation. In some instances non-accredited consultants were preparing the EIA. The use of outdated data and the failure to undertake a comprehensive evaluation of the environmental impacts of the project and the failure to undertake an appraisal of the disasters which the project area was prone to give rise to serious concerns over the efficacy of these reports.
- Some projects were being approved despite serious concerns raised with respect to them in the EIA reports.
- The report also takes note of the failure of states to have in place strategies to conserve sensitive coastal ecosystems in their jurisdiction. It points out to stranded programmes and initiatives announced by some state governments in the realm of coastal ecosystem conservation.

What next?

- The audit report presented by the CAG will be placed before the related Standing Committee of Parliament. The Environment Ministry must seek to address the lacunae pointed out by the CAG.

Nut Graf:

The Coastal Regulation Zone policy, though well intended and much necessary for the conservation of the critical and sensitive coastal ecosystem, the lax implementation of this policy remains a major cause of concern.

Conservation, Environmental Pollution and Degradation

7. Understanding ethanol blending

- » Prelims: Facts about ethanol blending
- » Mains: Ethanol blending programme of India and various challenges arising out of its implementation.

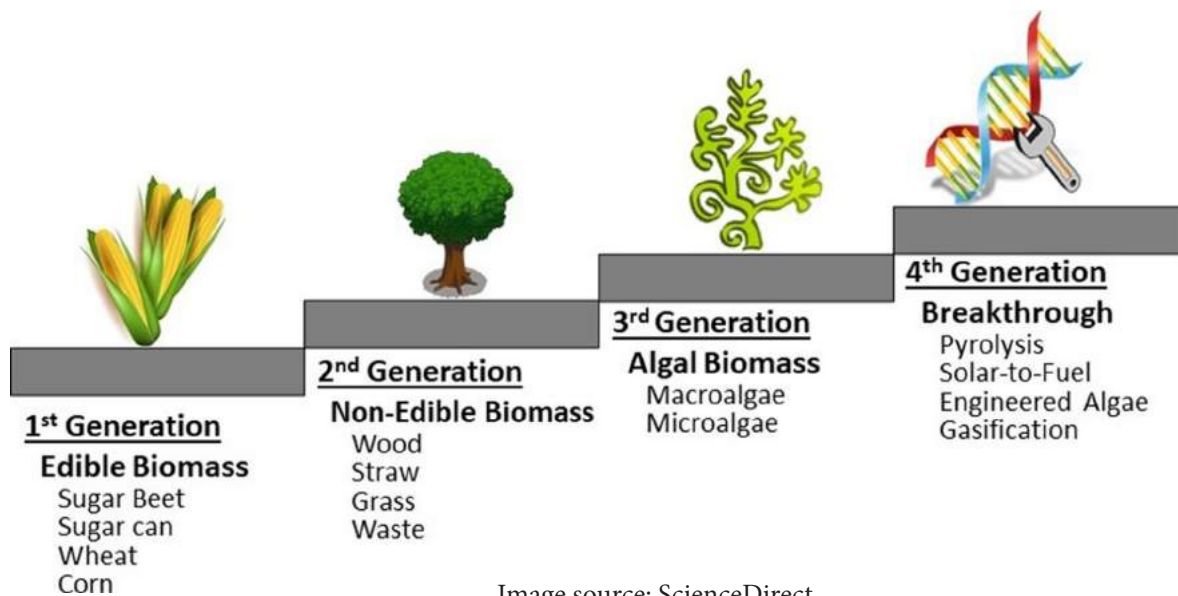
Context:

- In the 76th Independence day speech, the Prime Minister announced that India has achieved its target of blending 10% ethanol in petrol.

Ethanol blending:

- Ethanol is an agro-based product that is mainly produced from molasses which is a by-product of the sugar industry.
- Ethanol can also be obtained from other sources such as rice husk or maize or corn.
- Ethanol blending is nothing but the mixing of ethanol with petrol with an aim to conserve the fossil fuel in vehicles.
- The key objectives of ethanol blending are:
 - * Cut down the share of oil imports which is causing a significant reduction in the foreign exchange reserves of the country.
 - » According to NITI Aayog, India's net import of petroleum stood at 185 million tonnes which cost around \$55 billion in 2020-21 and ethanol blending can help save nearly \$4 billion per annum.
 - * Increased ethanol output is also beneficial for increasing farmers' incomes.

Generations of ethanol



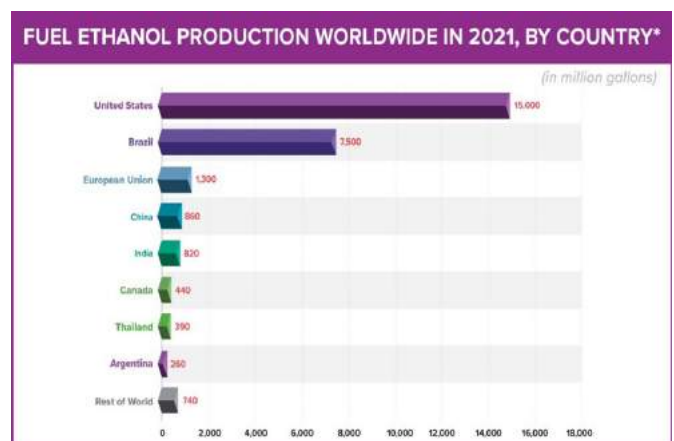
- First generation ethanol or 1G: ethanol which is produced from molasses from edible sources such as sugarcane, wheat, corn, maize, etc.
- Second generation ethanol or 2G: ethanol extracted from non-edible materials like rice straw, wheat straw, corn cobs, corn stover, bagasse, bamboo and woody biomass.
 - * The key benefit of 2G ethanol is that the farmers can now sell the residual stubble to produce biofuels and thereby prevent stubble burning that causes air pollution.

Ethanol blending in India

- At present 10% petrol has been blended with ethanol in India which is regarded as "E10".
- India initially set targets of achieving 20% ethanol blending (E20) by 2030. However, in 2021 the NITI Aayog advanced the timeline to 2025.

Ethanol blending worldwide

- The U.S. and Brazil produce about 84% of the global share which is followed by the European Union (EU), China, India, Canada and Thailand.
- Despite Brazil being a developing
 - * Brazil had introduced laws to maintain ethanol blending in petrol in the 18-27.5% range, and it eventually reached its 27% target in 2021. country, its achievements in ethanol blending are remarkable.



Impact and challenges to the auto industry

- In order to facilitate ethanol blending, the vehicle materials must be ethanol compliant.
 - * Vehicle parts like petrol points, plastics, rubber, steel and others must be compliant to store E20 fuel otherwise the fuel will cause rusting.
- Also to make vehicle E20 compliant, the engines of the vehicles must also be tweaked to process E20 petrol.
- According to NITI Aayog, the optimisation of the engine and monitoring the durability of such engines are the key challenges to the auto industry.
- Storage is also another key challenge if the E10 supply is continued along with the E20 supply as the storage must be separated, which increases costs and complexities.

Key concerns against the transition towards ethanol blending

- The use of ethanol in fuels addresses the adverse effects of the release of carbon dioxide (CO₂) but does not reduce the emission of nitrous oxide which is another harmful pollutant emitted due to the burning of fossil fuels.
- A report by the Institute for Energy Economics and Financial Analysis (IEEFA) points out inefficiency in the land use patterns in ethanol production and says that the land can be utilised more efficiently for producing renewable power for EV batteries.
 - * Example: 187 hectares of ethanol produced from maize are required to match the annual travel distance of EVs recharged from one hectare of solar energy.
- There are also concerns about the excessive use of water for the production of ethanol.
 - * 70 litres of ethanol can be obtained from a tonne of sugarcane which means that to produce a litre of ethanol from sugar 2,860 litres of water is required.
 - * There have been efforts to shift toward waste-based extraction like coarse grains but their supply is still a challenge.
- There are also concerns about food security as there has been a push towards the cultivation of sugarcane and maize for ethanol production.
 - * Experts point out that this has resulted in inadequate stocks of crops and grains for domestic food supply systems and export markets for grains as they are diverted for ethanol production.
 - * This along with the ill effects of climate change such as the increased frequency of heatwaves pose a significant threat to food security which requires attention.
- Further, the 2021 Ethanol Roadmap estimates that 800 crore litres of additional ethanol are required every year to meet the set targets and not enough ethanol is produced currently.

Nut graf:

Ethanol blending of fossil fuels plays a significant role in achieving atmanirbharta (self-sufficiency) in the energy sector of the country as India is one of the largest importers of fossil fuels in the world. However, various challenges arising out of achieving the set targets of ethanol blending must be continuously monitored.

Environmental Pollution and Degradation

8. Delhi's PM_{2.5} levels worst in the world'

- » Prelims: NO₂ emissions

Context:

- An analysis of air quality based on the report, Air Quality and Health in Cities, released by U.S.-based Health Effects Institute has found that Indian cities, while recording particulate matter emissions (PM_{2.5}) that are among the highest in the world, do relatively better on nitrogen dioxide (NO₂) emissions.

Air Quality Index:

- Air quality index is a number that tells you which pollutant is present in the air, in what amount, how sensitive it is for your health, etc.
- The Air Quality Index is acquired by measuring emissions of eight major pollutants present in the air: Particulate matter (PM_{2.5} and PM₁₀), Ozone (O₃), Carbon Monoxide (CO), Nitrogen Dioxide (NO₂), Sulphur Dioxide (SO₂), Lead (Pb) and Ammonia (NH₃) emissions.
- The National Air Quality Index has set up six AQI categories: Good, Satisfactory, Moderately polluted, Poor, Very Poor, and Severe.

Details:

- Delhi and Kolkata were ranked first and second in the list of top 10 most polluted cities in terms of PM_{2.5} levels.
- The report, found that while exposures to PM_{2.5} pollution tend to be higher in cities located in low- and middle-income countries, exposure to NO₂ is high across cities in high-income as well as low- and middle-income countries.
- Due to their highly reactive nature, nitrogen oxides also contribute to the formation of other pollutants, including ozone and particulate matter.
- NO₂ due to its high reactivity, has a shorter lifetime compared with other pollutants.

Environment Pollution and Degradation.

9. Tapping technology to check minor mineral plunder

- » Mains: Illegal sand mining.

Details:

- The demand for minor minerals like sand and gravel has crossed 60 million metric tons in India due to rapid development.
- It has thus become the second largest extractive industry on the planet, after water.
- The rampant and illegal mining of minor minerals continues unabated, even after stringent laws.

Difference between Major and Minor minerals:

- Minor minerals are those, which are declared by the Central Government under Section I (a) of the Mines & Minerals (Regulation & Development) Act, 1957. They are further revised and notified from time to time in the Gazette of India.
- The major minerals cover fuel minerals consisting of coal, lignite, petroleum and natural gas and other major minerals i.e. metallic minerals including atomic minerals and non-metallic minerals

Provisions available against illegal mining:

- The administrative and regulatory powers to set rules, prescribe rates of royalty and mineral concessions alongwith enforcement are entrusted to the State governments exclusively.
- On the recommendation of the Supreme Court, the amended EIA of 2016 made environmental clearance mandatory for mining in areas even less than five hectares, including minor minerals.
- The 2016 amendment also had provisions for setting up of a District Environment Impact Assessment Authority (EIAA) and a District Expert Appraisal Committee (EAC).

Associated concerns with illegal mining:

- According to a State-wise review of EACs and EIAAs in States like Gujarat, Uttar Pradesh, Karnataka and Tamil Nadu, the authorities review over 50 project proposals on a daily basis and the rejection rate stands at a mere 1%.
- As per United Nations Environment Programme, in 2019, India and China were top two countries where illegal sand mining has resulted in rampant environmental degradation.
- Moreover there is a lack of comprehensive assessment methodology for evaluation of the status of sand mining in India.
- The issue of illegal mining of minor minerals is often underestimated by the authorities, further accentuating environmental consequences.
- Regional studies by the Center for Science and Environment of the Yamuna riverbed in Uttar Pradesh has made following observations:
 - * Rampant soil demands has severely impacted soil formation and the soil holding ability of the land
 - * Severe loss to marine life.
 - * An increased frequency of floods and droughts.
 - * Degraded the water quality.
- Similarly, in a study of the Narmada basin it was found that the population of Mahseer fish reduced by 76% between 1963 and 2015 due to sand mining.
- Also in many cases it was found that gravel was being removed from agricultural lands or fallow lands of the government near major highways or construction projects due to its cost efficiency and accessibility.
- Illegal mining also causes extreme losses to the state exchequer. For example:
 - * U.P. loses revenue from 70% of mining activities as only 30% of the area is legally mined.
 - * The absence of royalty has resulted in a loss of ₹700 crore in Bihar.
 - * Karnataka suffered a loss of ₹100 crore as a result of non-payment of various cesses due to unregulated mining.

State response to judicial orders:

- According to a report of the Oversight Committee by the National Green Tribunal (NGT), Uttar Pradesh (where illegal sand mining has created a severe hazard) has either failed or complied partially with the orders issued regarding compensation for illegal sand mining.
- Judicial pronouncements were also neglected in West Bengal, Bihar, and Madhya Pradesh.
- A State-wide review of the reasons behind non-compliance are:
 - * Malfunctioned governance due to weak institutions.

- * Inadequate and scarce state resources to ensure enforcement.
- * Poorly drafted regulatory provisions.
- * Lack of adequate monitoring and evaluation mechanism.
- * Huge number of litigations that dampens state administrative capacity.

Use of technology to resolve the sand mining issues:

- Satellite imagery:
 - * Satellite imagery can be used to assess the volume of extraction and also check the mining process.
 - * Satellite pictures can also be used as evidence from the past 10 to 15 years to show the gravity of the issue and fix charges.
 - * It was found that with well-planned execution of the directions of NGT to some states regarding use of satellite imaging the revenue from minor minerals mining increased considerably.
- Moreover drones, the internet of things (IoT) and blockchain technology can also be incorporated in monitoring mechanisms complemented by Global Positioning System, radar and Radio Frequency (RF) Locator.
 - * Gujarat State governments and judicial directions by the High Court of Madras have highlighted the use of these technologies to check illegal sand mining.

Nut Graf

Protection of minor minerals requires not just investment in production and consumption measurement but also monitoring and planning tools. To this end, technology can be used as an enabler to provide a sustainable solution.

Environmental Conservation

10. Indian Virtual Herbarium

- » Mains: Digitisation and conservation of plant species

Context:

India's biggest virtual database of flora was launched in July 01 by Botanical Survey of India (BSI). The portal recorded 02 lakh visits from 55 countries in just 30 days.

What are Herbarium specimens?

- A herbarium is a collection of plant samples with related information for long-term study.
- This collection may include pressed and mounted plants, dry fruits, seeds, pollen, wood sections, microscope slides, frozen DNA extractions, silica-stored materials and fluid-preserved fruits or flowers; all are commonly referred to as herbarium specimens.



Image Credit: The Hindu

What is Indian Virtual Herbarium:

- It is a collection of plants and preserved parts of plants which presents a rich botanical diversity of India.
- It was developed by scientists of the BSI.
- Each record in the virtual herbarium contains an image of the preserved plant specimen, collection locality, scientific name and collection date, barcode number and collector name.
- It also includes an option to get State-wise data and users can search plants of their own States, which will help them identify regional plants and in building regional checklists.
- The portal includes around 01 lakh images of herbarium specimens.
- As a priority, the Indian Virtual Herbarium has digitized information with images of 29,615 type specimens on its platform.

Significance of the Digital Herbarium:

- Herbaria are usually affiliated with museums, botanical gardens or universities.
- Herbarium specimens help in studies and research work related. It is also crucial in plant identification, ecological studies and systematics studies.
- The BSI has more than 03 million plant specimens persevered in different herbaria located in the various parts of India.
- Herbarium specimens are considered important apparatus for plant conservation, taxonomy, habitat loss and even climate change,
- The Indian Virtual Herbarium is also deeply linked with the botanical history of the country which provides most valuable historical collections of botanists like Nathaniel Wallich, William Roxburgh and Joseph Dalton Hooker, considered the founding fathers of botany in India.
- The digital herbarium has some of the oldest botanical specimens dating as early as 1696.
- The oldest type specimen, *Lepidagathis scariosa* was collected in 1817 by Robert Wight. Type specimens are those collections that help in new discoveries and are considered of great significance by taxonomists and botanists.

Nut Graf:

Portal is set to launch all of India's herbaria by 2024. This is an example of how we can use the digital world to connect with our roots. Internet and digitization has made large quantities of information on botanical collections more accessible for researchers throughout the world. It will also provide safe-guard to the collection by providing a digital back-up to the physical specimens and reduce handling and shipping.

Conservation**11. Rock Agama**

- » Prelims: Wildlife protection

Context:

A recent study by Indian Institute of Science (IISc), Bengaluru on peninsular rock agama gives insights into urbanization and conservation.

Peninsular Rock Agama:

- The South Indian rock agama/peninsular rock agama (*Psammophilus dorsalis*) is a common species of lizard found on rocky hills in south India.



Image Credit: Indian Express

Conservation Status:

- IUCN: Least Concern
- Geographical Range: They are found in southern India, south of about 16°N latitude.
 - * In the Western Ghats, South Arcot and Nallamala hills.
 - * In Nilgiris, they are found in the hilly regions at altitudes up to 6000 ft above sea level.
 - * It was noted as being particularly common near Bangalore.



Image Credit: Wikipedia

Key Details of the study:

- The study undertook to characterize urbanization in the region and also to understand where the rock agama reside in and around Bengaluru specifically.
- Examination of various environmental factors that could influence the presence of the lizard showed that they are found mainly in rocky places and warm spots.
- These lizards do not generate their own body heat, so they seek warmth from external sources like a sunny spot on the wall or a warm rock.
- Importance of Rock Agama in ecology:
 - They can indicate which parts of the city are warming, and their numbers indicate how the food web is changing.
 - Since these lizards eat insects they cannot live in places where there are no insects. Insects are crucial for a healthy ecosystem as they provide critical services like pollination.
 - So, rock agamas are a good model system to understand other aspects of the ecosystem.

Threats:

- Habitat loss.
- Increased Urbanization.

Conclusion:

- Small animals matter. Lot of flora and fauna are disappearing quickly due to urbanization and climate change. The rock agama is one such species which is dependent on rocky scrub habitat. Conservation efforts shall focus on saving rocky patches even while redoing urban landscapes by planting trees. Smaller fauna and flora need to be preserved as they are the key indicators of the health of the ecosystem.

Environmental Conservation

12. Ranganathittu Bird Sanctuary

- » Prelims: Ranganathittu Bird Sanctuary

Context:

- The Ranganathittu Bird Sanctuary in Karnataka has been reopened for tourists after being closed for over a month due to flooding following heavy discharge from the Krishnaraja Sagar (KRS) Dam.

Ranganathittu Bird Sanctuary:

- Ranganathittu Bird Sanctuary located in the Mandya District is the largest bird sanctuary in Karnataka.
- The bird sanctuary is located on the banks of River Cauvery.
- Ranganathittu is an ecologically important riverine wetland that is rich in biodiversity, with over 188 species of plants, over 225 species of birds, 69 species of fishes, 13 species of frogs, and 30 species of butterflies.
 - * The sanctuary is regarded as the "Pakshi Kashi".
 - * Ranganathittu is known to be an important nesting ground for several species of resident birds.
 - * Most commonly found bird species are Painted Stork, Kingfishers, Cormorants, Darter, Herons, River Tern, Indian Roller, Blackheaded Ibis, Spoonbill, Great Stone Plover, and Spot-billed Pelicans.
- Recently, the Ranganathittu Bird Sanctuary was declared a Ramsar site making it the first wetland in Karnataka to be designated as a Ramsar site.

Conservation, Environmental Pollution & Degradation

13. The Energy Conservation (Amendment) Bill 2022

- » Prelims: Carbon Market
- » Mains: Policy interventions to tackle climate change

Context

- Recently, a Bill to amend the Energy Conservation Act, 2001 was introduced in Parliament.
- It was last amended in 2010, to introduce changes such as incentivising the use of clean energy by issuing carbon saving certificates.

Energy Conservation Act, 2001 :

- The Energy Conservation Act, 2001 was enacted to provide for efficient use of energy and its conservation and for matters connected therewith.
- The Act provides the legal framework, institutional arrangement and a regulatory mechanism at the Central and State level to embark upon the energy efficiency drive in the country.
- This act provides for the establishment and incorporation of the Bureau of Energy Efficiency (BEE).
- The Act introduced various provisions on Standards and Labelling for improvement in energy efficiency.
- It sets up the Central Energy Conservation Fund to develop the delivery mechanism for large-scale adoption of energy efficiency services, such as performance contracting and promotion of Energy Service Companies (ESCOs).
- The Act allows the Union government to prohibit the manufacture, sale, purchase or import of any particular equipment unless it conforms to specified norms issued six months/ one year before.

Proposed Amendments:

- Energy consumption standards would now be specified for motor vehicles, ships and other water vessels, industrial units, and buildings.
- In the case of vehicles and water vessels, fuel consumption norms would be defined.
- New provisions would empower the government to prohibit the manufacture or import of any vehicles or water vessels if it does not conform to the prescribed energy standards.
- It seeks to widen the scope of energy conservation to include large residential buildings as well. Till now, the energy conservation rules applied mainly on industrial and commercial complexes.
- Every building under the code would have to ensure that at least a part of its total energy consumption comes from renewable or non-fossil fuel sources.
- Amendment incentivises the efforts to use clean energy by issuing carbon saving certificates.

- It has provisions to facilitate the promotion of Green Hydrogen as an alternative to the fossil fuels used by industries

Objectives of the Proposed Amendments:

- To facilitate the achievement of more ambitious climate change targets and ensure a faster transition to a low-carbon economy.
- To reduce India's power consumption via fossil fuels and thereby minimise the nation's carbon footprint.
- To establish a domestic carbon market and facilitate trade in carbon credits.

What are carbon markets?

- Carbon markets allow the trade of carbon credits with the overall objective of bringing down emissions. They create incentives to reduce emissions or improve energy efficiency.
- Under the Kyoto Protocol, carbon markets have worked at the international level.
- Domestic or regional carbon markets are already functioning in several places, including Europe and China.
- In India, a similar BEE scheme, called PAT, (or perform, achieve and trade) allows units to earn efficiency certificates if they outperform the prescribed efficiency standards. The laggards can buy these certificates to continue operating.

The new carbon market that is proposed under the amendment would be much wider in scope.

Environmental Conservation

14. The coal mining protests in the Hasdeo Aranya region

- » Prelims: Hasdeo forests
- » Mains: Controversy surrounding the mining in Hasdeo forests

Context

- There have been protests against mining in the Hasdeo forests which are called the lungs of Chhattisgarh.
- Recently, the Legislative Assembly passed a private member resolution unanimously which asks the Central Government to cancel the allocation of coal mining blocks in the region.



- The Hasdeo forests spread across 1,878 sq km and cover Chhattisgarh's Korba, Surguja and Surajpur districts.
- It is an important migratory corridor and has a significant presence of elephants.
- Hasdeo forest is the catchment area of the Hasdeo river which is the largest tributary of the River Mahanadi which originates in Chhattisgarh and flows into the Bay of Bengal through Odisha.
 - * It is also a catchment area of the Mand river (also a tributary of the Mahanadi)
- It also houses the Hasdeo Bango Dam which helps in the irrigation of six lakh acres of land, crucial for Chhattisgarh's paddy cultivation.

Controversy surrounding the mining:

- Hasdeo forest has a coalfield underneath which has about 22 coal blocks.

- In 2010, the Union government classified the Hasdeo forest as a “no-go” zone for mining. However, in 2011, the Ministry of Environment, Forest and Climate Change (MoEF) allowed mining for one coal block and currently, seven blocks have been allotted for mining.
- Out of these, the Parsa East Kete Basan (PEKB) and Chotia (I and II) are operational.
- The PEKB Phase I mining has been completed and there has been large-scale local opposition to mining and deforestation in Parsa, PEKB Phase II and Kete Extension.
- Clearances were withdrawn as the gram sabhas opposed mining in the Madanpur South and Gidmudi Paturia blocks.
- Mining activities were paused in all these blocks and other blocks which were listed for auction by the Centre were withdrawn from the list after the State government’s request

What does the resolution say?

- The resolution has urged the central government to not permit mining in blocks located in the catchment areas of the two important rivers Hasdeo and Mand.
- The resolution has also urged the State government to use the same principle to stop mining in the already allocated Hasdeo coal blocks where no activity has started so far.
 - * Activists say that the clearance from the forest department under the Air Pollution Act and the Water Pollution Act is like a veto power held by the State government and can stop mining activities from starting.
- Dharmjeet Singh who introduced the resolution said that the companies can be allotted coal blocks elsewhere in Chhattisgarh or in other mining-rich regions of the country.

Nut Graf:

Experts point out that about three lakh trees would be cut down due to mining in PEKB and Parsa which will have severe adverse impacts on the ecology and environment of the region. Governments both at the Centre as well as the State level must be very careful while allowing mining in such ecologically sensitive areas.

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HEALTH ISSUES

Issues Related to Health

1. Working towards animal health

- » Mains: Animal health-challenges and significance

Background:

- The livestock population in India is 1.6 billion.
- Farmers relying on livestock and other related activities is 280 million approximately.
- The dairy industry value (in terms of trade) is \$160 billion.
- The meat industry value is \$50 billion.

Benefits/Significance of Animals/Livestock:

- Provides a reliable source of alternate income to farmers.
- Reduces rural poverty.
- Contribution to the GDP and export.

Consequences of poor animal health:

- Between 2000 to 2010, 60% of diseases were found to be zoonotic in nature.
- The disease outbreak incidents across the globe are increasing at a compound annual growth rate (CAGR) of 6%.
- In India alone, the annual outbreak of zoonotic diseases resulted in an estimated annual loss of \$12 billion to the economy.

Measures Taken:

- The Department of Animal Husbandry and Dairying (DAHD) has set up a dedicated 'One Health Unit' in collaboration with the Gates Foundation.
- DAHD has set up an Empowered Committee for Animal Health to streamline the animal health regulatory ecosystem in the country.
- "Animal pandemic preparedness" model to be implemented through the National Digital Livestock Mission (NDLM).
- Companies can now avail of incentives under the Animal Husbandry Infrastructure Fund.
- Within the framework of the NDLM, efforts are made to link all the animal disease diagnostic labs involved in sero-surveillance through a single portal.

Way Ahead:

- Close collaboration between veterinary science and human health experts to establish effective tools for pandemic preparedness.
- Enhanced disease surveillance.
- Ensure timely and successful development of animal drugs and vaccines.
- Pathogen prioritization and aiding pharma companies in vaccine research.
- To create a robust pandemic preparedness model, it is imperative to juxtapose the data on animal health with the available data on human health.

Nut Graf

In the backdrop of the COVID-19 pandemic it is reiterated that for further pandemic preparedness, both human, as well as animal health, is equally important. India can become a global leader with efficient animal disease preparedness methods.

2. Zoonotic diseases

- » Prelims: LayV
- » Mains: Dealing with the challenge of zoonotic diseases and one health approach

Context:

Recently, a new zoonotic virus called Langya (LayV) that has evolved to infect humans has been identified in Eastern China.

Details:

- Langya virus, is a species of henipavirus and has been found to cause fever, fatigue, cough, accompanied by thrombocytopenia or low platelet count, and leukopenia or a low white blood cell count. In some cases, doctors also noticed impaired liver and kidney functions.
- Studies into the origin of this virus have revealed that shrews might be a reservoir of the LayV.

Recommendations:

- While experts have noted that there is no particular concern about LayV virus, there is the need for the following measures.
 - * Constant surveillance should be a top priority.
 - » There should also be a standard procedure on checks and genome sequencing for pathogens that pass from animals to humans.
 - * Regularly testing humans and animals for emerging viruses is critical to understand the risk of zoonotic diseases.
- Adequate sharing of information between nations would help stop rapid spread of disease across the world.

Nut graf:

When it comes to dealing with the challenge of zoonotic diseases, preventive measures continues to be infinitely better than curative measures. Constant surveillance should be a top priority.

Health-related issues

3. Tomato Flu

- » Prelims: Viral Infections

Context:

- Recently, the Union Health Ministry issued an advisory on Tomato Flu, asking States to take measures to prevent its spread.

What is Tomato Flu?

- The infection has been named as such because of the red blisters that appear on the body and gradually enlarge to the size of a tomato.
- It is characterized by fever, and joint pain usually seen in children below the age of five years.
- This is accompanied by other symptoms of viral fevers such as diarrhoea, dehydration, nausea and vomiting, and fatigue.
- It is now considered a different clinical presentation of hand-foot-and-mouth disease (HFMD) caused by a group of enteroviruses (viruses transmitted through the intestine) like Coxsackievirus A-6 and A-16.
- The Union Health Ministry has clarified that the virus causing 'tomato flu' is not related to SARS-CoV-2, monkeypox, dengue, or chikungunya despite symptoms similar to those in viral infections.

Transmission:

- It is highly contagious and spread through close contact.
- Infants and young children are also prone to this through the use of nappies, touching unclean surfaces as well as putting things directly into the mouth.
- It is a 'non-life-threatening virus' that could lead to serious consequences by spreading to adults as well.
- India recorded around 100 cases of 'tomato flu' in children below nine years of age in less than three months.

Treatment:

- There is no specific drug for this flu.
- The treatment is similar to the treatment of chikungunya, dengue and hand, foot, and mouth disease.
- Patients are advised to isolate, rest, plenty of fluids, and hot water sponge for the relief of irritation and rashes.
- A nutrition-rich, balanced diet to boost immunity.

HISTORY

Modern History-significant personalities

1. Pingali Venkayya

- » Prelims: Facts about Pingali Venkayya

Context:

- 146th birth anniversary of Pingali Venkayya.
- The government is organising a “Har Ghar Tiranga” initiative to mark 75 years of Independence.

Pingali Venkayya:

- Pingali Venkayya was born on August 2nd, 1876 in Bhatlapenumarru, near Machilipatnam town in Andhra Pradesh.
- He is regarded as the “architect of the Indian National Flag”.
- The version presented by Venkayya had two stripes (green and saffron) and the spinning wheel at the centre. Later, Venkayya added a white stripe and this became the original Tricolour.

The Freedom Struggle — its various stages and important contributors/contributions from different parts of the country.

2. Pandurang Khankhoje

- » Prelims: Ghadar Movement

Context:

- The Lok Sabha Speaker is slated to travel to Mexico where he will unveil statues of Swami Vivekananda and agriculturalist Pandurang Khankhoje.
- The Speaker’s visit is part of the government’s efforts to honour lesser-known Indian-origin leaders outside India.

Details:

- Pandurang Khankhoje (1883-1967) was a Maharashtra-born freedom fighter and agriculturalist.
- He had a close connection with Mexico in which he sought refuge due to his association with the Ghadar Party.
- As a student, he was an admirer of the French Revolution and of the American War of Independence.
- He was greatly influenced by Swami Dayanand and his Arya Samaj movement.
- He visited Japan to learn from the 1904-05 Russo-Japanese War where he also met Chinese revolutionaries and later moved to the US, where he enrolled in college as a student of agriculture.
- Khankhoje was one of the founding members of the Ghadar Party, established by Indians living abroad in 1914, mostly belonging to Punjab. Its aim was to lead a revolutionary fight against the British in India.
- He used his military experience to train volunteers, mostly retired servicemen, to foment trouble for the British in India.
- He was encouraged by the Mexican Revolution of 1910.
- Khankhoje met Madame Bhikaji Cama in Paris and Virendranath Chattopadhyaya in Berlin who instilled in him a new hope after the failure of Ghadar movement.
- He also met Vladimir Lenin in Russia after the Russian Revolution in 1917.

Pandurang Khankhoje in Mexico:

- He was appointed as a professor at the National School of Agriculture in Chapingo, Mexico owing to his earlier friendship with Mexican revolutionaries.
- He dedicated himself to the Mexicans and started studying the cultivation of new varieties of high-yielding corn and wheat, with emphasis on drought- and disease-resistant varieties, and hence became a part of the efforts to usher in the Green Revolution in Mexico.
- The local press in Mexico dubbed Khankhoje ‘Wizard of Chapingo and the Hindu savant, the man who created wonders with nature.’

SOCIAL JUSTICE

Welfare schemes for vulnerable sections of the population.

1. Launch a national tribal health mission

» Mains: Tribal Health issues

Context:

- International Day of the World's Indigenous Peoples.

Facts related to Tribal population:

- As per the Census of India (2011), nearly 11 crore Scheduled Tribes (ST) live in India.
- They constitute 8.6% of India's population.
- India is the second largest country in the world in terms of tribal population.

First national report on the state of India's tribal people's health:

- The 13-member Expert Committee on Tribal Health was jointly appointed by the Ministry of Health and Family Welfare and the Ministry of Tribal Affairs, Government of India.
- It took five years for the committee to make a report.
- The report was finally submitted in 2018.

Findings of the report:

- Tribal people are concentrated in 809 blocks designated as Scheduled Areas. However, more than half of India's tribal population (5.5 crores approx.) lives outside the Scheduled Areas, as a scattered and marginalized minority.
- Though there is a decline in the under-five child mortality rate from 135 in 1988 in the National Family Health Survey (NFHS)-1 to 57 in 2014 (NFHS-4), the percentage of excess under-five mortality among STs in comparison to others has widened.
- Child malnutrition is 50% higher in tribal children (42% compared to 28% in others)
- Incidences of malaria and tuberculosis are 3 to 11 times more common among the tribal people. Nearly half of the total malaria deaths are from tribal communities.
- Non-communicable diseases like hypertension, diabetes and cancer along with mental health problems such as depression are increasing.
- There is a 27% to 40% deficit in the number of Primary healthcare facilities, and a 33% to 84% deficit in medical doctors in tribal areas. Moreover, Government health care for the tribal people lacks funds and human resources.
- There is inadequate participation of the tribals in designing, planning, or delivering health care facilities for themselves.

Way Ahead:

The following recommendations were made by the committee:

- Formulate and implement National Tribal Health Action Plan with a target to bring the status of health and healthcare at par with the respective State averages in the next 10 years.
- Need to work on 80 measures suggested by the committees to address the 10 priority issues like health problems, the health care gap, the governance problems and the human resource gap.
- Allocation of additional funds so that the per capita health expenditure on tribal people becomes equal to the set target of the National Health Policy (2017), i.e. 2.5% of the per capita GDP.

Conclusion:

- The tribal healthcare system is weak, and tribal people are in need of substantive solutions. The election of a Tribal person gives a positive signal in this regard.

Nut Graf:

The time is ripe for the 10 states with sizable tribal populations to take proactive steps to ensure a robust system of healthcare for our indigenous people. If implemented, The Tribal Health Mission can bring a health revolution for 11 crore people.

Welfare Schemes for vulnerable sections of the population

2. SMILE – 75

» Prelims – SMILE – 75.

Context:

- Comprehensive rehabilitation of the persons engaged in the act of begging.

Details:

- In the spirit of **Azadi ka Amrit Mahotsav**, the Ministry of Social Justice & Empowerment, Government of India, has identified 75 Municipal Corporations to implement comprehensive rehabilitation of persons engaged in the act of begging under “**SMILE: Support for Marginalised Individuals for Livelihood and Enterprise**” named as “SMILE-75 Initiative”.
- Under the SMILE-75 initiative, seventy-five Municipal Corporations in collaboration with NGOs and other stakeholders will cover several comprehensive welfare measures for persons who are engaged in the act of begging with a focus extensively on rehabilitation, provision of medical facilities, counselling, awareness, education, skill development, economic linkages and convergence with other Government welfare programmes, etc.
- The Government of India has recognised the persistent problem of destitution and beggary and formulated a comprehensive scheme of SMILE (Support for Marginalised Individuals for Livelihood and Enterprise) which includes a sub-scheme of comprehensive rehabilitation for persons engaged in begging that covers identification, rehabilitation, provision of medical facilities, counselling, and education, skill development for a decent job and self-employment/entrepreneurship.

Issues relating to Vulnerable sections

3. Manual Scavenging

» Mains: Persistence of Manual scavenging across the country

Context:

Recently, the state government of Tamil Nadu notified rules for employment and rehabilitation of manual scavengers.

Introduction:

- Tamil Nadu recently notified the rules of the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.
- This is done to invoke the concept of dignity of labor. To allot the task of removing excreta and cleaning sewers to humans when machines are able to do the work is a gross violation of rights.
- As per the data by the Union ministry of Social justice, hazardous cleaning of sewers and septic tanks has led to at least 971 deaths since 1993, the year the law prohibiting employment of manual scavengers was enacted.
- Tamil Nadu is among the top States in the list. The causes of deaths while cleaning sewers and septic tanks are noxious gasses, not taking measures to prevent those deaths would be criminal.
- Manual ‘scavenging’ is completely prohibited, but the rules allow manual cleaning, in specific conditions where mechanical equipment cannot be deployed to fix the problem, or when it is absolutely necessary to have human intervention, after stating the valid reasons for allowing such a process to take place.

Manual Scavenging:

- The term is used mainly for “manually cleaning, carrying, disposing of, or otherwise handling, human excreta in an insanitary latrine or in an open drain or sewer or in a septic tank or a pit”.
- This occupation is linked with caste in India. All kinds of cleaning are considered lowly and are assigned to people from the so-called lowest caste of the social hierarchy.
- The government has caste-related data of 43,797 identified manual scavengers, and over 42,500 of them belong to the Scheduled Castes, 421 to the Scheduled Tribes, and 431 to Other Backward Classes.

Steps taken to address the challenges of Manual Scavenging:

- The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013- which outlaws all manual excrement cleaning of insanitary latrines, open drains, or pits.
- It also provides a constitutional responsibility to provide alternative jobs and other assistance to manual scavenging communities.
- The 2020 Amendment Bill- proposes to completely mechanize sewer cleaning,

- The Building and Maintenance of Insanitary Latrines Act of 2013- outlaws construction of insanitary toilets, and the hiring of persons for their manual scavenging.
- Safaimitra Suraksha Challenge by the Union ministry of Housing and urban affairs – to promote mechanized cleaning and prevent hazardous cleaning of septic tanks.
- 'Swachhta Abhiyan Application' – to identify and geotag the data of insanitary latrines and manual scavengers.
- Constitutional right under article 21 of the constitution which guarantees 'Right to Life' and that also with dignity.

Notified rules by Tamil Nadu government:

- Any person engaged to clean a sewer or a septic tank would have to be provided a list of 44 items of protective gear and safety devices by his employer.
- This includes air line breathing apparatus, chlorine masks, air purifier gas mask, a device for artificial respiration, mask and breathing apparatus, emergency medical kit, hydraulic devices. The list is not limited to those devices mentioned.
- Regular maintenance of the equipment and devices has also been mandated by the rules.
- The cleaning of a sewer or a septic tank shall be done "only in day-light" and for a duration not exceeding 90 minutes at a stretch.
- A mandatory interval of 30 minutes between two stretches is to be allowed and after the cleaning process.

Nut Graf:

Despite the efforts of courts and governments, law and enforcement have been unable to keep manual scavengers out of harm's way. Proper implementation of the rules, and adequate monitoring are absolutely essential to address this issue. Simultaneously, all efforts must be taken, within existing schemes, to provide compensation to the family members of those who have died, and to provide them a way out of the profession.

EDUCATION

Development and management of Social Sector/Services relating to education.

1. DIKSHA Platform

- » Prelims – DIKSHA (Digital Infrastructure for Knowledge Sharing)

Details:

- DIKSHA is the platform for providing quality e-content for school education in States/UTs and QR- coded Energised Textbooks for all grades (one nation, one digital platform).
- DIKSHA complies with World Wide Web Consortium (W3C) Web Content Accessibility Guidelines (WCAG) 2.0 level AA. This enables people with visual impairments to access the website using assistive technologies, such as screen readers. Special e-content for the visually and hearing impaired is developed on Digitally Accessible Information System (DAISY) and in sign language on the NIOS website/YouTube.
- NISHTHA 2.0 (Secondary Level) -online on DIKSHA for secondary/senior secondary level teachers (training programme) was launched on 29th July, 2021. NCERT has developed a package including 13 Online Courses with 12 Generic modules and 56 subject-specific modules for NISHTHA 2.0 and, 33 States and UTs have initiated this training programme in 10 languages.
- NISHTHA 3.0- Foundational Literacy and Numeracy (FLN) in online mode on the DIKSHA platform for teachers and school heads of pre-primary to class V were launched on 7th September, 2021. A special package consisting of 12 online modules has been developed by NCERT for this purpose, as per objectives of NIPUN Bharat Mission. NISHTHA 3.0 Online on the DIKSHA portal has been developed with the aim to help teachers design experiences for the holistic development of each child.

Issues Relating to Development and Management of Social Sector/Services relating to Education.

2. Evaluation of the functioning of the Anganwadis

- » Mains: Importance of the early childhood care and education; Functioning of the Anganwadi services scheme.

Background:

- The Anganwadi system is a part of the Integrated Child Development Scheme (ICDS) of the government.
 - * The Umbrella ICDS is a centrally sponsored scheme implemented by the Ministry of Women and Child Development. The ICDS scheme is designed to support all children under six with their health, nutrition, and education needs.
- Anganwadi Services Scheme is a programme for early childhood care and development of 0 to 6-year-olds. The other beneficiaries under the Scheme are pregnant women and lactating mothers. It provides a package of six services namely supplementary nutrition, pre-school non-formal education, nutrition & health education, immunisation, health check-up and referral services.
- The Anganwadi system serves over 30 million children in the age group of 3-6 in 1.3 million centres across the country.

Concerns:

- The Anganwadi scheme is yet to fulfil its potential due to the following reasons.

Issue of low attendance:

- While across India over 70% of children are enrolled in Anganwadis, they are plagued by the issue of low attendance. This can adversely impact the development process of the children as they fail to develop early language, early numeracy, socio-emotional, executive function, and motor skills.

Poor perception of anganwadis among the parents:

- Most parents do not perceive Anganwadi centres as centres of learning.
- As against the perception among parents, that learning English and maths skills are essential for meaningful education of their children, the Anganwadi system instead focuses on local language-driven, play-based and activity-based learning for the children in the age group of 3-6 years.

Diversion towards private preschools:

- Parents are leaving the Anganwadi system and are sending their children to private preschools. The excessive focus on rote-based learning and memorisation of letters and numbers does not augur well for the development of the child.

- * Over 7 million children in India attend private preschools.

Recommendations:

Ensuring cognitive, literacy and numeracy skills among children:

- Anganwadi centres apart from following their regular daily schedules based on self-directed free play should also try and inculcate teacher-led activities focused on developing cognitive, literacy and numeracy skills.
 - * Respecting the aspirations and demands of the parents for English language skills, children enrolled in anganwadis must be exposed to the English language at an early age in an age-appropriate, non-intimidating way — while also recognising that the language spoken at home is the best way to reach fluency in any other language.
 - * With respect to writing, the children must be made to use pencils for a few minutes a day. This will help support fine motor skills and later writing in the children.
 - * With respect to maths skills, the educators must try and exhibit the wonder of maths through fun activities like estimation, comparison, sorting, and seriation. This will go a long way in reducing the fear and paralysis of maths that gets in their way of succeeding in STEM in later years.

Engaging with parents:

- Anganwadis must conduct regular Shiksha Choupals (parent-teacher meetings) to showcase the learning happening in the Anganwadi to the parent community. This will help build trust in the Anganwadi system in the parent community.
- Also, regular engagement with the parents will help them support the learning process of the children in the confines of home as well.

Nut Graf:

Given the importance of early childhood care & education in the development of the child and the society at large and the role of the Anganwadi system in it, all efforts must be made to improve the functioning of the Anganwadi centres.

GOVERNANCE

Role of Civil Services in a Democracy

1. Deputation of AIS Officers

- » Mains: Causes behind the shortfall of AIS officers

Context:

- The Government of India recently admitted to the lack of willingness by All India Services (AIS) officers to work with the Union government on deputation.

Federal Character of AIS Officers:

- AIS officers are recruited by the Union Government and their services are allotted under various State Cadres. The cadre controlling authority lies with various ministries of the Union government.
 - * Cadre control Indian Administrative Service-with Department of Personnel and Training
 - * Indian Police service- Union Ministry of Home Affairs
 - * Indian Forest Service-Ministry of Environment, Forest and Climate Change.

Deputation of AIS Officer:

- The Union government asks for an "offer list" of officers of the All India Services willing to go on central deputation every year, after which it selects officers from that list.
- States have to depute the All India Services (AIS) officers, to the Central government offices and at any point, it cannot be more than 40% of the total cadre strength.

Causes of overall shortage:

- Significant reduction in the annual recruitment of IAS officers post liberalization under the misguided notion that the government will have a reduced role due to economic liberalization.
 - * There is a 23% shortage of IAS officers at the all-India level as of Jan 2021. Annual recruitment of IAS officers should be increased to around 200 for a few years as a short-term measure.
- Poor "cadre review". Both State and Central governments designate certain strategic posts in the States as "cadre posts" and earmark them exclusively for IAS officers. A proper cadre review in all the States will release many IAS officers from non-strategic posts and reduce the shortage.
- Discontinuance of direct recruitment of officers to the Group B Central Secretariat Service since the year 2000, and delays in the regular promotions of officers from the ranks in the Central Secretariat.
- Complete non-utilisation of the services of officers who are appointed to the IAS by promotion or selection from the State Civil Services.
- Several administrative roadblocks imposed by the Center itself in the form of highly restrictive conditions, annual lapsing of offer lists, compulsory cooling-off periods, etc.

Impact of these shortages:

- The manpower demands of Union government ministries (at the level of Deputy Secretaries and Directors who generally come from the IAS) are growing.
- The number of lateral entry officers is too small to make even a marginal difference to the deteriorating vacancy position at the Center.
- There are far too many vacancies in the Central Police Establishment comprising the paramilitary forces and investigating agencies like the CBI and NIA.

Way Forward:

- The Union government has proposed certain amendments to Rule 6 of IAS (Cadre) Rules, 1954, to address the shortage of IAS officers by different state governments. As per the amendment, all the IAS officers and in a similar way all IPS and IFS officers would directly come under the Center's purview.
- This will enable the Centre to post these officers on central deputation bypassing reservations of the state governments.
- Central deputation can be made mandatory to be eligible for Principal Secretary grade in their State cadre. This will assure a steady, adequate supply of deputationists.

- Proper procedures for timely deputations can be chalked out in the Inter-State Council constituted under Article 263 of the Constitution.

Nut Graf:

India needs a stable system of civil services to strengthen democratic and responsive public administration. Centre and State governments should work together to resolve the issue and uphold the principle of cooperative federalism and the interests of national unity and administrative efficiency.

Government policies and Interventions

2. The need for a distinction between blasphemy and hate speech

- » Mains: Potential threat posed by Blasphemy laws to free speech

Context:

- Recent uproars on speeches and tweets with religious context attached to it have raised questions on effective regulations to govern criticism versus hate speech.

Introduction:

- There isn't any formal legislation against blasphemy in India. Section 295(A) of the Indian Penal Code (IPC), is the closest equivalent to a blasphemy law.

History and Interpretation of Section 295 (A):

- Under Section 295(A) any speech, writings, or signs that "with premeditated and malicious intent" insult citizens' religion or religious beliefs is punishable with fine and imprisonment for up to 03 years.
- In 1927, a satire was published which was very offensive and hurt certain religious sentiments but the erstwhile High Court of Lahore observed that the author of this cannot be prosecuted under section 153(A) of IPC as the writing did not cause animosity or hostility between any communities.
- However, this incident led to the demand for a law to protect the sanctity of religions, and thus, Section 295(A) was introduced.
- The Supreme Court in Ramji Lal Modi case, 1957 affirmed that while Article 19(2) allows reasonable limits on freedom of speech and expression for the sake of public order, the punishment under Section 295(A) deals with aggravated form of blasphemy which is committed with the malicious aim of offending the religious sensibilities of any class.
- The Supreme Court decided that the connection between speech and disorder must be like a "spark in a powder keg".
- In 2011, The Supreme Court concluded that only speech that amounts to "incitement to impending unlawful action" can be punished.

Should there be a difference between blasphemy laws and hate speech laws?

- The wording of Section 295(A) is considerably too wide. It cannot be stated that intentional disrespect to religion is necessarily equivalent to incitement.
- Section 295A is considered a cognizable offense in which the police can arrest the alleged perpetrator without obtaining a warrant from a judge.
 - * A simple complaint or an FIR is enough for someone to be arrested and charged with Section 295A.
- As per the Supreme Court the goal of hate speech rules in Section 295(A) is to prevent prejudice and ensure equality.
- Due to discrepancy between the judiciary's interpretation and the actual wording of the law, it is being misused by the administration time to time
- The reason for this is because hate speech laws are based on the crucial distinction between criticizing religion and encouraging prejudice or aggression towards individuals or a community because of their faith.
- According to the National Crime Records Bureau data there has been a significant increase in hate speech cases. While there were only 323 cases registered in 2014, it had increased to 1,804 cases in 2020.
- Many instances of misuse of Section 295(A) to penalize religious dissent, satire, and any comedic content with religious references with bogus cases and FIRs have been observed.
- Failing to articulate distinctions between criticism and premeditated hate speech reduces fair use of the Section and makes it more difficult to define and penalize the actual crime of hate speech.

How should one deal with incidents of blasphemy?

- The state must meet a very high bar before using public disturbance as an excuse to criminalize expression.
- Insulting religion or religious figures may be condemned but it should not be legally prosecuted or outlawed as they stand against the principles of a democratic society.
- Decriminalizing the Blasphemy law can lead to a free and democratic society with no screening of discourse and dissent.

Nut Graf:

Laws on Blasphemy is mired with various controversies due to its vagueness and misuse of the law by the state. Therefore it is necessary to draw a clear distinction between blasphemy laws and hate speech laws. State must use utmost restraint before using such laws that criminalize free speech.

E-governance applications.

3. E-Governance

- » Mains: Key e-governance initiatives by the Government

Context:

- Review of the Digital India mission.

Details:

- The Ministry of Electronics and Information Technology (MeitY), Government of India launched the 'Digital India' programme with the vision to transform India into a digitally empowered society and knowledge-based economy by ensuring digital access, digital inclusion, digital empowerment and bridging the digital divide. Digital India is an umbrella programme that covers multiple projects of various Central Ministries/Departments and States/UTs. Some of the major initiatives related to public service delivery are as follows:
 - * Common Services Centres – CSCs are offering government and business services in digital mode in rural areas through Village Level Entrepreneurs (VLEs).
 - * Unified Mobile Application for New-age Governance (UMANG) – for providing government services to citizens through mobile.
 - * e-District Mission Mode Project (MMP): e-District project has been implemented at district and sub-district levels of all States/UTs, benefitting all citizens by delivering various e-Services such as Certificates (Birth, Caste, Death, etc), Pension (Old Age, Disability and Widow), Electoral, Consumer Court, Revenue Court, Land Record and services of various departments such as Commercial Tax, Agriculture, Labour, Employment Training & Skill Development, etc.
 - * DigiLocker: It facilitates paperless availability of public documents.
 - * Unified Payment Interface (UPI) is the leading digital payment platform. It is integrated with 330 banks.
 - * CO-WIN – It is an open platform for the management of registration, appointment scheduling & managing vaccination certificates for Covid-19.
 - * Direct Benefit Transfers – 315 Schemes across 53 Ministries are offering Aadhaar enabled direct benefit transfers to citizens.
 - * Diksha – Diksha is a national-level educational platform that helps students and teachers to participate, contribute and leverage a common platform to achieve learning goals at scale for the country.
- Some of the major digital initiatives taken by the Government for the welfare of farmers are as follows:
 - * National Agriculture Market (e-NAM): Its objective is to create an online transparent competitive bidding system to facilitate farmers with remunerative prices for their produce.
 - * M-KISAN – mKisan Portal (www.mkisan.gov.in) for sending advisories on various crop-related matters to the registered farmers through SMSs.
 - * One Stop Window-Farmers Portal (www.farmer.gov.in) for dissemination of information on various agricultural-related matters including, seeds variety, pests, plant diseases, mandi details etc.
 - * Mobile-based advisory system for agriculture & Horticulture (M4 AGRI) – It is a mobile based advisory system for agriculture and horticulture. It has been implemented in the North-East States namely Tripura, Mizoram, Manipur, Meghalaya, Sikkim, and Arunachal Pradesh.
 - * Soil Health Card – It provides soil-related information to facilitate farmers in farming activities.
- The Government has taken the following steps in direction of data governance for socio-economic development in the country. The brief details are as follows:

- * Open Government Data – To facilitate data sharing and promote innovation over non-personal data, an Open Government Data platform has been developed.
- * API Setu – To facilitate data exchange among the system, API Setu has been developed as a platform. The platform has more than 2100 APIs, and 1000+ user organisations.
- * MeitY has prepared the draft National Data Governance Framework Policy which aims to realise the full potential of India's digital government vision, maximise the efficiency of data-led governance & public service delivery and catalyse data-based research and innovation. Currently, the draft policy is under finalisation. MeitY released the Draft National Data Governance Framework Policy on 26th May 2022 for public consultation.
- The Government has already taken necessary measures to tackle challenges with regard to data privacy and data security through administering the Information Technology (IT) Act, 2000 which has necessary provisions for data privacy and data security.

Government policies and interventions

4. Criminal Procedure (Identification) Act, 2022

- » Mains: Reforms in Criminal Procedure laws

Context:

According to the Union Home Affairs Ministry's notification, the Criminal Procedure (Identification) Act, 2022 came into effect on August 4, 2022.

Introduction:

- The Act gives legal sanction to law enforcement agencies for "taking measurements of convicts and other persons for the purposes of identification and investigation of criminal matters".
- It also repeals the existing Identification of Prisoners Act, 1920.

Need for identification details in criminal trials:

- To determine the identity of the culprit against the person being arrested.
- To easily detect suspected repetition of similar offenses by the same person.
- To establish a previous conviction.

Identification of Prisoners Act, 1920:

- The Identification of Prisoners Act, 1920 was enacted when the recording of novel forms of evidence such as fingerprints, footprints and other measurements started becoming more reliable and accurate.
- It was to overcome increasing instances of prisoners refusing to allow their fingerprints or photographs to be recorded.

What was the need to replace the original act?

- The Supreme Court highlighted the need for an amendment to this law in the State of UP vs Ram Babu Misra case, 1980.
- Following this, the 87th Law Commission report in 1980 undertook a review of this law and recommended several amendments to extend the scope of the law.
- The Law Commission Report also notes that the need for an amendment is reflected by the numerous amendments made to the Act by several States.
- Advancements in forensics facilitated various types of "measurements" which are not in the parent Act that can be used by law enforcement agencies for investigation.

Comparison between both Acts:

A comparison between the two Identification Acts

The previous Identification of Prisoners Act, 1920 and the freshly notified Criminal Procedure (Identification) Act, 2022 have similarities as well as major differences. A quick look at how "measurements" of convicts and arrested persons will be collected from now on

| Relevant provisions | Identification of Prisoners Act | Criminal Procedure Identification Act |
|--|--|--|
| Persons whose measurements can be taken | should be convicted of an offence punishable with rigorous imprisonment of one year or upwards | if convicted of an offence punishable under any law |
| | should be arrested for an offence punishable with rigorous imprisonment of one year or upwards | if arrested for an offence punishable under any law or if detained under preventive detention laws |
| | if directed by the Magistrate for measurements to be taken for the purposes of investigation of proceedings under the CrPC, provided the person has been arrested in connection with such investigation previously | if directed by the Magistrate for measurements to be taken for the purposes of investigation of proceedings under the CrPC or any other law in force; there is no requirement for the person to have been arrested in connection with such proceedings previously |
| | ordered to give security for his good behaviour under CrPC | ordered to give security for his good behaviour under CrPC |
| Measurements that can be taken | finger impressions, foot impressions, measurements and photographs | finger-impressions, palm-print impressions, foot-print impressions, photographs; iris and retina scan; physical, biological samples and their analysis; behavioural attributes including signatures, handwriting or any other examination referred to in section 53 or section 53A of the CrPC, 1973 |
| Destruction of measurements | in case of acquittal, discharge or release, if not previously convicted of any offence punishable with rigorous imprisonment of one year or upwards | in case of acquittal, discharge or release, if not previously convicted of any offence punishable with rigorous imprisonment for any term. For convicts, records are to be destroyed from 75 years of collection |

Image Source: The Hindu

Conclusion:

- Even though the police have powers of arrest, the mere arrest does not give them the right to search a person. The police require legal sanctions to search the person and collect evidence. These legal sanctions are designed so as to maintain a balance between the rights of an individual and the interests of society in the prosecution and prevention of offenses.

Nut Graf:

The recently notified Criminal Procedure (Identification) Act, 2022 that seeks to address various issues of the outdated parent law is facing opposition because of the concerns of privacy and ambiguity. These need to be addressed by the associated Rules balancing the rights of individuals and the interests of society.

Government Policies and Interventions**5. The Competition (Amendment) Bill, 2022**

- » Mains: Competition Law in India

Context:

- Recently, the Bill to amend the Competition Act, 2002, was tabled in the Lok Sabha.

The Competition Act, 2002:

- It was passed in 2002 and came into effect in 2009.
- The act is a tool to implement and enforce competition policy and to prevent and punish anti-competitive business practices by firms and unnecessary government interference in the market.

- The Act establishes the Competition Commission of India (CCI) for regulating market competition.
- Competition laws are equally applicable to written as well as oral agreements, and arrangements between enterprises or persons.

Competition Commission of India:

- It is a statutory body that primarily pursues three issues of anti-competitive practices in the market: anti-competitive agreements, abuse of dominance and combinations.

Need for amendments:

- With the rapid change in the dynamics of the market due to technological advancements, artificial intelligence, and the increasing importance of factors other than price, it is necessary to update the law to sustain and promote market competition.
- A review committee was established in 2019 which proposed several major amendments to the 2002 Act.

Key Amendments in dealing with new-age market combinations:

- Regulation of combinations based on transaction value: Combination constitutes any acquisition, merger or amalgamation. As per the Act, parties doing any merger, acquisition, or amalgamation need to notify the Commission of the combination only on the basis of 'asset' or 'turnover'. The Act prohibits any person or enterprise from entering into a combination which may cause an appreciable adverse effect on competition.
- The new Bill proposes to add a 'deal value' threshold. It will be mandatory to notify the Commission of any transaction with a deal value in excess of ₹2,000 crores and if either of the parties has 'substantial business operations in India'.
- The Commission is authorized to set requirement criteria to assess whether an enterprise has 'substantial business operations in India'. This change will strengthen the Commission's review mechanism, especially in the digital and infrastructure space.
- Time limit for approval of combinations: The Commission earlier had 210 days to approve the combination, after which it was automatically approved. The Bill reduces the time limit to 150 days. This will speed up the clearance of combinations.
- Gun Jumping: The penalty for gun jumping is now proposed to be 1% of the deal value instead of 1% of the asset or turnover. Gun jumping means parties moving ahead with a combination prior to its approval by the Commission.
- Acquisitions involving the open market purchase of target shares must be completed quickly, lest the stock value and total consideration undergo a change. If parties wait for the Commission's clearance, the transaction may become unaffordable which had resulted in several gun-jumping cases.
- In line with European Union merger regulations, the amendment Bill proposes to exempt open market purchases and stock market transactions from the requirement to notify the Commission in advance if the acquirer does not exercise voting or ownership rights until the transaction is approved.
- Director General: The Bill empowers CCI to appoint the Director General, with prior approval of the government, to assist in conducting inquiries into contraventions of any provisions of the Act. Previously CCI had no role in the appointment as it was done by the Central government.
- Decriminalization of offenses: The Bill changes the nature of punishment for various offenses from the imposition of fine to a penalty.
- 'Leniency Plus': New Provision called 'Leniency Plus' allows CCI to give an additional waiver of penalties to an applicant who discloses the existence of another cartel in an unrelated market, provided the information enables the Commission to form a prima facie opinion about the existence of the cartel.
- Penalties: Five crore rupees penalty for any false information filed and ten crore rupees for failure to comply with the Commission directions.
- Appeal: For an appeal to be heard by the National Company Law Tribunal (NCLT) against the Commission's order, the party will have to deposit 25% of the penalty amount.

Issue of Hub-and-Spoke Cartels:

- A Hub and Spoke cartel is formed when a facilitator, mostly a vertical component in the production chain, creates an arrangement with each of the horizontal competitors. This leads to indirect coordination between competitors, which thus makes it difficult to be identified and proven.
- As per the Act, the prohibition on anti-competitive agreements only covers entities with similar trades that engage in anti-competitive practices ignoring hub-and-spoke cartels operated at different levels of the vertical chain by distributors and suppliers.
- The amendment bill broadens the scope of 'anti-competitive agreements' to catch entities that facilitate cartelisation even if they are not engaged in identical trade practices.

'Settlements' and 'Commitments' mechanisms:

- The new amendment proposes a framework for settlements and commitments for cases relating to vertical agreements and abuse of dominance.

- The Commission's decision regarding commitment or settlement will be final after hearing all stakeholders in the case.

Nut Graf:

Proposed amendments to the Competition Act 2002 empower CCI to handle certain aspects of the new-age market and transform its functioning in a more robust manner. Also, the government needs to recognise that market dynamics change constantly, so it is necessary to update laws regularly.

Power, Function, and responsibilities of various bodies.

6. The shackles of 1861 need to go

- » Mains: Criminal justice system reforms

Historical Background:

- The year 1861 laid the foundation for a strong and organized police force.
- The main aim was to use it as a weapon of repression.
- The detection and prevention of crime was never their objective.
- Andrew H.L. Fraser, who was the head of the Police Commission (1902-03), exclaimed "police force is far from efficient; it is defective in training and organization ... it is generally regarded as corrupt and oppressive, and it utterly failed to secure the confidence and cordial co-operation of people".
- Though many revolutionary recommendations were made by the commission, they remained largely unaccepted citing economic and financial constraints.

Changes to the IPC:

- The Probation of Offenders Act, 1958 had the aim of reforming, rather than punishing offenders.
- The Dowry Prohibition Act was brought in 1961 to control the social evil of dowry.
- Amendments were made to the Indian Penal Code (IPC) in 1983 and 1986 and sections 498A (cruelty by husband and his relatives) and 304B (dowry death) were introduced along with certain amendments in the Evidence Act.
- The Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act 1989 was also introduced.
- The rape definition was widened and offenses of sexual assault were made stricter.
- Comprehensive laws for crimes against children like the Protection of Children from Sexual Offences Act, 2012, and the Juvenile Justice (Care and Protection of Children) Act, 2015 were also approved.
- Other reforms include the constitution of the National Investigation Agency in 2008 to investigate and prosecute offenses related to national security.

Contribution to criminal reforms by courts:

- The Supreme Court brought relief to the LGBTQ+ community by reading down Section 377 of the IPC.
- The recognition of the right to privacy as a fundamental right.
- Section 124A – sedition law, was also suppressed by the Supreme Court to reduce its alleged misuse.

The issues with the Police:

- The police continue to be seen as a brute force.
- There are issues of trust deficit even after the arrest powers have been curtailed, the usage of handcuffs restrained, the presence of a lawyer and CCTV cameras during interrogations, and vigil by human rights bodies.
- Lawmakers and the judiciary are still apprehensive about approving voluntary confessions before a police officer as admissible.
- Various committee recommendations to reform the criminal justice system have not been implemented.
- Despite the directive of separation of investigation from law and order, it has not been implemented by States and Union Territories.
- None of the State governments has given required attention to police reforms, as Police is a state subject. Moreover, the Model Police Act drafted by Soli J. Sorabjee was not enacted by any state.
- Many provisions have outlived their purpose, but still, continue to exist in the States' Police Acts and criminal codes.

Way Ahead:

- Ensure improved funding and investment.
- Bridge the trust deficit by working on soft skills and ensuring impartial investigation.

- Unjustified arrests should be avoided.
- More offenses can be made bailable and many can be brought under the ambit of compounding to lighten the increasing burden on jails.
- Enhanced usage of technology and forensic techniques should be encouraged for enhancing the evidence quality.
- Specialized wings must be established for dealing with newer crimes.
- The police must be made accountable only with respect to their constitutional goal of ensuring the rule of law.

Nut Graf:

The nature and the extent of crimes have changed drastically since 1861 when the Indian Penal code came into the picture. The institution of Police continues to remain mired with many challenges. The need of the hour is to accept the recommendation of various committees formed and strengthen our criminal justice system.

Government Policies & Interventions for Development

7. Adoption Laws in India

» Mains: Legal framework governing adoption.

Context:

- Recently, a report by the Parliamentary Standing Committee titled “Review of Guardianship and Adoption Laws”, has pointed to the staggering mismatch between the number of people wanting to adopt children and the number of children legally available for adoption.

Findings of the report:

- According to data by the Central Adoption Resource Authority (CARA), the number of children adopted within the country declined from 5,693 in 2010 to 3142 in 2020-21.
 - * The Central Adoption Resource Authority (CARA) is the nodal authority in India for the adoption of Indian children.
 - * It is a statutory body functioning under the Ministry of Women and Child Development, GOI.
 - * It is authorised to regulate and monitor inter-country and in-country adoptions.
 - * CARA is the designated authority in India for inter-country adoptions according to the provisions of the Hague Convention on Inter-country Adoption, 1993. India ratified the convention in 2003.
 - * The authority chiefly handles the adoption of orphaned, surrendered and abandoned children through its recognised/ associated adoption agencies.
 - * CARA was founded in 1990. It is a statutory body under the Juvenile Justice Act, 2015.

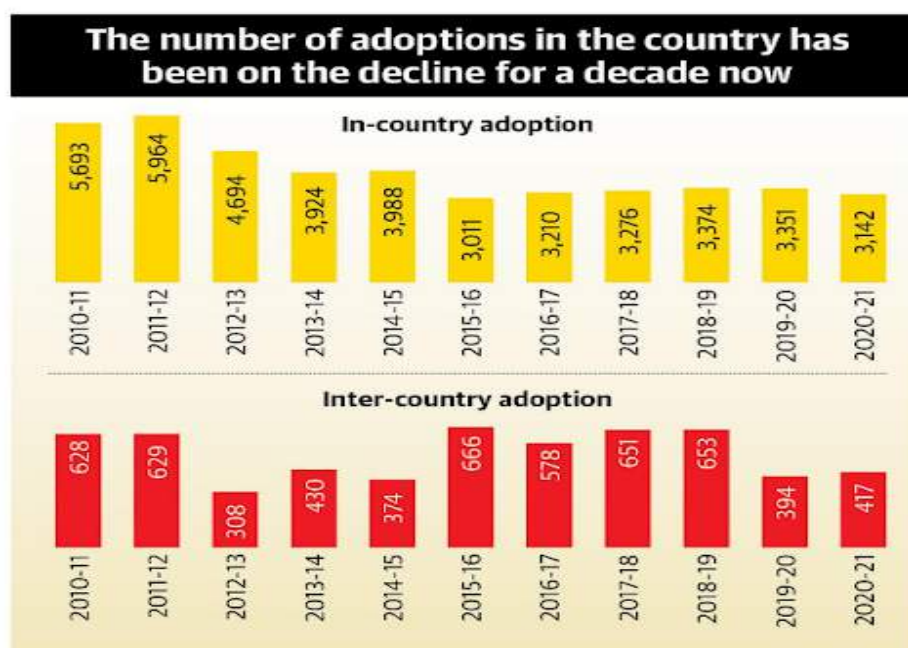


Image Source: The Hindu

- The number of children taken in inter-country adoption decreased from 628 in 2010 to 417 in 2020-21.
- There were 27,939 prospective parents registered with the CARA in 2021 from nearly 18,000 in 2017.
- There were 6,996 orphaned, abandoned and surrendered children residing in childcare institutions considered adoptable, but only 2,430 were declared legally free for adoption by Child Welfare Committees.
- It takes about 3 years on average for prospective adoptive parents to get a referral for children.
- The 2020 World Orphan Report estimates the number of orphans in India at 31 million.
 - * UNICEF data shows that almost 10,000 children become orphans every day. There are about 140 million orphans in the world.

Reasons behind this mismatch:

- Rigid process of adoption in the country —procedurally and legally.
- Rampant malpractices and inter-country adoption rackets.
- Sometimes children in childcare homes don't want to go into adoption due to various reasons.

Concerns:

- The decline in the number of children coming to adoption agencies over the years points to trafficking or a thriving illegal child adoption market.
- Only 40 children with disabilities were adopted between 2018 and 2019, accounting for approximately 1% of the total number of children adopted in the year.
- Exclusion of LGBTQI+ families, stripping them of their reproductive autonomy and adoption process.

Recommendations of the Parliamentary panel:

- The Committee has said that there is a need for new legislation that harmonizes the Juvenile Justice (Care and Protection of Children) Act, 2015 and the Hindu Adoptions and Maintenance Act (HAMA), 1956 and such a law should cover the LGBTQI community as well.
- The panel also recommended ensuring that abandoned and orphan children found begging on the street are made available for adoption at the earliest. To do so, it has suggested periodic district surveys to identify those children.
- Increase surveillance, especially on unregistered child care institutions and adoption agencies/hospitals with a past record of trafficking to tackle illegal adoption and child trafficking.

Nut Graf:

Failure to provide an adequate safety net for children against violence, exploitation and negligence leads to malpractice in child care. It is important to exercise caution while making policies with adequate knowledge of ground reality for the maximum benefit of the policy for the intended target group.

Important Aspects of Governance, Transparency & Accountability

8. Facial recognition technology and Mass Surveillance

- » Mains: Uses and Concerns of Facial Recognition

Context:

- In a recent Right to Information (RTI) response by Delhi Police revealed that they treat matches of above 80% similarity generated by its facial recognition technology (FRT) system as positive results.

What is facial recognition?

- Facial recognition is a biometric technology that uses distinctive features on the face to identify and distinguish an individual.
- Facial recognition technology has been introduced primarily for two purposes:
 - * As a compare and contrast tool meant for identification based on existing information or,
 - * To create a repository on the basis of which the process of identification can be enhanced.

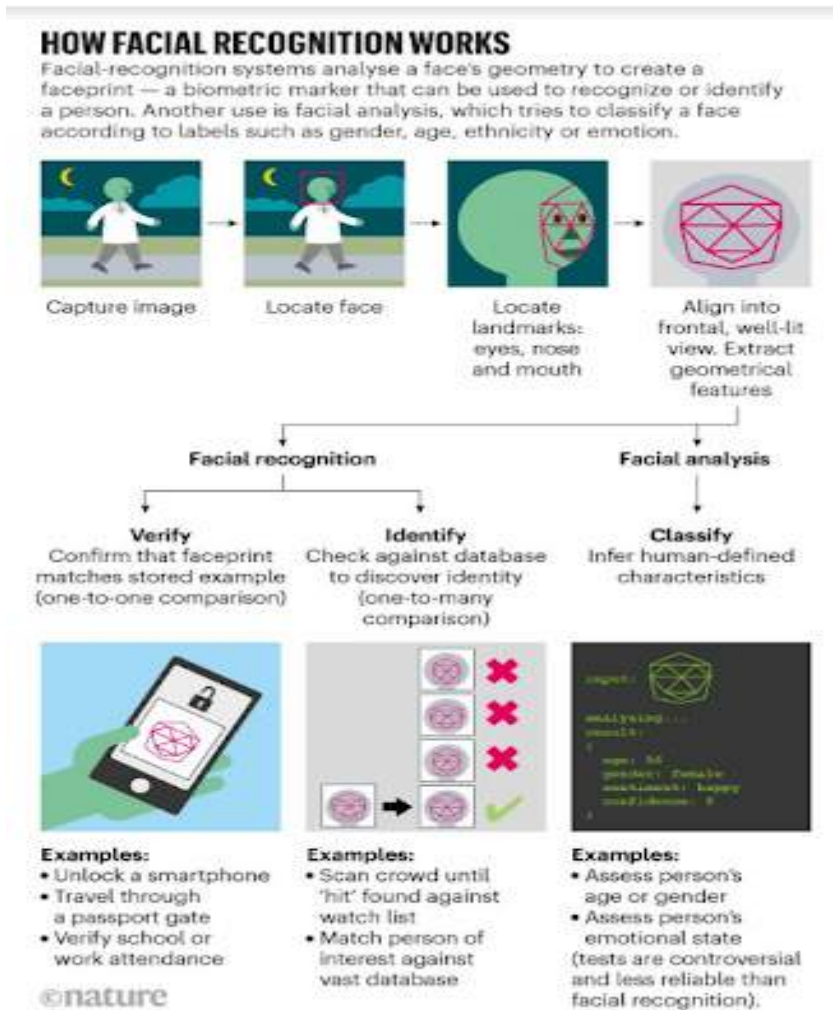


Image Source: Nature.com

Delhi Police and facial recognition technology:

- The Delhi Police was first authorized to use FRT for the purpose of tracing and identifying missing children following the direction of the Delhi High Court in *Sadhan Haldar vs NCT of Delhi*, 2018
- Delhi Police were also using FRT for police investigations specifically during the 2020 northeast Delhi riots, the 2021 Red Fort violence, and the 2022 Jahangirpuri riots.
- Recent RTI responses by the Delhi Police have revealed that matches above 80% similarity are treated as positive results while matches below 80% similarity are treated as false positive results which require additional “corroborative evidence”.
- Delhi Police is also matching the photographs/videos against photographs collected under Section three and four of the Identification of Prisoners Act, 1920, which has now been replaced by the Criminal Procedure (Identification) Act, 2022.

Concerns with widening use of FRT:

- According to ‘Project Panoptic’ by Internet Freedom Foundation, which tracks the spread of FRT in India, there are at least 124 government authorized FRT projects in India.
- The categorisation of below 80% results as false positive instead of negative may still result in further investigation. Thus, people who share familial facial features, such as in extended families or communities, could end up being targeted.
- As per various studies, accuracy rates of FRT fall greatly based on race and gender. This poor accuracy can result in a false positive, where a person is misidentified as someone else, or a false negative where a person is not verified as themselves.
 - * False negative results can lead to exclusion from accessing essential schemes which may use FRT as means of providing access.
 - * For Example: The failure of the biometric authentication under Aadhaar has led to many people being excluded from receiving essential government services which in turn has led to starvation deaths.
- Extensive use of FRT can facilitate state-sponsored mass surveillance resulting in privacy violations and lead to wrongful arrests resulting in the violation of their fundamental right to privacy.

- There are no safeguards to ensure that authorities use FRT only for the purposes that they have been authorized to as India does not have a data protection law or any specific regulations on FRT to protect against misuse.

Nut Graf:

The widening of the purpose for FRT use clearly demonstrates an instance of 'function creep' wherein a technology or system gradually widens its scope from its original purpose to encompass and fulfil wider functions. The misuse of FRT presents two issues related to misidentification and mass surveillance which can result in violation of the right to privacy.

Government policies and interventions for development in various sectors and issues arising out of their design and implementation

9. The Freebies Debate

- » Mains: Issue of Freebies in India's Electoral politics, difference between freebies and welfare measures and the status of welfare spending in India

Context:

- Recently, the Supreme Court referred to a three-judge Bench a series of petitions on the issue of pre poll promises by political parties.

Background:

- The Supreme Court referred to a three-judge Bench a series of petitions seeking a judicial direction that political parties who make "wild" promises of largesse should also reveal in their poll manifestos where they will get the money to pay for them.
- The reference is a shift from the court's own stand in the S. Subramaniam Balaji vs Tamil Nadu judgement of 2013.

S. Subramaniam Balaji vs Tamil Nadu, 2013

- In 2011, during the run-up to the Tamil Nadu Assembly elections, major political parties promised irrational freebies in their election manifesto.
- Mr. Balaji, a resident of Tamil Nadu, challenged the schemes as expenditure to be incurred by the State from the exchequer was "unauthorised, impermissible and ultra vires the constitutional mandates as the money can be taken out of the Consolidated Fund of the State only for "public purposes".
- Also, the distribution of goods to only a certain section of people was violative of Article 14 of the Constitution.
- The State of Tamil Nadu argued that political parties are not the State and 'freebies' have no legal status. And states are implementing these promises as an obligation under the Directives Principles of State Policy to promote the welfare of its people.
- The Supreme Court in its ruling said that only an individual candidate, not his party, can commit a 'corrupt practice' under section 123 of the Representation of the People (RP) Act by promising free gifts. The manifesto of a political party is a statement of its policy.
 - * Section 123 of the RP Act deals with 'corrupt practices'- The provision says if any gift, offer or promise of gratification is made to voters directly or indirectly by a candidate or his agent is a 'bribery' and is considered as 'corrupt practices'.
- However, the court agreed that freebies create an "uneven playing field" and directed the Election Commission to frame guidelines for the same in consultation with all the recognized political parties and make it a part of the Model Code of Conduct.

Significance of Court's move to review the Balaji judgement:

- The Court is now worried that freebies promised to win elections could bleed the state finances dry which will create a situation wherein the government cannot provide basic amenities due to lack of funds and it is pushed towards bankruptcy.
- The Supreme Court has therefore decided to revisit the Balaji verdict.
- The Supreme Court is exploring whether judicial parameters can be set on a purely political act of promising freebies.

Supreme Court's views

- The Supreme Court in a recent hearing of a petition that sought to derecognise political parties that promised "irrational freebies to attract voters" highlighted the significant financial costs of freebies.

- The apex court held that a law ordering a blanket ban on freebies is not feasible but there is a need to balance the various welfare measures and loss to the public exchequer.
- The Supreme Court further suggested that freebies must not be confused with welfare measures and the difference between what can be termed freebies or welfare measures must be established.

Difference between freebies and welfare measures

- There is a very thin line between what can be called freebies and welfare measures and it also depends on the perspective of an individual and where he stands in the income distribution pyramid.
 - * A few measures (like free electricity) might seem like a freebie to a privileged individual but they might be important for the welfare of a poor individual.
- The Directive Principles guide the state policy to ensure the welfare of the citizens but it is difficult to differentiate between welfare and freebies.
- According to public policy and economic experts:
 - * A welfare measure is a public policy intervention that has a long-term impact on production and productivity.
 - * A freebie is a public policy intervention that doesn't support medium-term to long-term production and productivity.
- For distinguishing between welfare measures and freebies it is important to determine the long-term impact as well as identify the beneficiary sets of such policies.

Issue of Subsidies and tax preferences

- As the debate over the “freebies” culture has gained momentum in India, there have been questions about the economic rationale of granting subsidies and the issue of tax preferences.
- According to the World Trade Organization's Agreement on Subsidies and Countervailing Measures (ASCM), a subsidy is said to be granted if there is a financial contribution by a government wherein,
 - * If the government's measure involves a direct transfer of funds.
 - » Example: through grants, loans or equity infusion
 - * If the government's revenue that is due is foregone or not collected
 - * If a government provides goods or services
- With the debate over “freebies” in the limelight, the market fundamentalists have raised concerns over the grant of various subsidies and opine that subsidies are undesirable for the growth of an economy as they have poor outcomes.
 - * Critics feel that the subsidies result in the wastage of resources.
- Tax policy encompasses various aspects such as special tax rates, exemptions, deductions, rebates, deferrals, and credits which are called “tax preferences”.
 - * Tax preferences have a significant impact on the overall level and distribution of tax.
 - * However, in the backdrop of debate over the grant of subsidies, such tax preferences are also considered to be indirect subsidies extended to certain individuals

Way forward

- Welfare spending is said to be very low in India as compared to other developing or emerging economies.
 - * Allocation to key sectors such as health and education has been very low and has further reduced.
 - * There is an immediate need for the government to increase its investments in key sectors like agriculture, public health and education despite increased criticism of its policies of granting subsidies as these sectors are crucial in ensuring overall welfare.
- The income tax base (less than 6% of the population) of the country has remained stagnant despite the economic growth in recent years.
 - * Experts believe that an increase in taxation helps in raising more revenues which helps in the redistribution of wealth. However, this will attract severe opposition from the individuals who pay these taxes.
- Along with the problems of distribution of freebies to the underprivileged the issues of providing various sops to the privileged class which includes bad loan waiver and reduction in corporate taxes needs to be addressed.
- Further, there is a need for revisiting the policies of distributing subsidies as there is a large share of non-merit subsidies being distributed currently across sectors. This will free up resources for welfare or social sector spending.

Nut graf:

The number of services that the Government provides to meet its constitutional obligations towards citizens is often seen to be confused with the 'freebies' culture and in this context, it is essential to draw a line between welfare measures and freebies.

Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

10. Personal Data Protection Bill

- » Prelims: About Personal Data protection bill.
- » Mains: Important provisions of the Personal Data protection bill, its significance and the reasons for the withdrawal of the bill.

Context:

The government withdrew the Personal Data Protection Bill that was tabled in the Lok Sabha.

Background

- In the backdrop of the judgment of Justice K.S. Puttaswamy (Retd) vs Union of India case 2017, and the concerns around usage of the personal data of its Indian citizens by big tech firms, the Center in 2017 set up an expert committee
- The committee was chaired by retired Supreme Court Justice B.N. Srikrishna with the objective to formulate a regulatory framework for data protection.
- The Committee submitted its report and a draft for the Data Protection Bill to the Ministry of Electronics and Information Technology (Meity) on July 27, 2018.
- The Personal Data Protection Bill (PDP Bill) was introduced in the Lok Sabha in December 2019 by the Ministry of Electronics and Information Technology (Meity).
 - * The bill was criticized by Justice Srikrishna for giving excessive power to the Central government over the data than proposed by the committee's draft.
- The PDP Bill, 2019 was referred to a Joint Parliamentary Committee (JPC).
 - * JPC after carrying out a series of consultations with the concerned stakeholders, published its report on the PDP Bill, 2019 along with the finalised Data Protection Bill, 2021 in December 2021.
 - * The JPC that deliberated on the Bill submitted its report, clearing its view on contentious clause 35.
 - * The provision of clause 35 enabled the government agencies to circumvent provisions of the law citing "public order", "sovereignty", "friendly relations with foreign states" and "security of the state".

Personal Data Protection Bill

- The Bill which was famously called the "Privacy Bill" was said to be comprehensive data protection legislation.
- The key objective of the PDP Bill was to safeguard the right to privacy associated with the personal data of individuals.
- The Bill also aims to create a relationship of trust between the data principal (the person to whom personal data belongs) and the data fiduciary (the entity deciding the means and purpose of processing personal data).
- The Bill governs the processing of personal data by:
 - * Government
 - * Companies incorporated in India
 - * Foreign companies dealing with personal data of individuals in India
- Obligations of data fiduciary: Personal data can be processed only for a specific, clear and lawful purpose. Additionally, all data fiduciaries must undertake certain transparency and accountability measures such as:
 - * Implementing security safeguards such as data encryption and preventing misuse of data.
 - * Instituting Grievance Redressal Mechanisms to address complaints of individuals. They must also institute mechanisms for age verification and parental consent when processing sensitive personal data of children.
- Rights of the individual
 - * Seek correction of inaccurate, incomplete, or out-of-date personal data.
 - * Have personal data transferred to any other data fiduciary in certain circumstances.

- * Restrict continuing disclosure of their personal data by a fiduciary, if it is no longer necessary or consent is withdrawn.
- Grounds for processing personal data: The Bill allows the processing of data by fiduciaries only if consent is provided by the individual. However, in certain circumstances, personal data can be processed without consent. These include:
 - * If required by the State for providing benefits to the individual,
 - * Legal proceedings,
 - * To respond to a medical emergency.
- The Bill also proposed setting up a Data Protection Authority for the enforcement of the law.
- Exemptions: The central government can exempt any of its agencies from the provisions of the Act:
 - * In the interest of the security of the state, public order, sovereignty and integrity of India and friendly relations with foreign states, and
 - * For preventing incitement to the commission of any cognisable offence (i.e. arrest without warrant).

Provisions of the bill on Data localisation:

- The Bill states that while Sensitive Personal Data can be sent abroad for processing, a copy of it must be maintained in India. It also stipulates the conditions under which sensitive data can be sent abroad, for instance government authorized contracts.
 - * Sensitive Personal Data are details on a person's finance, health, sexual orientation and practices, caste, political and religious beliefs, and biometric and genetic data
- Critical Personal Data can be stored and processed only in India.
 - * Critical personal data is a sub-category of data as may be notified by the Central government in the future.
- Many countries have such localisation provisions, considering the strategic and commercial importance of data. However, businesses across domains and countries have raised issues with such provisions.

Concerns of the tech industry

- Indian start-ups have raised concern that the infrastructure needed to comply with the localisation stipulations will be inefficient from cost perspectives.
- Start-ups also have to often depend on international companies for various services like customer management, analytics and marketing, which requires them to send data on their customers abroad.
- Data localisation requirements will not only limit their choices on such services but also burden them with excessive compliance processes.
- The compliance requirements will further have an impact on the larger U.S.-based tech companies as well.
- One of the JPC recommendations has created concern for social media platforms as it sought to move them away from the category of online intermediaries to content publishers, thus making them responsible for the posts they host.

Reason for the withdrawal of the bill:

- The government has cited the significant number of amendments(81), recommendations(93), and corrections(97) suggested by the JPC as the reason for withdrawing the bill. It holds the view that in the face of such a radical overhaul, it is better to bring a new Bill.
- Moreover one of the key recommendations is widening the ambit of the Bill to cover all data instead of just personal data - thus moving it considerably away from its Puttaswamy origins.
- The government brought forth several apprehensions from the tech industry(especially Indian start-ups) regarding data localisation aspects in the Bill.

Significance of the protection of Personal Data:

- India currently has over 750 million Internet users, which is expected to increase in the future.
- The Government's increased focus on digitisation of health, banking and insurance facilities.
- There is also a greater focus on the inter-linking of data, whether through facial recognition, Aadhaar, or the Criminal Procedure (Identification) Act, 2022.
- Moreover, India has among the highest data breaches in the world. It has been reported that around 18 out of every 100 Indians have been affected by data breaches.
- Unlike state action, corporate action or misconduct is not subject to writ proceedings in India. A personal data protection law would create sufficient deterrence among private actors.

Key challenges ahead:

- The withdrawal of the bill halts the country's quest for a national data protection law.
- There is no timeline for the introduction of the new bill.
- Further, at present there are limited remedies against the private/corporate entities which are either vague or inefficient with present challenges like the IT Act of 2000.

Way forward

- Acknowledging the increasing penetration of the digital economy and digital governance, the government should come up with a new bill on personal data protection soon.
- The new bill should address the concerns of all the stakeholders and take into account the apprehensions of the JPC as well.

Nut Graf:

The withdrawal of Personal Data Protection Bill has again brought to fore the sensitive issue of building consensus on the data protection and henceforth the cyber security concern. All the stakeholders should be brought on the same page before a new bill is proposed so that the same situation does not re-emerge in future.

DISASTER MANAGEMENT

Disaster and disaster management

1. Vulnerability of Kerala to floods

- » Mains: Key causes of floods, their consequences and impacts, and various solutions

Background:

- Recurrent floods in Kerala and the devastating impact caused by them.

Details:

- Kerala experienced one of its worst ever floods in 2018 which amounted to material losses of about ₹26,000 crores.
- Such flood like situations have been recurring in various parts of the country every year especially during the monsoon season causing widespread damage to lives and properties.



Image Source: mapsofindia.com

The fundamental causes of floods in India:

- Violation of the laws and regulations which are meant to protect natural capital or resources
 - * The Shah Commission highlighted this while reporting about illegal mining in Goa. It said that mining beyond permissible levels has had severe implications on the region's water resources, agriculture and biodiversity.

- Ignoring the consequences of degradation of human capital in terms of health and employment
 - * This was noticed in a village in Palakkad district wherein overuse and pollution of water resources by a factory resulted in losses of close to ₹160 crores.
- Ignoring scientific knowledge and advice.
 - * During the development of the Athirappilly hydroelectric project, a study by the River Research Centre pointed out that the project documents had grossly overestimated the availability of water and further studies showed that the power production does not justify the costs of construction and maintenance.
- Degradation of Social capital
 - * Social capital refers to the potential of individuals to secure benefits and invent solutions to problems through membership in social networks.

Key solutions recommended:

- The regime must acknowledge the significance of natural, human and social capital along with manmade capital.
- The current method of safeguarding natural resources through negative incentives via a coercive and corrupt bureaucracy should be replaced with positive incentives which are monitored in a transparent way by local communities as they have a large stake in the health of their ecosystem and a better understanding of the same.
- The Western Ghats panel proposes several such incentives which include:
 - * Payment of conservation service charges for their role in safeguarding crucial aspects of biodiversity
 - * Payment for soil carbon enrichment by shifting to organic farming.
- The 73rd and the 74th Constitutional amendments must be implemented in their letter and spirit through which people are assured that they are not excluded from developmental and conservational activities.
- Local bodies at the village or town levels must be empowered to prepare reports on the status of the environment and decide on the allocation of budget.
- Establishment of Biodiversity Management Committees which consists of citizens and local communities which document the status of the local ecosystems and biodiversity resources, and regulate their use.
 - * These committees must also be accorded powers to levy collection charges for access to biodiversity as well as to intellectual property relating to community knowledge.
- The Forest Rights Act must also be implemented rightly to empower tribes and traditional forest dwellers to control, manage and market non-timber forest produce.
- There is a need to develop a transparent public database on environmental parameters, environment status reports, People's Biodiversity Registers, community forest management working schemes, and environmental education projects undertaken by students.
- The government must act proactively in terms of adopting key modern technologies that help in disaster management.
- Key recommendations of committees such as Western Ghats Ecology Expert Panel, the Kasturirangan Committee, and the Oommen V. Oommen Committee are to be analysed and implemented in the right spirit.
 - * The WGEEP had recommended 64% of Western Ghats to be declared as an ecologically sensitive area. It had suggested three levels of categorization where regulatory measures for protection would be imposed and had recommended the establishment of the Western Ghats Ecology Authority for management of the Ghats.
 - * The Kasturirangan Committee had proposed a ban on mining, quarrying and sand mining. It proposed that there should be no new thermal power projects, but hydro power projects were allowed with restrictions. A ban on new polluting industries was also proposed. Building and construction projects up to 20,000 sq m was to be allowed but townships were to be banned.
 - * The Oommen V. Oommen committee recommended that inhabited regions, plantations and farmlands not be included in ecologically sensitive areas. It sought to allay the fears of the Western Ghats farmers that protection of the Ghats would damage their livelihood opportunities.

Nut Graf:

It is important to acknowledge the fact that the erosion of natural, human and social capital have played a significant role in exacerbating the problems of floods. Therefore, it is imperative to enhance the sum total of man-made, natural, human and social capital in order to counter the adverse impacts of disasters such as floods.

Disaster and Disaster Management

2. Vulnerability of Mountainous states to natural disasters

» Mains: Vulnerability of mountainous states to natural disasters – Contributing factors and mitigating actions

Context:

- Recently, around 25 people have died in Himachal Pradesh and Uttarakhand due to flash floods and landslips triggered by torrential rains in the region.
 - * Mandi, Kangra and Chamba districts of Himachal Pradesh were the worst-affected districts.

Background:

- The report on the State of Environment, released by the Department of Environment, Science and Technology notes with concern that hilly regions of Himachal Pradesh remain highly vulnerable to natural disasters.
 - * It is plagued by issues such as land subsidence, landslips, and soil erosion. The cloudbursts incidents are increasing every year in frequency and intensity. Moreover, snow avalanches and landslides have continued to cause an extensive impact on life and livelihood.
 - * Himachal Pradesh is vulnerable to about 25 out of 33 hazards identified in India.

Impact of the natural disaster:

- Apart from the loss of life, there has been severe damage imposed on the infrastructure of the states. Several bridges have been damaged and important roads remain blocked by the debris.
- Apart from these visible damages of the disaster, there is a range of secondary effects with the long-term downstream impacts caused by this natural disaster.
 - * There has been damage to the property of the common citizenry. This will have an economic impact on such families.
 - * Farmers have lost their crops and cattle to the rains. This will have an adverse impact on the livelihood of the poor and vulnerable sections.
 - * Also, the damage caused by the disaster to public infrastructure and the required reconstruction and rehabilitation of the affected people will result in strain on the finances of the state exchequer.
 - * The lack of transport facilities will impact economic activities and the closure of schools will lead to a loss of productive hours for the children.

Factors contributing to the vulnerability of mountainous regions to disasters:

- The Hill States such as Himachal Pradesh and Uttarakhand have unique topography which is naturally vulnerable to natural disasters such as landslides and earthquakes. Owing to their unique topography they have an unstable terrain making these states far more vulnerable to natural disasters.
- The monsoon rainfall in India sheds around 75% of the total rainfall within four months. This concentrated rainfall on a temporal basis leads to high rainfall within a short duration, thus increasing the chances of floods and associated disasters such as landslides.
- Climate change is also an important factor here. Monsoon rain patterns are being disrupted leading to a rise in cloudburst-like events as well as a rise in the frequency of high-energy cyclones and droughts.
 - * Monsoon rainfall over India is 8% more than what is usual for this time of the year.
- Unsustainable development of mountain areas over the years has increased the vulnerability of these regions to natural disasters by upsetting the ecological balance of various physical processes.

Recommendations:

- Need to improve the system of early warning forecasts with respect to weather forecasts and warnings about flash floods and lightning. They need to be accurate and timely to provide enough time for the authorities to prepare themselves.
- When it comes to the development of infrastructure in this region, sustainability should be the most important guiding factor. Infrastructural development in the region cannot come at a heavy environmental cost, given that such growth and development will not be sustainable.
- The increased risk and cost of infrastructure projects in the region should be factored in when they are tendered out by the government, and scientific advice regarding development ought to be strictly adhered to.

Nut Graf:

The Hill States such as Himachal Pradesh and Uttarakhand remain extremely vulnerable to natural disasters owing to both natural as well as man-made reasons. Given the impact that such disasters have on human life, all measures must be taken to mitigate the impact of these natural disasters.

GEOGRAPHY

Water Resources Management

1. 'Nadis' of Rajasthan

- » Mains: Significance of traditional water conservation systems

Context

- Traditional water-harvesting structures of Rajasthan called nadis or talabs are filled up with rainwater this monsoon season.

Water harvesting Structures of Rajasthan:

- Nadis or talabs (ponds) have been a part of rural life for ages. They are shallow depressions across the rural areas in the arid regions of Barmer and Jodhpur districts.
- The water collected in these tanks are used for drinking purposes by people, cattle and wild animals during the dry months.
- People in rural Rajasthan store rainwater in these structures with the application of traditional knowledge and locally available materials in view of the highly fluctuating and scanty rainfall in the State.
- Constant rain and flash floods have filled up these structures.
- These local systems are crucial to maintaining resilience against the onslaught of global warming and climate change.
- Western districts of Rajasthan were suffering from more and more heat waves and erratic rains potentially because of climate change.

Solution to Flash Floods:

- These structures can be a solution to frequent flash floods in Rajasthan with proper periodic maintenance.
- Orans (sacred groves) associated with local deities in these areas have many varieties of trees that slow the water run-off. This slower run-off of rainwater has led to more percolation in the local nadis and ponds and have also reduced the flash floods.
- The orans act as mini-oases in the arid landscape of western Rajasthan.
- Orans and nadis are "mixed water-pasture regimes" that need careful maintenance to protect their water-holding capacity and save rain water.
- The Bishnoi community found in western Rajasthan follow the commandments for protecting the flora and fauna. They contribute labor and money, to ensure maintenance and functioning of organs and nadis.

Nut Graf:

These structures are providing drinking water to the cattle and human beings and also act as a refuge to the wild animals in the region. Fast deteriorating orans and nadis shall be periodically maintained and saved as they act as insurance against dry summers in arid areas of western Rajasthan.

Major rivers of India

2. Godavari River

- » Prelims: Facts associated with Godavari river

Context

- The Godavari river is flowing above the danger mark in the Bhadrachalam agency, owing to heavy inflow from the catchment areas of its tributaries, including Indravati and Pranahita. This has given rise to concerns about flooding in the region.

Godavari River:

- The Godavari is the largest river in peninsular India.
- Its source is in Trimbakeshwar, Nashik, Maharashtra and drains into the Bay of Bengal. It drains the states of Maharashtra, Telangana, Andhra Pradesh, Chhattisgarh and Odisha.
- Its major tributaries include Pranahita (combined flow of Wainganga, Penganga, Wardha), Indravati, Sabari (left bank tributaries) and Manjira (right bank tributary).
- Jayakwadi, Kaleshwaram Lift Irrigation Project, Nizam Sagar and Upper Wardha are some of the major dams associated with the Godavari river.

Major mountain ranges of India

3. Karakoram Ranges

- » Prelims: Karakoram Range

Context

- Recently, China tested an air defense system near the India border in the Karakoram Plateau.

Key Details:

- China tested a short-range surface-to-air defense missile system in the “Karakoram plateau region” near the India border in a high altitude region above 4,500 m.
- It is a new type of HQ-17A short-range air defense missile with improvements made to the performance of its search and radar tracking ability.

About the Karakoram:

- The Karakoram is a mountain range in Kashmir spanning across China, India, and Pakistan with the northwest extremity of the range extending to Afghanistan and Tajikistan.
- Its highest peak of Karakoram, 'K2' is located in Gilgit-Baltistan.
- The Karakoram is bounded on the east by the Aksai Chin plateau, and on the northeast by the edge of the Tibetan Plateau. Pamir mountains are at the northwest corner. The southern boundary of the Karakoram is formed, west to east, by the Gilgit, Indus and Shyok rivers.

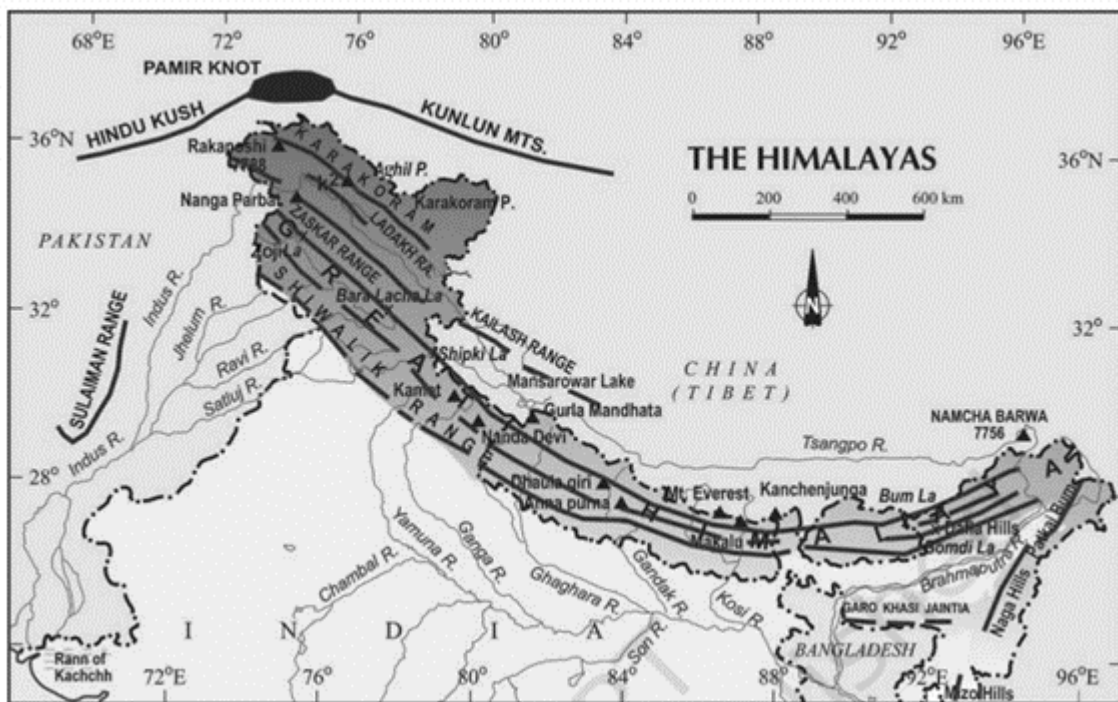


Image source: NCERT

Distribution of key natural resources across the world

4. Rare Earth Minerals

- » Prelims: Rare earth metals
- » Mains: Production of supply of rare earth minerals

Context

- The United States and key partner countries have announced the establishment of the Minerals Security Partnership (MSP), a new initiative to bolster critical mineral supply chains.
- It is an alternative to China to ensure key industrial supplies.

- India is not part of this arrangement.

Minerals Security Partnership (MSP):

- The US and 10 countries including Australia, France, Canada, Finland, Germany, Japan, South Korea, Sweden, the United Kingdom, and the European Commission have come together to form the MSP.
- The goal of the MSP is to ensure that critical minerals are produced, processed, and recycled in a manner that supports the ability of countries to realise the full economic development benefit of their geological endowments.
- The MSP will help catalyse investment from governments and the private sector for strategic opportunities across the full value chain that adhere to the highest environmental, social, and governance standards.
- The alliance is seen as an alternative to China, which has created processing infrastructure in rare earth minerals and has acquired mines in Africa for elements such as Cobalt.

Rare Earth Minerals:

- The 17 rare earth elements (REE). REEs are classified as light RE elements (LREE) and heavy RE elements (HREE).
- India has the fifth-largest reserves of rare earth minerals in the world.
- Due to the radioactivity of monazite sands, Indian Rare Earths Ltd under the Department of Atomic Energy is the sole producer of rare earth compounds.
- Globally, China has a monopoly over rare earth, after the USA's retreat in this industry due to high environmental and health concerns.

Why are these minerals important?

- Minerals like Cobalt, Nickel, and Lithium are required for batteries used in electric vehicles.
- REEs are an essential component of more than 200 consumer products, including mobile phones, computer hard drives, electric and hybrid vehicles, semiconductors, flatscreen TVs and monitors, and high-end electronics.
- Several potential improvements to the Li-ion battery technology has put the industry in advanced stages of commercialisation.

Strategic Importance to India:

- Rare earth minerals are very crucial for India in order to reduce the energy burden. It is an important component in the manufacture of hybrid vehicles, fuel cells and LEDs. According to India's ambitious plan, 80 % of the country's two- and three-wheeler fleet, 40% of buses, and 30 to 70 % of cars will be EVs by 2030.
- It is indispensable in the manufacture of advanced defence equipment.
- Essential for purifying the rivers flowing across the country.
- It is used in the manufacture of electronic gadgets which would help in our Digital India programme.

India's major concern:

- India is seen as a late mover in attempts to enter the lithium value chain, coming at a time when EVs are predicted to be a sector ripe for disruption.
- India will have to depend on other countries, especially China to power its energy transition plans to electric vehicles, if it fails to explore and produce these minerals.

SOCIAL ISSUES

Issues Relating to Poverty

1. Survey data on poverty and broad policy pointers

- » Prelims: About National Family Health Survey (NFHS) and Multidimensional Poverty Index (MPI)
- » Mains: Significance of Multidimensional Poverty Index (MPI), issues with the quality of NFHS data and the way forward

Context

- Recently based on the multidimensional poverty measurement, it was found that the Poverty Ratio in Tamil Nadu reduced to 1.57% in 2020-21 from 4.89% in 2015-16.
- The above data is obtained based on the fourth and fifth rounds of the National Family Health Survey (NFHS).
- Experts have raised questions about the authenticity and quality of such NFHS data.

National Family Health Survey (NFHS)

- NFHS is a large-scale, multi-round survey conducted on a representative sample of households throughout India.
- The first survey was conducted in 1992-93.
- The data from the survey helps in highlighting key aspects such as fertility, infant and child mortality, family planning, maternal and child health, reproductive health, nutrition, anaemia, utilization and quality of health and family planning services.
- International Institute for Population Sciences (IIPS) in Mumbai is the nodal agency that is responsible for providing coordination and technical guidance for the survey.
- Aims:
 - * To provide crucial data on health and family welfare required for policy purposes.
 - * To provide information on key emerging health and family welfare issues.

Multidimensional Poverty Index (MPI) based on NFHS data:

- NITI Aayog, which was provided with a large amount of sample survey data of NFHS 4, estimated the Multidimensional Poverty Index (MPI) and published the baseline report in 2021.
- MPI was estimated based on the theory that poverty is a result of continuous deprivations in various aspects like attainments in health, education, and standard of living.
- The NITI Aayog recognised 12 factors in the above three aspects and estimated the weighted average of deprivations in each of these 12 factors for all individuals surveyed in NFHS 4.
 - * Individuals are regarded as “multidimensionally poor” if the total weighted deprivation score is found to be over 0.33.
- The share of the population with a deprivation score of over 0.33 to the total population is said to be the Poverty Ratio or Head Count Ratio.
- The Intensity of Poverty is another key metric that can be estimated based on the NFHS data.
 - * The Intensity of Poverty is the weighted-average deprivation score of the multidimensionally poor.
 - * Example: If the Intensity of Poverty in Tamil Nadu has reduced from 39.97% to 38.78%, it suggests that the amount of multiple deprivations of the poor has only reduced slightly in these five years and has to be the focus area for policymakers.
- The MPI is a product of the Head Count Ratio and Intensity of Poverty.
- The MPI for Tamil Nadu declined from 0.020 to 0.006. This rapid reduction in MPI is mainly because of a greater decline in Head Count Ratio as compared to Intensity of Poverty.
 - * Experts say that any further reduction in MPI in Tamil Nadu must take place only after addressing all the dimensions of poverty and reducing its intensity.

Significance of MPI:

- MPI is the most efficient method to identify the total share of the population who are regarded as deprived in most of the indicators.
- MPI methods help address deprivations in all the factors of health, education, and standard of living.

- MPI also indicates that the total share of the population who are identified as deprived individually in a few of the factors (the non-poor may also be deprived in a few of these indicators, but not as much to be classified as multidimensionally poor) is higher than the population identified as multidimensionally poor.
 - * This provides a new aspect to the public policy interventions, which says that poverty control measures should not only be multidimensional but also universal.
- Further, with the help of NFHS data, Head Count Ratio and Intensity of Poverty can be estimated for each district and classified based on gender, rural and urban, and other dimensions.

Quality of NFHS data:

- Experts raise various concerns regarding the quality of survey data.
- Economists and statisticians have raised questions about National Sample Survey Organisation's (NSSO) sample surveys both with respect to sampling and non-sample errors.
 - * NSSO has made efforts in recent years to improve its sampling design and reduce non-sampling errors.
- Similarly, NFHS data has also been criticised for its arbitrariness in reporting the age of the dead, differences in data quality between educated and uneducated respondents, etc. which are crucial indicators for the health and welfare of citizens.
- Experts have pointed out discrepancies in the metrics of pregnancy, the intensity of poverty and deprivation in terms of nutrition, maternal health and schooling.
- Further, the deprivation indicators with respect to drinking water and sanitation are also said to be skewed.

Way forward:

- It is important to adopt a universal approach rather than a targeted approach to address poverty to reduce the Intensity of Poverty along with the Poverty Ratio or Head Count Ratio.
- Important interventions must also take into account the ground-level realities as the survey data provides only broad-level policy pointers.
- Efforts must be undertaken to improve the sample design, response quality and reduce sampling and non-sample errors in various key surveys of the country.

Nut Graf:

Multidimensional poverty measurements and their components are extremely significant in understanding poverty as a whole and other key information that are important for interventions. However, the authenticity of such measurements depends on the quality of NFHS data, therefore efforts must be made to improve the quality of such surveys.

Social Empowerment

2. The 'NAMASTE' Project

- » Mains: Government policies on eradicating manual scavenging

Context

- The Union Ministry of Social Justice and Empowerment is planning for a nationwide survey to enumerate all people engaged in hazardous cleaning of sewers and septic tanks.

About the Project:

- The NAMASTE project is a joint venture of the Ministry of Social Justice and Empowerment and the Ministry of Housing and Urban Affairs towards bettering the lives of sanitation workers in India.
- The project aims to achieve zero fatalities of sanitation workers and empower them with relevant skills and strengthened monitoring systems. It also aims to provide access to alternative livelihoods to the workers.
- As a part of this project, the government is planning for a nationwide survey to list all sanitation workers.

Manual Scavengers v/s Sanitation Workers:

- Sanitation workers are those who do various tasks such as cleaning toilets and spaces; cleaning and emptying, septic tanks and sewers; collecting, segregating and disposing of different types of waste; operating sewage treatment plants, etc.
- Manual scavenging is one of the most undignified and inhuman forms of sanitation work, wherein in absence of adequate sanitation systems and mechanization and protective gear, workers who clean insanitary dry latrines, empty septic tanks, clean railway tracks, etc., come in direct contact with human faeces, without any protective gear or required support measures.
- The Union Social Justice Ministry has drawn a distinction between sanitation work and manual scavenging and insisted that the practice of manual scavenging no longer takes place in the country as all manual scavengers had been accounted for and enrolled on the rehabilitation scheme.

- The enumeration exercise is planned to be conducted across 500 AMRUT (Atal Mission for Rejuvenation and Urban Transformation) cities to streamline the process of rehabilitating sanitation workers and eventually merge with and replace the Self-Employment Scheme for the Rehabilitation of Manual Scavengers (SRMS), which was started in 2007.
- As per the Ministry's data, hazardous cleaning of sewers and septic tanks has led to at least 351 deaths since 2017.

Nut Graf:

Union Ministry of Social Justice and Empowerment is working towards data collection on sanitation workers to streamline the recognition and rehabilitation of the disadvantaged group. The government should also put the data collected to good use by implementing adequate schemes and policies to help improve the lives and dignity of the sanitation workers.

Women - Related Issues

3. Curing the patriarchal mindset of the legal system

- » Mains: Patriarchal mindset in the Indian socio-legal system.

Background:

- A Sessions Court in Kerala, looking into a case of alleged sexual harassment, observed that the concerned case would not attract an offence under Section 354A of the Indian Penal Code as the complainant was dressed in 'sexually provocative dresses'.
 - * Section 354A of the IPC deals with 'Assault or criminal force to woman with intent to outrage her modesty'.
- The Court went on to grant anticipatory bail to the accused person.

Concerns with the sessions court judgment:

Against the rights of a woman:

- Choice of dress is an integral part of an individual's freedom of privacy and dignity. Hence the negative observation made by the Sessions Court in the concerned case with respect to the dressing choice of the complainant goes against the woman's constitutional right to dignity, life and personal liberty, and privacy.

Goes against previous Supreme Court guidelines:

- The Supreme Court in *Aparna Bhat vs The State Of Madhya Pradesh (2021)* had held that "the use of reasoning/language which diminishes the offence and tends to trivialize the survivor [in gender violence cases] is to be avoided in any judgments or observations in gender violence cases."
- The concerned sessions court judgment by referring to the woman's dress as a possible reason for the attack is in violation of the guideline that was given by the Supreme Court in the *Aparna Bhat vs The State Of Madhya Pradesh (2021)* case.

Reeking of a patriarchal mindset:

- The terming of a woman's dress as 'sexually provocative' is a result of the objectification of women.
- The observation made by the Sessions Court is indicative of an unconscious patriarchal mindset not only in the individual judicial officer in the concerned case but also in the entire socio-legal system. This is characterized by the influence of patriarchy and masculinist norms on legal structures and has a negative impact on the condition of women.
 - * Women continue to find it hard to approach the judiciary for justice. They face many hurdles.
 - * The representation of women in the Indian judiciary has been poor. The Supreme Court, since its inception in 1950, has seen only 11 women judges.
- Notably, the patriarchal mindset in the legal system is not just limited to India but has been observed in the so-called advanced countries as well.
 - * In *Bradwell vs The State of Illinois (1872)*, the Supreme Court of the United States while looking into the application by Myra Bradwell for a licence to practise law, turned down the application, observing that only men could make, apply, and execute laws while women were expected to only fulfil their role as wife and mother in the society.

Recommendations:

- The most important intervention required is the need to cure the patriarchal mindset of the socio-legal system in India. In this regard, the following measures would be helpful.
 - * There is a need for reforms in laws to correct gender injustice, exploitation, or restriction by reformulating legal doctrine to overcome entrenched bias and enforced inequality in the socio-legal system.
 - * Inclusion of feminist jurisprudence in the curriculum for law students.

- * Sensitisation of legal practitioners and judicial officers about feminist jurisprudence.
- * The inclusion of more women in the judiciary would help ensure that the decision-making process is more responsive, inclusive and participatory at all levels.

Nut graf:

The unconscious patriarchal bias in the socio-legal system of India remains a major concern. There is a need to address this through a greater push for feminist jurisprudence.

Population and associated issues

4. World Population Prospects 2022

- » Prelims: World Population Prospects 2022
- » Mains: Highlights of World Population Prospects 2022 and its implications for India

Context

World Population Prospects (WPP), 2022 by the United Nation forecasts that the global population will reach 8 billion this year and India's population will surpass China's by 2023 and continue to surge.

World Population Prospects (WPP)

- The population division of the United Nations publishes the "World Population Prospects"
- WPP has been published biennially, since 1951.
- WPP provides an overview of population trends from 1950 to 2050.
- Each revision of the WPP provides a historical background of population indicators since 1950.
- The newly released set of national data is being considered for revising estimates of past trends in fertility, mortality, or international migration.

Key findings of World Population Prospects 2022:

- The United Nations' World Population Prospects (WPP), 2022, forecasted that India will become the most populous country by 2023.
- India will surpass China, with a population of 140 crores in 2023, and will reach 150 crores by 2030 and 166 crores by 2050.
- This is four times the population India had at the time of Independence in 1947 (34 crores).
- By 2050 China will have 1.3 billion people, of whom 500 million will be past the age of 60.
 - * India's population, by contrast, would have peaked at 1.7 billion, of whom only 330 million will be 60 years or older giving a much longer advantage of Demographic dividend to India.
- India is currently at the third stage of the demographic transition.
- India is experiencing a slowing growth rate because of:
 - * Low mortality
 - * Exponentially declining fertility
- India had a population growth rate of over 2% in the 1960s. At the current growth rate, it is expected to fall to 1% by 2025.

Total Fertility Rate and its current status:

- India had a Total Fertility Rate (TFR) of six in the 1950s. For the first time, India's TFR has slipped to two, below the replacement level fertility (2.1 children per woman), according to the National Family Health Survey-5.
- Many states have reached a TFR of two except for Bihar, Jharkhand, Manipur, Meghalaya and Uttar Pradesh. The reasons for low fertility rates in these states are:
 - * High illiteracy
 - * Rampant child marriage
 - * High levels of under-five mortality rates
 - * Low female workforce participation
 - * Low contraceptive usage compared to other States
 - * Women in these States have low autonomy in economic or personal matters

India's achievement in 75 years:

- Improved sex ratio: In 2011, the sex ratio was 943 females per 1,000 males which is expected to be 950 females per 1,000 males approximately in 2022.
- Life expectancy at birth remarkably improved from 32 years in 1947 to 70 years in 2019.
- The infant mortality rate fell from 133 in 1951 (for the big States) to 27 in 2020.
- The under-five mortality rate declined from 250 to 41.
- The maternal mortality ratio reduced from 2,000 in the 1940s to 103 in 2019.

Demographic dividend:

- The demographic dividend is the economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working-age population (15 to 64) is larger than the non-working-age share of the population (14 and younger, and 65 and older).
- A larger population translates to better human capital, higher economic growth and improved standards of living.
- The share of the working-age population has grown from 50% to 65%, resulting in a remarkable decline in the dependency ratio.
- As per WPP 2022, India will comprise the largest workforce globally in the next 25 years with one in five working-age group persons living in India.
- As per studies, India's potential workforce will rise from 885 million to 1.08 billion people over the next 20 years and remain above a billion people for half a century.
- Developments in automation and digitisation, shifting supply chains along with rising incomes, urbanization and demographic shifts with a better focus on health and sustainability accelerate to create \$2.5 trillion of economic value in 2030 and support 112 million jobs, or about 30% of the non-farm workforce in 2030.

Added advantages over China:

- Compared to 1970s China, India is in a better position to transform itself into a global economic leader.
- Democracy is much celebrated in India with an open society where mass protest matters and produces results.
- Indians have not been traumatized as Chinese due to events such as the Great Leap Forward and the Cultural Revolution in China.
- Well-developed and cheaper IT technologies and Infrastructure will be an added advantage to India.
- Learning is revolutionized with advanced technologies. This will help in the transformation of the unskilled population into skilled workers quickly.
- India's administrative system is in far better shape today than it was for China at the start of its reforms.
- Because of the progressive population control measures of India, it does not have to suffer the consequences of a prematurely ageing society with a skewed gender ratio similar to China.
- India does not have a Hukou system which China used to actively limit where a person is allowed to live, especially if one is born into a rural hukou.
 - * This disincentivized migration to urban areas, only about 36% of China's overall population is urban and fully 64% is rural. This created a deep divide between a small and prosperous urban China and a much larger rural China.

Key concerns for India

- The population is set to grow for three to four decades due to the population momentum (large cohorts of women in their reproductive age groups).
- Another demographic concern of independent India is the male-dominant sex ratio.
- One out of three girls missing globally due to sex selection is from India — 46 million of the total 142 million missing girls.
- Challenges in harnessing demographic dividend:
 - * Absence of women from the workforce with only a fourth of women employed.
 - * The quality of education is not up to the mark.
 - * Inadequate basic skills for the modernized job market.
- Poor health parameters:
 - * Every second woman in the reproductive age group in India is anaemic.
 - * Every third child below five is stunted.

- * The rising share of non-communicable diseases (NCDs) causes 62% of deaths.
 - * More than a quarter of global deaths owing to air pollution occur in India.
 - * India's healthcare structure is highly inadequate and inefficient.
 - * Moreover, public health expenditure is low, varying between 1% and 1.5% of GDP, which is among the lowest percentages in the world.
- India's share of the elderly is expected to reach 12% by 2050.

Recommendations

- Improvement of sex ratio as some communities face severe challenges from a marriage squeeze (an imbalance between the number of men and women available to marry in a specific society) and eventual bride purchase.
- Improving the status of women with economic as well as social empowerment.
- Advance investments in the development of a robust social, financial and healthcare support system for older sections of the population.
- Massive investment in quality school and higher education and health care sector across India between now and 2050.
- Creation of a single national market, renewable energy-centric expansion of industry and a move in supply chains away from China with continued progress in IT, and a high-tech welfare safety-net for the population can help India to reap the benefits of Demographic dividend.

Nut graf:

India is in a much better position than China back in the 1970s to reap its demographic dividend and rise to be an economic powerhouse by the end of this century. India is getting a demographic dividend that will last nearly 30 years. Given the will, it can initiate and see through a transformation and seize the moment.

PRACTICE QUESTIONS

1. Which of the following are the examples of Residual Mountains? (Level- Medium)
 1. Aravalli
 2. Girnar hills
 3. Javadi hills
 4. Nilgiri hills
 Options:
 - A. 1, 2 and 3 only
 - B. 2, 3 and 4 only
 - C. 1 and 4 only
 - D. 1, 2, 3 and 4

2. Consider the following statements with respect to Aravalli range: (Level-Easy)
 1. It acts as a major barrier preventing the spread of the desert
 2. The highest peak is Guru Shikhar
 3. All the rivers in Rajasthan originate from the slopes of the Aravalli range
 Which of the statements given above is/are correct?
 - A. 1 and 2 only
 - B. 2 and 3 only
 - C. 1 and 3 only
 - D. 1, 2 and 3

3. Al Najah is joint military training exercise between India and (Level-easy)
 - A. Bahrain
 - B. Oman
 - C. Qatar
 - D. United Arab Emirates

4. Which of the following is/are correctly matched? (Level-Difficult)
 1. Kerch Strait -Black Sea with the Sea of Azov
 2. Strait of Messina- Tyrrhenian Sea with the Ionian Sea
 3. Strait of Dover- North Sea with English Channel
 Options:
 - A. 1 and 2 only
 - B. 2 and 3 only
 - C. 1 and 3 only
 - D. 1, 2 and 3

5. Consider the following statements:(Level-Difficult) (CSE-2022)
 1. Vietnam has been one of the fastest growing economies in the world in the recent years.
 2. Vietnam is led by a multi-party political system.
 3. Vietnam's economic growth is linked to its integration with global supply chains and focus on exports.
 4. For a long time, Vietnam's low labor costs and stable exchange rates have attracted global manufacturers.
 5. Vietnam has the most productive e-service sector in the Indo-Pacific region.
 Which of the statements given above are correct?
 - A. 2 and 4
 - B. 3 and 5
 - C. 1, 3 and 4
 - D. 1 and 2

6. Consider the following statements about Lumpy skin disease. (Level – Difficult)
 1. Lumpy skin disease is a viral disease that affects cattle.
 2. There are no vaccines currently available against the disease.
 3. The mortality rates are above 90% in infected animals.
 Which of the above statements is/are correct?
 - A. 1 only
 - B. 2 only
 - C. 1 and 3 only
 - D. 1, 2 and 3

7. Which of the following statements is/are correct with respect to Exercise Pitch Black? (Level – Medium)
 1. It is an annual multilateral air warfare training exercise hosted by the Royal Australian Air Force.
 2. India has been a participant in this exercise since its inception.
 Options:
 - A. 1 only
 - B. 2 only
 - C. Both 1 and 2
 - D. Neither 1 nor 2

8. India has signed and ratified which of the following? (Level – Difficult)
1. Antarctic treaty
 2. Protocol on environment protection to the Antarctic treaty
 3. Convention on the conservation of Antarctic marine living resources
- Options:
- A. 1 and 2 only
 - B. 2 and 3 only
 - C. 1 and 3 only
 - D. 1, 2 and 3
9. Consider the following provisions of the Minimum Wages Act, 1948: (Level – Medium)
1. It prescribes fixing, reviewing and revising the minimum wages of even the migrant labourers employed in the scheduled employments.
 2. The concerned administration is mandated to revise the minimum rates of wages at intervals not exceeding five years.
- Which of the above provisions are correct?
- A. 1 only
 - B. 2 only
 - C. Both 1 and 2
 - D. Neither 1 nor 2
10. Which of the following is issued by registered foreign portfolio investors to overseas investors who want to be part of the Indian stock market without registering themselves directly? (Level – Easy) PYQ (2019)
- A. Certificate of Deposit
 - B. Commercial Paper
 - C. Promissory Note
 - D. Participatory Note
11. Consider the following statements with respect to Enforcement Directorate (ED) Director. (Level – Medium)
1. The ED director is appointed as per provisions of the Prevention of Money Laundering Act of 2002.
 2. The ED Director is appointed by the Union government based on the recommendations of a committee chaired by the Union Home Minister and members comprising the Leader of Opposition in the Lok Sabha and Rajya Sabha as well as the Chief Justice of India.
3. The ED director has a fixed two-year tenure which can be extended by one year each time, provided the total term does not exceed five years.
- Which of the above statements is/are correct?
- A. 1 and 2 only
 - B. 3 only
 - C. 1, 2 and 3
 - D. 1 only
12. Which of the following statements is/are correct with respect to forest cover in the North-eastern states of India? (Level – Difficult)
1. All the North-eastern states of India have more than 70% of the geographical area under forest cover.
 2. All the North-eastern states of India have witnessed decline in forest area over the past decade.
- Options:
- A. 1 only
 - B. 2 only
 - C. Both 1 and 2
 - D. Neither 1 nor 2
13. Consider the following statements with respect to the Supreme Court collegium. (Level – Easy)
1. This system evolved through judgments of the Supreme Court and has no backing law or provision of the Constitution.
 2. It consists of the Chief Justice of India and five other senior-most judges.
- Which of the above statements is/are correct?
- A. 1 only
 - B. 2 only
 - C. Both 1 and 2
 - D. Neither 1 nor 2
14. Consider the following statements with respect to Tobacco farming in India. (Level – Difficult)
1. Tobacco is a drought tolerant, hardy and short duration crop.
 2. India is the world's largest producer and exporter of Tobacco.
 3. Crop diversification programme, a sub-scheme of Rashtriya Krishi Vikas Yojana, aimed at shifting farmers away from tobacco cultivation is being implemented in all Indian states.
- Which of the above statements is/are correct?

- A. 1 and 2 only
B. 2 only
C. 1 only
D. 1, 2 and 3
15. Atal Innovation Mission is set up under the (Level – Easy)
A. Department of Science and Technology
B. Ministry of Labour and Employment
C. NITI Aayog
D. Ministry of Skill Development and Entrepreneurship
16. Hellfire R9X missile also known as the "ninja bomb" recently in news was developed by which country? (Level – Easy)
A. China
B. Russia
C. USA
D. UK
17. The Central Vigilance Commissioner and the Vigilance Commissioners shall be appointed by the President on recommendation of a Committee consisting of the (Level – Medium)
1. Prime Minister
2. Minister of Home Affairs
3. Leader of the Opposition in the Upper House
4. Chief justice of India or Judge of Supreme Court
5. Leader of the Opposition in the Lower House
Options:
A. 1, 2 and 3 only
B. 2, 3 and 4 only
C. 1, 2 and 5 only
D. 1, 3 and 4 only
18. Consider the following statements: (Level – Difficult)
1. Sultan Quli Qutub-ul-Mulk founded the city of Hyderabad.
2. The Qutb Shahi dynasty came to an end when the Mughal Emperor Aurangzeb arrested and jailed Sultan Abul Hasan Qutb Shah for the rest of his life.
Which of the statements given above is/are incorrect?
- A. 1 only
B. 2 only
C. Both
D. None
19. The Sunderlal Committee, appointed by Jawaharlal Nehru is closely related to (Level – Medium)
A. Annexation of Hyderabad
B. Assam and Arunachal Pradesh Border Dispute
C. Defence Production and Procurement
D. States Reorganisation
20. Which of the following countries are part of Minerals Security Partnership? (Level – Medium)
1. Australia
2. India
3. Japan
4. New Zealand
5. Sweden
6. United Kingdom
7. USA
Options:
A. 1, 2, 3, 4, and 7 only
B. 2, 3, 4, 5, 6 and 7 only
C. 1, 3, 5, 6 and 7 only
D. 1, 2, 4 and 6 only
21. Which amongst the following statements is not correct with respect to Comptroller and Auditor General (CAG) of India? (Level – Medium)
A. CAG compiles and maintains accounts of both Central and State governments.
B. CAG can audit all transactions relating to the Contingency Funds
C. CAG submits audit reports relating to the accounts of the Central Government to the President
D. The CAG is appointed by the President and can only be removed from office in like manner and on like grounds as a judge of the Supreme Court.

22. Consider the following statements: (Level – Medium)

1. Among the Union Territories Delhi alone has a High Court of its own.
2. Parliament with the previous consent of the State may by law extend the jurisdiction of a High court to, or exclude the jurisdiction of a High Court from, any Union territory

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both
- D. None

23. Consider the following pairs: (Level – Difficult)

| Freedom Fighters | Tribe |
|----------------------|--------------------|
| 1. Tilka Majhi | Pahadia tribe |
| 2. Thalakkal Chanthu | Kurichiyar tribe |
| 3. Budhu Bhagat | Oraon tribe |
| 4. Raghoji Bhangre | Mahadeo Koli tribe |
| 5. Laxman Naik | Bhuyan tribe |

Which of the above pairs are correctly matched?

- A. 1 and 2 only
- B. 2, 4 and 5 only
- C. 3 and 5 only
- D. 1, 2, 3, 4 and 5

24. With respect to NavIC, which of the following statements is/are incorrect? (Level – Difficult)

1. It can help in navigation on land, air, sea and also in disaster management.
2. NavIC satellites are placed at a higher orbit than the GPS of United States.
3. It is designed to provide accurate position information service to users in India as well as the region extending up to 2500 km from its boundary

Options:

- A. 1 and 2 only
- B. 2 only
- C. 3 only
- D. None

25. Consider the following statements: (Level – Medium) PYQ (2022)

1. The Constitution of India classifies the ministers into four ranks viz. Cabinet Minister, Minister of State with Independent Charge, Minister of State and Deputy Minister.

2. The total number of ministers in the Union Government, including the Prime Minister, shall not exceed 15 percent of the total number of members in the Lok Sabha.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

26. Consider the following statements: (Level-Medium)

1. MPs cannot be arrested during the session of Parliament and 40 days before the beginning and 40 days after the end of a session. This privilege is available in civil cases and in criminal cases.

2. According to the Constitution, courts can inquire into the proceedings of a House or its committees in exceptional circumstances.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both
- D. None

27. With respect to Private Member's Bill introduced in the Parliament, which of the statements is/are correct?

1. A member of the ruling dispensation who is not a minister is also considered a Private Member.

2. Government bills and private members' bills are governed by the same general procedure and pass through the same stages in the House.

3. Its introduction in the House requires seven days' notice.

Options:

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

28. Which of the following statements with respect to Pradhan Mantri Fasal Bima Yojana (PMFBY) is/are incorrect?

1. PMFBY is optional for the farmers who have not availed of institutional credit, while all the farmers who have borrowed institutional loans from banks are covered under the scheme mandatorily.
2. Under PMFBY, farmers have to pay a uniform maximum premium of 1.5% for crops that they cultivate in any season.

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

29. Mission Raftaar recently seen in news is

- A. A drive against the smuggling of narcotics through rail.
- B. A mission introduced by Indian Railways in order to mitigate the hardships of the mothers travelling with their infants.
- C. An initiative of the Ministry of Railways to achieve a target of doubling the average speed of freight trains and increasing the average speed of superfast, mail and express trains by 25 kmph.
- D. A set up for the purpose of business re-engineering and introducing a spirit of innovation in Railways.

30. Consider the following pairs:

| King | Dynasty |
|-----------------|-------------------|
| 1. Nannuka | Chandela |
| 2. Jayashakti | Paramara |
| 3. Nagabhata II | Gurjara-Pratihara |
| 4. Bhoja | Rashtrakuta |

How many pairs given above are correctly matched?

- A. Only one pair
- B. Only two pairs
- C. Only three pairs
- D. All four pairs

31. Consider the following statements: (Level-Medium)

1. According to the law, life imprisonment means incarceration for a term not exceeding fourteen years.
2. When any person has been sentenced to punishment for an offense, the appropriate Government may, at any time, without Conditions or upon any conditions which the person sentenced accepts, suspend the execution of his sentence or remit the whole or any part of the punishment to which he has been sentenced.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both
- D. None

32. With respect to the Right to Information Act, which of the following statements is/are Correct? (Level-Hard)

1. RTI Act mandates every public authority to disclose information on a suo motu basis to the public at regular intervals.
2. If information sought concerns the life or liberty of a person, it shall be supplied within four weeks.
3. The Act will not apply to the intelligence and security organizations under all circumstances

Options:

- A. 1 only
- B. 1 and 2 only
- C. 2 and 3 only
- D. 1, 2 and 3

33. Which of the following statements with respect to Kondapalli Toys is/are correct? (Level-Medium)

1. The Toys are made of wood in Kondapalli in the state of Telangana
2. They have been granted the Geographical Indications (GI) tag

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

34. Consider the following statements with respect to Amicus curiae:

1. The decision whether to admit the information given by the Amicus curiae lies with the discretion of the court.
2. Amicus curiae can be appointed in both civil and criminal cases

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both
- D. None

35. With reference to the United Nations General Assembly, consider the following statements:

1. The UN General Assembly can grant observer status in the non-member States.
2. Inter-governmental organizations can seek observer status in the UN General Assembly.
3. Permanent Observers in the UN General Assembly can maintain missions at the UN headquarters.

Which of the statements given above are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

36. Consider the following pairs: (Level-Hard)

| Caves | State |
|-----------------|------------------|
| 1. Borra | Andhra Pradesh |
| 2. Lomas Rishi | Bihar |
| 3. Mawsmai | Meghalaya |
| 4. Mandapeshwar | Himachal Pradesh |
| 5. Tabo | Maharashtra |

Which of the pairs given above are correct?

- A. 1, 2 and 3 only
- B. 3, 4 and 5 only
- C. 1, 2, 4 and 5 only
- D. 1, 2, 3, 4 and 5

37. With respect to Mullaperiyar Dam, which of the following statements is/are correct? (Level-Medium)

1. It is a masonry gravity dam on the Periyar River
2. It is located in Kerala but is operated by the government of Tamil Nadu

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

38. Which of the following statements with respect to Nalanda University is/are correct? (Level-Medium)

1. It was founded by Kumargupta I of the Gupta dynasty in 5th century CE.
2. The archaeological site of Nalanda University in Bihar has been included in the UNESCO's World Heritage List
3. Xu Beihong was a Chinese buddhist monk who traveled to India during the reign of King Harsha Vardhan and studied at Nalanda.
4. Nalanda was ransacked and destroyed by Turkic invaders under Muhammad Ghori

Options:

- A. 1, 3 and 4 only
- B. 2 only
- C. 1 and 2 only
- D. 3 and 4 only

39. Consider the following statements with respect to Hansen's Disease:(Level-Easy)

1. It is an infection caused by Dhori virus
2. It can affect the nerves, skin, eyes, and lining of the nose (nasal mucosa).
3. Hansen's disease is not passed on from a mother to her unborn baby during pregnancy and it is also not spread through sexual contact.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 3 only
- D. 1, 2 and 3

40. The "Miyawaki method" is well known for (Level-Medium)(CSE Prelims-2022)
- Promotion of commercial farming in arid and semiarid areas
 - Development of gardens using genetically modified flora
 - Creation of mini forests in urban areas
 - Harvesting wind energy on coastal areas and on sea surfaces
41. Consider the following statements: (Level – Medium)
- A hike in repo rate will lead to borrowing rates of all kinds also going up.
 - Generally, an increase in the repo rate will result in the increase in economy's growth rate.
 - OBICUS (Order Books, Inventories and Capacity Utilization Survey) of the RBI provides an insight into the demands of the Indian manufacturing sector.
- Choose the correct code:
- 1 & 2 only
 - 2 & 3 only
 - 1 & 3 only
 - All of the above
42. Consider the following statements with respect to the START treaty: (Level – Difficult)
- Signed in 1991, the START I (Strategic Arms Reduction Treaty) was a bilateral treaty between the United States and the Soviet Union on the reduction and the limitation of strategic offensive arms.
 - The treaty barred its signatories from deploying more than 6,000 nuclear warheads and a total of 1,600 intercontinental ballistic missiles (ICBMs) and bombers.
 - The New START treaty limits the number of deployed strategic nuclear warheads to 1,550, which is down nearly two-thirds from the original START treaty.
- Choose the correct code:
- 1 & 2 only
 - 2 & 3 only
 - 1 & 3 only
 - All of the above
43. Consider the following statements with respect to the Commonwealth Games: (Level – Medium)
- The motto of 2022 Commonwealth Games was "Sport is just the beginning".
 - Unlike the Olympics, para athletes also participated in the same Commonwealth games, making it the first fully inclusive international multi-sport event.
 - 2022 Commonwealth games are the first global multi-sport event to have more events for women than men.
- Choose the correct code:
- 1 & 2 only
 - 2 & 3 only
 - 1 & 3 only
 - All of the above
44. 'Porcupine strategy', often seen in the news, is related to which of the following? (Level – Easy)
- Strategy for asymmetric warfare
 - Strategy to avoid the next pandemic
 - Strategy to counter illegal trafficking of exotic animals
 - Strategy to preserve endangered wildlife species
45. With reference to the Indian economy, consider the following statements (Level – Easy) PYQ (2022)
- If the inflation is too high, Reserve Bank of India (RBI) is likely to buy government securities.
 - If the rupee is rapidly depreciating, RBI is likely to sell dollars in the market.
 - If interest rates in the USA or European Union were to fall, that is likely to induce RBI to buy dollars.
- Which of the statements given above are correct?
- 1 & 2 only
 - 2 & 3 only
 - 1 & 3 only
 - All of the above
46. "The participation of women in the Quit India Movement of 1942 was significant from several aspects." Who among the following participated in the Quit India Movement (Level – Difficult)
- Usha Mehta
 - Matangini Hazra
 - Sucheta Kriplani
 - Rajkumari Amrit Kaur

Options:

- A. 1 and 2 only
- B. 1, 3 and 4 only
- C. 2 and 4 only
- D. All of the above

47. Which of the given statement/s is/are CORRECT? (Level – Medium)

1. The most recent Chess Olympiad was hosted in India for the first time and saw the largest participation in any Chess Olympiad.
2. International Chess Federation (FIDE) is recognised as a Global Sporting Organization by the International Olympic Committee.
3. Indian women's team won the country's first-ever medal in the women's section in the recent Chess Olympiad.

Choose the correct option:

- A. One statement only
- B. Two statements only
- C. All three statements
- D. None of the above

48. Consider the following statements with respect to NISAR: (Level – Difficult)

1. The mission will observe Earth and measure its changing ecosystem and masses globally.
2. It will use both L-Brand and S-Brand Radar frequencies. The S-Brand Radar is being built by ISRO and the L-Brand Radar is being built by NASA.
3. Its primary goals include spotting warning signs of imminent volcanic eruptions, helping to monitor groundwater supplies, tracking the rate at which ice sheets are melting etc.

Which of the given statement/s is/are correct?

- A. 1 and 2 only
- B. 1 and 3 only
- C. 3 only
- D. 1, 2 and 3

49. 'Baansera', 'Bashgram' are seen in the News with reference to: (Level – Difficult)

- A. Gene Sanctuaries
- B. Subsistence agriculture
- C. Bamboo
- D. Below Sea-level Farming Systems

50. 'Recognition of Prior Learning Scheme' is sometimes mentioned in the news with reference to: (Level – Medium) PYQ-2016

- A. Certifying the skills acquired by construction workers through traditional channels.
- B. Enrolling the persons in Universities for distance learning programmes.
- C. Reserving some skilled jobs to rural and urban poor in some public sector undertakings.
- D. Certifying the skills acquired by trainees under the National Skill Development Programme.

51. In which amongst the following cases did the Supreme court ensure that convicted criminals don't contest elections and find a place in the Parliament and State Legislature? (Level- Medium)

- A. Kehar Singh vs Union of India
- B. Kihoto Hollohan v Zachillhu And Others
- C. Lily Thomas v Union of India
- D. Lok Prahari v Union Of India And Others

52. Consider the following statements: (Level-Easy)

1. In case of a conflict between the central law and the state law on a subject enumerated in the Concurrent List, the central law prevails over the state law.
2. If the state law has been reserved for the consideration of the President and has received his assent, then the state law prevails in that state.
3. The Malimath Committee, constituted by the Atal Bihari Vajpayee government in 2000, favoured making Section 498A of the Indian Penal Code (dowry harassment) a bailable and compoundable offense.

Which of the statements given above is/are correct?

- A. 1 only
- B. 1 and 3 only
- C. 2 and 3 only
- D. 1, 2 and 3

53. Which amongst the following is not correctly matched as per the Chola inscriptions? (Level-Difficult)

1. Vellanvagai – land of non-Brahmana peasant proprietors
2. Pallichchandam – land gifted to Brahmanas
3. Shalabhoga – land gifted to temples

Options:

- A. 1 only
- B. 2 and 3 only

- C. 2 only
D. 1, 2 and 3
54. With respect to Third Anglo Mysore War, which of the following statements is/are correct? (Level-Easy)
1. During the initial phase of the war Tipu defeated the English under Cornwallis.
 2. The War ended with the Treaty of Mangalore.
 3. It was during the Third Anglo-Mysore War that Tipu's two sons were taken as hostages by the British.
- Options:
- A. 2 only
B. 1 and 3 only
C. 3 only
D. 1, 2 and 3
55. With reference to the "Tea Board" in India, consider the following statements: (Level-Medium) (CSE Prelims:2022)
1. The Tea Board is a statutory body.
 2. It is a regulatory body attached to the Ministry of Agriculture and Farmers' Welfare.
 3. The Tea Board's Head Office is situated in Bengaluru.
 4. The Board has overseas offices at Dubai and Moscow.
- Which of the statements given above are correct?
- A. 1 and 3
B. 2 and 4
C. 3 and 4
D. 1 and 4
56. Consider the following statements with respect to Vice-President of India: (Level- Easy)
1. To be eligible for election as Vice-President, he/she should be qualified for election as a member of the lower house.
 2. The oath of office to the Vice-President is administered by the Chief Justice of India and in his absence, the seniormost judge of the Supreme Court available.
 3. If the office falls vacant by resignation, removal, death or otherwise, then an election to fill the vacancy should be held within six months from the date of the occurrence of such a vacancy.
- Which of the statements given above is/are correct?
- A. 1 only
B. 2 and 3 only
C. 1, 2 and 3
D. None
57. With respect to Elephants, which of the following statements is/are correct? (Level-Medium)
1. Asian Elephant is listed as Endangered on the IUCN red list.
 2. Only some male Asian elephants have tusks, while both male and female African elephants grow tusks.
 3. There are two species of African elephants—the savanna (or bush) elephant and the forest elephant. Forest elephants are larger than Savanna elephants, and their tusks curve outwards.
- Options:
- A. 1 and 2 only
B. 2 and 3 only
C. 1 and 3 only
D. 1, 2 and 3
58. The United Nations (UN) Security Council Resolution 39 (1948) is concerned with (Level-Medium)
- A. Admission of new Members to the UN
B. Israel-Palestine political solution
C. Resolution of the Kashmir conflict
D. The situation concerning Iraq
59. Consider the following Pairs: (Level-Difficult)
- | Waterfalls | State |
|----------------------|-------------|
| 1. Kunchikal Falls | Karnataka |
| 2. Barehipani Falls | Odisha |
| 3. Nohkalikai Falls | Meghalaya |
| 4. Vajrai Falls | Maharashtra |
| 5. Wei Sawdong Falls | Mizoram |
- Which of the above is/are correctly matched?
- A. 1, 2 and 3 only
B. 3, 4 and 5 only
C. 1, 2, 3 and 4 only
D. 1, 2, 4 and 5 only

60. With reference to Convertible Bonds, consider the following statements: (Level-Medium) (CSE-Prelims-2022)
1. As there is an option to exchange the bond for equity, Convertible Bonds pay a lower rate of interest.
 2. The option to convert to equity affords the bondholder a degree of indexation to rising consumer prices.
- Which of the statements given above is/are correct?
- A. 1 only
 - B. 2 only
 - C. Both 1 and 2
 - D. Neither 1 nor 2
61. Consider the following statements: (Level – Medium)
1. Project Elephant is a centrally sponsored scheme and was launched in February 1992 for the protection of elephants, their habitats and corridors.
 2. As per Elephant Census (2017), Karnataka has the highest number of elephants, followed by Assam and Kerala.
 3. The elephant herd is led by the oldest and largest female member (known as the matriarch).
- Choose the correct code:
- A. 1 & 2 only
 - B. 2 & 3 only
 - C. 1 & 3 only
 - D. All of the above
62. Consider the following statements with respect to the Essential Commodities Act, 1955: (Level – Medium)
1. There is no specific definition of essential commodities in the Essential Commodities Act, 1955.
 2. The Ministry of Rural Development implements the Act.
 3. The Act gives powers to the central government to add or remove a commodity from the list of essential commodities.
- Choose the correct code:
- A. 1 & 2 only
 - B. 2 & 3 only
 - C. 1 & 3 only
 - D. All of the above
63. As per the recent judgment of the Supreme Court, national parks, wildlife sanctuaries and such protected forests must have an Eco-Sensitive Zone of minimum _____ from their boundaries. (Level – Easy)
- A. 10 km
 - B. 5 km
 - C. 1 km
 - D. 20 km
64. Consider the following statements with regards to Joint Comprehensive Plan of Action (JCPOA): (Level – Easy)
1. China was a part of the JCPOA deal.
 2. Under the agreement, Iran agreed to implement a protocol that would allow inspectors from the International Atomic Energy Agency (IAEA).
 3. After Donald Trump backed out of the deal, the other nations launched a barter system known as INSTEX to facilitate transactions with Iran outside the US banking system.
- Choose the correct code:
- A. 1 & 2 only
 - B. 2 & 3 only
 - C. 1 & 3 only
 - D. All of the above
65. Who of the following scientists proved that the stars with mass less than 1.44 times the mass of the Sun end up as White Dwarfs when they die? (Level – Medium)
- A. Edwin Hubble
 - B. S. Chandrashekhar
 - C. Stephen Hawking
 - D. Steven Weinberg
66. With respect to Zoroastrianism, which of the following statements is/are correct? (Level – Medium)
1. The holy book is Torah.
 2. Fire and water are regarded as the pure symbol of the Zoroastrian religion
 3. Dakhma-nashini is a religious practice of voluntarily fasting to death by gradually reducing the intake of food and liquids.
- Options:
- A. 1 and 2 only
 - B. 2 only

- C. 3 only
- D. None

67. Consider the following statements:(Level- Medium)

1. Basmati rice is long-grained rice which has its origin in India and some parts of Pakistan.
2. India is the largest producer of Basmati rice with about 70 percent share in global production.
3. The yield of Basmati rice from the agricultural land is almost half the non-basmati varieties.
4. The older basmati gets the better its flavor and aroma.

Which of the statements given above is/are correct?

- A. 1, 2, and 3 only
- B. 2, 3, and 4 only
- C. 2 and 4 only
- D. 1, 2, 3 and 4

68. Who among the following was convicted in the Titagarh conspiracy case? (Level - Difficult)

- A. Bhawani Prasad Bhattacharya
- B. Chittaranjan Das
- C. Parul Mukherjee
- D. S.M. Joshi

69. Consider the following statements:(Level- Difficult)

1. She was shot dead by the British Indian police in front of the Tamluk Police Station
2. She was affectionately known as Gandhi buri
3. She took part in the Civil Disobedience movement and was arrested for breaking the Salt Act.

The above statements best describe:

- A. Bina Das
- B. Kalpana Dutta
- C. Matangini Hazra
- D. Pritilata Waddedar

70. Which one of the following situations best reflects "Indirect Transfers" often talked about in media recently with reference to India? (Level - Easy)

- A. An Indian company investing in a foreign enterprise and paying taxes to the foreign country on the profits arising out of its investment
- B. A foreign company investing in India and paying taxes to the country of its base on the profits arising out of its investment

C. An Indian company purchases tangible assets in a foreign country and sells such assets after their value increases and transfers the proceeds to India

D. A foreign company transfers shares and such shares derive their substantial value from assets located in India.

71. Consider the following statements about Sri Aurobindo: (Level – Medium)

1. Being an advocate of revolutionary nationalism, he never took part in the activities of the Indian National Congress.

2. He was arrested in 1908 in connection with the Alipore Conspiracy Case.

3. One of the main literary works of Sri Aurobindo is the poem 'Savitri'.

Which of the above statements is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

72. Consider the following pairs of intangible cultural heritage and the associated state. (Level – Difficult)

| Intangible cultural heritage state | Associated state |
|------------------------------------|------------------|
| 1. Ramman | Uttarakhand |
| 2. Sankirtana | Manipur |
| 3. Koodiyattam | Kerala |
| 4. Kalbelia | Rajasthan |

How many of the above pairs is/are correctly matched?

- A. One pair only
- B. Two pairs only
- C. Three pairs only
- D. All the four pairs

73. Which of the following statements is/are correct about the Mahanadi River? (Level – Difficult)

1. The river originates in the state of Odisha and drains into the Bay of Bengal.

2. Seonath, Ib and Tel are the major tributaries of the river.

Options:

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

74. Consider the following statements about Khangchendzonga National Park: (Level – Medium)

1. It is located in the state of Sikkim.
2. It is the first and only 'Mixed World Heritage Site' in India and the world over.
3. A notable aspect is the large altitudinal variation observed over the protected area.

Which of the following statements is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

75. With reference to communication technologies, what is/are the difference/differences between LTE (Long-Term Evolution) and VoLTE (Voice over Long-Term Evolution)? (Level – Easy) PYQ (2019)

1. LTE is commonly marketed as 3G and VoLTE is commonly marketed as advanced 3G.
2. LTE is data-only technology and VoLTE is voice-only technology.

Select the correct answer using the code given below.

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

76. Consider the following statements about petroleum coke (petcoke): (Level – Difficult)

1. It is solid fuel obtained during the drilling process of crude oil.
2. It has a higher calorific value than coal.
3. Having higher sulphur content its sulphur dioxide emission is higher compared to coal.

Which of the above statements is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

77. Which of the following statements is/are correct with respect to Gabon? (Level – Medium)

1. It is located on the west coast of Africa and the equator passes through it.
2. It is India's largest trade partner in the African continent.

Options:

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

78. Consider the following statements about child mortality: (Level – Medium)

1. It is defined as the probability of a child dying between birth and exactly 3 years of age, expressed per 100 live births.
2. India has already achieved the UN Sustainable Development Goal Target set for child mortality.

Which of the following statements is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

79. Which of the following statements about Nipun mine is/are correct? (Level – Difficult)

1. These are anti-tank mines.
2. These have been procured from Israel on a technology transfer agreement.

Options:

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

80. Consider the following statements: (Level – Medium) PYQ (2019)

A digital signature is:

1. An electronic record that identifies the certifying authority issuing it.
2. Used to serve as a proof of identity of an individual to access information or server on internet.
3. An electronic method of signing an electronic document and ensuring that the original content is unchanged.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 3 only
- D. 1, 2 and 3

81. Which of the given statements with respect to West Nile Virus is/are correct? (Level – Medium)

1. Birds are the main host of the West Nile Virus.
2. West Nile virus is a single-stranded RNA virus.
3. It is transmitted to humans by female Anopheles mosquito.

Choose the correct option:

- A. 1 and 3 only
- B. 1 and 2 only
- C. 2 and 3 only
- D. 1, 2 and 3

82. How many of the statements given below with respect to River Godavari is/are correct? (Level – Medium)

1. The river originates in the Western Ghats of central India near Ratnagiri in Maharashtra.
2. The Pranhita River is the longest tributary of Godavari River.
3. It is bound by Satmala hills in the North.

Options:

- A. One statements only
- B. Two statements only
- C. All three statements
- D. None of the above

83. Which of the following products that have secured the GI in Telangana state?(Level – Difficult)

1. Lac bangles
2. Pochampally Ikat
3. Warangal Durries
4. Karimnagar filigree
5. Kasuti Embroidery

Options

- A. 1, 3 and 4 only
- B. 1, 2, 3 and 4 only
- C. 2, 4 and 5 only
- D. 2, 3 and 4 only

84. "Lumpy Virus" recently seen in the News affects: (Level – Medium)

- A. New-borns
- B. Cattle and Livestock
- C. Rice Plants
- D. Wildlife

85. With reference to Indian history, who among the following is a future Buddha, yet to come to save the world? (Level – Difficult)

- A. Avalokiteshvara
- B. Lokeshvara
- C. Maitreya
- D. Padmapani

86. Consider the following statements with respect to Chhau dance: (Level-Medium)

1. It is mainly performed during festivals in the region of Jharkhand, West Bengal and Odisha
2. Mayurbhanj Chhau Dance does not use masks.
3. Chhau dance was the first to be enlisted in the Representative List of Intangible Cultural Heritage of Humanity.

Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 2 only
- C. 3 only
- D. 1, 2 and 3

87. With respect to Annie Besant, which of the following statements is/are correct? (Level-Easy)

1. The first woman president of the Indian National Congress was Annie Besant.
2. New India was a daily newspaper published in India by Annie Besant

Options:

- A. 1 only
- B. 2 only
- C. Both
- D. None

88. Who among the following were the members of the Landholders' Society? (Level-Difficult)

1. Bhabani Charan Bandyopadhyay
2. Dwarkanath Tagore
3. Jadugopal Mukherjee
4. Kanailal Bhattacharjee
5. Prasanna Kumar Tagore
6. Radhakanta Deb
7. Ramkamal Sen

Options:

- A. 1, 2, 3, 4 and 5 only
- B. 2, 4, 5, 6 and 7 only

- C. 1, 2, 5, 6 and 7 only
D. 1, 3, 4, 6 and 7 only

89. Consider the following statements with respect to River Hooghly: (Level-Medium)

1. Fort William is located on the banks of the River Hooghly
2. Earlier it was known as the Sorrow of Bengal
3. It is formed by the junction of the Bhagirathi and Jalangi rivers at Nabadwip

Which of the statements given above is/are correct?

- A. 1 and 2 only
B. 1 and 3 only
C. 2 and 3 only
D. 1, 2 and 3

90. Which of the following is/are the exclusive power(s) of Lok Sabha? (Level-Easy)

1. To ratify the declaration of Emergency
2. To pass a motion of no-confidence against the Council of Ministers
3. To impeach the President of India

Select the correct answer using the code given below:

- A. 1 and 2
B. 2 only
C. 1 and 3
D. 3 only

91. Which amongst the following statements is the best description of default bail? (Level-Easy)

- A. It is a bail which can be granted pending the disposal of the main bail application which may require a longer time to decide.
B. It is a direction to release a person on bail, issued even before the person is arrested.
C. It is a right to bail that accrues when police fail to complete investigation within a specified period in respect of a person in judicial custody.
D. None of the above

92. Which of the following exercises with India is/are correctly matched? (Level-Medium)

1. Cope India USA
2. Eastern Bridge Japan
3. Pitch Black Australia
4. Shinyuu Maitri Vietnam

Options:

- A. 1, 2 and 3 only
B. 1 and 3 only
C. 2, 3 and 4 only
D. 2 and 4 only

93. With respect to the Sovereign Gold Bond (SGB) scheme, which of the following statements is/are correct? (Level-Medium)

1. Interest on the Bonds will be taxable as per the provisions of the Income Tax Act, 1961.
2. These securities are eligible to be used as collateral for loans from banks, financial Institutions and Non-Banking Financial Companies (NBFC).

Options:

- A. 1 only
B. 2 only
C. Both
D. None

94. What is Google's Project Zero? (Level-Easy)

- A. It is a project which is dedicated to finding and facilitating software patches for zero-day vulnerabilities
B. A project on Supercomputers which can be used for highly intensive tasks such as quantum physics
C. It is the use of helium-filled balloons to provide data connectivity in remote and rural areas
D. The aim is to introduce additional proactive mechanisms and powerful tools to identify, block and remove counterfeit software online

95. In the context of WHO Air Quality Guidelines, consider the following statements: (Level-Difficult) (CSE Prelims-2022)

1. The 24-hour mean of PM_{2.5} should not exceed 15 µg/m³ and annual mean of PM_{2.5} should not exceed 5 µg/m³.
2. In a year, the highest levels of ozone pollution occur during the periods of inclement weather.
3. PM₁₀ can penetrate the lung barrier and enter the bloodstream.
4. Excessive ozone in the air can trigger asthma.

Which of the statements given above are correct?

- A. 1, 3 and 4 only
B. 1 and 4 only

- C. 2, 3 and 4 only
D. 1 and 2 only
96. Which of the following is/are the tributaries of River Beas? (Level- Difficult)
1. Banganga
 2. Banner
 3. Baspa
 4. Chakki
 5. Marusudar
- Options:
- A. 1 and 2 only
 - B. 1, 2 and 4 only
 - C. 2, 3, 4 and 5 only
 - D. 1, 3, 4 and 5 only
97. Consider the following statements with respect to National Commission for Scheduled Castes:(Level-Easy)
1. It is a constitutional body established under Article 336 of the Indian Constitution
 2. The 88th Constitutional amendment act of 2003 bifurcated the combined National commission for SCs and STs into two separate bodies
 3. The commission consists of a chairperson, a vice-chairperson and five other members.
- Which of the statements given above is/are incorrect?
- A. 1 only
 - B. 1 and 2 only
 - C. 2 and 3 only
 - D. 1, 2 and 3
98. European Union's enhanced surveillance framework was imposed on which among the following countries? (Level- Medium)
- A. Greece
 - B. Hungary
 - C. Italy
 - D. Poland
99. With respect to the National Human Rights Commission (NHRC), which of the following statements is/are incorrect? (Level- Easy)
1. The Chairman of the NHRC should only be a person who has been a Chief Justice of the Supreme Court
 2. The Chairman and members of the NHRC will hold office for five years or till the age of seventy years, whichever is earlier.
- Options:
- A. 1 only
 - B. 2 only
 - C. Both
 - D. None
100. "If rainforests and tropical forests are the lungs of the Earth, then surely wetlands function as its kidneys." Which one of the following functions of wetlands best reflects the above statement? (Level-Easy)
- A. The water cycle in wetlands involves surface runoff, subsoil percolation and evaporation.
 - B. Algae form the nutrient base upon which fish, crustaceans, molluscs, birds, reptiles and mammals thrive.
 - C. Wetlands play a vital role in maintaining sedimentation balance and soil stabilization.
 - D. Aquatic plants absorb heavy metals and excess nutrients.
101. Which of the following statements with respect to Madras is/are correct? (Level-Medium)
1. Madras was ruled by the Vijayanagaras and they appointed chieftains known as Nayaks who ruled different regions in the province, almost independently.
 2. Damarla Venkatadri Nayaka was the chieftain when the British East India Company arrived to set up its trade and other commercial activities.
 3. Francis Day and Andrew Cogan, secured a grant for a strip of land that belonged to the Raja of Chandragiri
 4. During World War I, Madras was the only Indian city to be bombarded by the German light cruiser SMS Emden.
- Options:
- A. 1 only
 - B. 2 and 3 only
 - C. 3 and 4 only
 - D. 1, 2, 3 and 4

102. Consider the following statements: (Level-Easy)
1. Aadhaar number is a 12-digit random number issued by the UIDAI to the residents of India
 2. Linking of Aadhaar with the voter identity card is Compulsory
 3. Voter ID would be canceled if it is not linked to Aadhaar.
- Which of the statements given above is/are incorrect?
- A. 1 only
 - B. 1 and 2 only
 - C. 2 and 3 only
 - D. 3 only
103. Who among the following are eligible for getting free legal services? (Level-Medium)
1. Women and Children
 2. Living Freedom Fighters
 3. Minorities
 4. Disabled Persons
 5. Retired Military Personnel (RMP)
- Options:
- A. 1, 2, 3 and 4 only
 - B. 2, 3 and 5 only
 - C. 1 and 4 only
 - D. 1, 2, 3, 4 and 5
104. Consider the following statements: (Level-Medium)
1. He was instrumental in the foundation of the All India Depressed Classes League
 2. He appeared before the Hammond Commission at Ranchi and demanded, for the first time, voting rights for the Dalits
 3. He was arrested for his active participation in the Quit India Movement launched by the Indian National Congress.
- The above statements best describe:
- A. Anant Laxman Kanhere
 - B. Babu Genu
 - C. Dr. Bhim Rao Ambedkar
 - D. Jagjivan Ram
105. Consider the following pairs: (Level-Difficult) (CSE Prelims 2022)
- | | |
|-------------------------------------|-----------|
| Region often mentioned in the news: | Country |
| Anatolia: | Turkey |
| Amhara: | Ethiopia. |
| Cabo Delgado: | Spain. |
| Catalonia: | Italy. |
- How many pairs given above are correctly matched?
- A. Only one pair
 - B. Only two pairs
 - C. Only three pairs
 - D. All four pairs
106. Consider the following statements with regards to Commission for Agricultural Costs and Prices: (Level – Medium)
1. The Commission for Agricultural Costs & Prices (CACP) is an attached office of the Ministry of Agriculture and Farmers' Welfare, Government of India.
 2. CACP submits its recommendations to the government in the form of Price Policy Reports every year, separately for five groups of commodities namely Kharif crops, Rabi crops, Sugarcane, Raw Jute and Copra.
 3. MSP for major agricultural products are fixed by the government, each year, after taking into account the recommendations of the Commission.
- Choose the correct code:
- A. 1 & 2 only
 - B. 2 & 3 only
 - C. 1 & 3 only
 - D. All of the above
107. Consider the following statements with respect to the Zonal Councils in India: (Level – Easy)
1. Zonal Councils are statutory bodies set up under the States Reorganisation Act of 1956.
 2. All the Zonal Councils are headed by the Prime Minister.
 3. The Central Zonal Council comprises the States of Chhattisgarh, Uttarakhand, Uttar Pradesh and Madhya Pradesh.
- Choose the correct code:
- A. 1 & 2 only
 - B. 2 & 3 only
 - C. 1 & 3 only
 - D. All of the above

108. Consider the following statements with regards to the Gorkha soldiers of Nepal: (Level – Difficult)

1. The Royal Gurkha Rifles (RGR) is a rifle regiment of the British Army, for which, the soldiers are recruited from Nepal.
2. Traditionally, the Chief of the Army Staff of the Nepali Army visits India at the earliest after assumption of the post, during which he is conferred with the rank of an 'Honorary General' of the Indian Army by the President of India.
3. The Gorkha soldiers of Nepal serving in the Indian army aren't eligible for gallantry medals such as the Param Vir Chakra since they aren't Indian citizens.

Choose the correct code:

- A. 1 & 3 only
- B. 2 only
- C. 1 & 2 only
- D. All of the above

109. Consider the following statements with regards to Bharat Stage – VI emission norms: (Level – Medium)

1. In BS-VI fuel, the volume of PM 2.5 ranges from 20 to 40 micrograms per cubic metre whereas in BS-IV fuel it is up to 120 micrograms per cubic metre.
2. The cost of producing BS VI grade fuels is higher compared to BS IV fuels.
3. Retrofitment of CNG & LPG kit is not allowed in BS – VI compliant petrol and diesel vehicles.

Choose the correct code:

- A. 1 & 2 only
- B. 2 & 3 only
- C. 1 & 3 only
- D. All of the above

110. With reference to 'Near Field Communication (NFC) Technology', which of the following statements is/are correct? (Level – Easy) PYQ (2015)

1. It is a contactless communication technology that uses electromagnetic radio fields.
2. NFC is designed for use by devices which can be at a distance of even a metre from each other.
3. NFC can use encryption when sending sensitive information.

Select the correct answer using the code given below.

- A. 1 and 2 only
- B. 3 only

C. 1 and 3 only

D. 1, 2 and 3

111. Which of the following statements is/are correct with respect to the planet Jupiter? (Level – Difficult)

1. It is the largest planet in the solar system and is primarily composed of hydrogen and helium gases.
2. A prominent feature of the planet is the Great Red Spot, which is basically a giant storm.
3. Io, Europa, Ganymede and Titan are the largest natural satellites of the planet.

Options:

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

112. Consider the following pairs of rivers and the water body into which they finally drain. (Level – Difficult)

| River | Drains into |
|-----------|--------------|
| 1. Rhine | North Sea |
| 2. Danube | Black Sea |
| 3. Volga | Caspian Sea |
| 4. Po | Adriatic Sea |

How many of the above pairs is/are correctly matched?

- A. One pair only
- B. Two pairs only
- C. Three pairs only
- D. All the four pairs

113. Which of the following statements is/are correct with respect to the Tiangong space station? (Level – Medium)

1. It is being constructed by China and would be placed in the medium earth orbit.
2. It is the only other space station to have been in operation other than the International Space Station.
3. Once completed, it will be bigger than the International Space Station.

Options:

- A. 1 and 2 only
- B. 1, 2 and 3 only
- C. 2 only
- D. None of the above statements

114. The under-construction Vizhinjam Deepwater Seaport is located in which of the following States? (Level – Easy)
- Tamil Nadu
 - Kerala
 - Karnataka
 - Andhra Pradesh
115. The word 'Denisovan' is sometimes mentioned in media in reference to (Level – Difficult) PYQ (2019)
- Fossils of a kind of dinosaurs
 - An early human species
 - A cave system found in North-East India
 - A geological period in the history of Indian subcontinent
116. Consider the following statements with respect to Champaran Satyagraha: (Level-Medium)
- It challenged the Tinkathia System in which the European planters were forcing the peasants to grow indigo on 3/25 part of the total land.
 - Mahatma Gandhiji was persuaded by Pandit Raj Kumar Shukla, one such oppressed Indigo cultivator, to visit the region.
 - The popular leaders associated with the Satyagraha were Brajkishore Prasad and Anugrah Narayan Sinha.
- Which of the statements given above is/are correct?
- 1 and 2 only
 - 2 and 3 only
 - 1 and 3 only
 - 1, 2 and 3
117. Arrange the following in the chronological order of their reign:(Level-Difficult)
- Aram Shah
 - Muiz-ud-din Bahram
 - Qutb ud-Din Aibak
 - Rukn-ud-din Feroze
- Options:
- 1-3-4-2
 - 2-3-4-1
 - 3-1- 4-2
 - 3-2-4-1
118. With reference to Yakshagana, which of the following statements is/are correct? (Level-Easy)
- It is a theatrical dance-art form performed in Karnataka.
 - The art form is performed only by men and the male artists play the female roles.
- Options:
- 1 only
 - 2 only
 - Both
 - None
119. Consider the following statements: (Level-Difficult)
- The Anang Tal Lake is in Haryana.
 - It was created by the Tomar King Anangpal II.
 - Anangpal Tomar II was succeeded by his grandson Prithviraj Chauhan.
- Which of the statements given above is/are correct?
- 1 only
 - 2 and 3 only
 - 3 only
 - None
120. If a particular area is brought under the Fifth Schedule of the Constitution of India, which one of the following statements best reflects the consequence of it? (Level-Easy)
- This would prevent the transfer of land of tribal people to non-tribal people.
 - This would create a local self-governing body in that area.
 - This would convert that area into a Union Territory.
 - The State having such areas would be declared a Special Category State.
121. With respect to the disqualification of a Member of Parliament (MP), who among the following decides whether the member was holding an Office of Profit? (Level-Easy)
- Election Commission
 - President
 - Presiding officer
 - Supreme Court

122. Which of the following are the potential health effects of noise pollution? (Level-Easy)
1. High Blood Pressure
 2. Heart Disease
 3. Sleep Disturbances
 4. Stress
 5. Weakening of Immune System
 6. Respiratory Problems
- Options:
- A. 1, 2, 3 and 4 only
 - B. 2, 3, 4 and 5 only
 - C. 1, 4, 5 and 6 only
 - D. 1, 2, 3, 5 and 6 only
123. Consider the following statements with respect to Sattriya: (Level-Medium)
1. Sattriya dance form was introduced in the 15th century as a powerful medium for the propagation of the Vaishnava faith.
 2. It is a dance form practised in the State of Assam.
 3. It is based on classical Ragas and Talas of devotional songs composed by Tulsidas, Kabir and Mirabai.
- Which of the statements given above is/are correct?
- A. 1 and 2 only
 - B. 2 only
 - C. 1 and 3 only
 - D. 1, 2 and 3
124. Which of the following statements about Thumri is/are correct? (Level-Difficult)
1. Thumri originated in the eastern part of Uttar Pradesh.
 2. Thumri is supposed to be the romantic and erotic style of singing and is also called the "lyric of Indian classical music".
- Options:
- A. 1 only
 - B. 2 only
 - C. Both
 - D. None
125. Consider the following freedom fighters: (Level-Medium) (UPSC CSE:2022)
1. Barindra Kumar Ghosh
 2. Jogesh Chandra Chatterjee
 3. Rash Behari Bose
- Who of the above was/were actively associated with the Ghadar Party?
- A. 1 and 2
 - B. 2 only
 - C. 1 and 3
 - D. 3 only
126. The four rights guaranteed by Article 26 are subject to which of the following restrictions under the constitution? (Level – Medium)
1. Public Order
 2. Defamation or incitement to an offence
 3. Morality
 4. Health
 5. Security of the State
- Options:
- A. 1, 2 and 3 only
 - B. 1, 3 and 4 only
 - C. 2, 4 and 5 only
 - D. 1, 3, 4 and 5 only
127. Consider the following statements with respect to African Swine Fever (ASF): (Level – Difficult)
1. It is caused by a virus of the genus Pestivirus of the family Flaviviridae.
 2. It does not affect humans.
- Which of the statements given above is/are incorrect?
- A. 1 only
 - B. 2 only
 - C. Both
 - D. None
128. With respect to speaker of the Legislative Assembly, which of the following statements is/are correct? (Level – Medium)
1. The speaker is elected by the assembly itself from amongst its members
 2. If the speaker wishes to vacate his/her office, he/she can do so by writing a resignation letter to the Governor

3. The speaker decides on the question of disqualification of members of the State legislature in consultation with election commission arising on the ground of defection
- Options:
- 1 only
 - 2 and 3 only
 - 3 only
 - 1, 2 and 3
129. Zorawar recently seen in news is a/an (Level – Easy)
- Aircraft carrier of the Indian Navy
 - Indigenously designed and developed Light Tank
 - Scorpene-class submarine
 - Unmanned Aerial Vehicle (UAV) developed by India's ADE (Aeronautical Development Establishment)
130. Consider the following statements: (Level – Medium)
- Other than those made by humans, nanoparticles do not exist in nature.
 - Nanoparticles of some metallic oxides are used in the manufacture of some cosmetics.
 - Nanoparticles of some commercial products which enter the environment are unsafe for humans.
- Which of the statements given above is/are correct?
- 1 only
 - 3 only
 - 1 and 2
 - 2 and 3
131. Consider the following statements about Dugong. (Level-Medium)
- It is a marine mammal.
 - It is endemic to India and is found in the Gulf of Mannar, Gulf of Kutch, Palk Bay, and the Andaman and Nicobar Islands.
 - Dugongs are listed as critically endangered on the IUCN Red List of Threatened Species.
- Which of the above statement/s is/are correct?
- 1 and 2 only
 - 1 only
 - 2 and 3 only
 - 3 only
132. Which of the following statements about the National Investigation Agency (NIA) are correct? (Level-Medium)
- It is empowered to deal with the investigation of terror related crimes across states without special permission from the states.
 - The agency is headquartered in New Delhi and has regional offices in all states of India.
 - The Agency is empowered to declare organizations as well as individuals as terrorists.
- Options:
- 1 and 2 only
 - 2 and 3 only
 - 1 and 3 only
 - 1, 2 and 3
133. Consider the following statements about Ethanol as an alternative fuel. (Level-Difficult)
- It is prepared by the fermentation of crops and plants that are rich in sugar or have the ability to be converted into cellulose and starch.
 - Its calorific value is lower as compared to petrol.
 - It is highly corrosive because of its ability to absorb water.
- Which of the above statements are correct?
- 1 and 2 only
 - 2 and 3 only
 - 1 and 3 only
 - 1, 2 and 3
134. Which of the following statements is/are incorrect with respect to appointment to the post of the Chief Justice of India? (Level-Medium)
- A person being appointed as the Chief Justice of India would have a minimum tenure of one year at the helm of the judiciary.
 - A person being appointed as the Chief Justice of India should have compulsorily served as a judge in any of the High courts or the subordinate courts.
- Options:
- 1 only
 - 2 only
 - Both 1 and 2
 - Neither 1 nor 2

135. With reference to the Legislative Assembly of a State in India, consider the following Statements: (Level-Difficult)
1. The Governor makes a customary address to members of the house at the commencement of the first session of the year.
 2. When a state legislature does not have a rule on a particular matter, it follows the Lok Sabha rule on that matter.
- Which of the statements given above is/are correct?
- A. 1 only
 - B. 2 only
 - C. Both 1 and 2
 - D. Neither 1 nor 2
136. Which one of the following is not a joint military exercise conducted by India with the US? (Level-Medium)
- A. Vajra Prahar
 - B. Hand in Hand
 - C. Yudh Abhyas
 - D. Cope India
137. Which of the following animals is not naturally found in the Kaziranga National Park? (Level-Difficult)
- A. Western Hoolock gibbon
 - B. Indian Muntjac
 - C. Golden Langur
 - D. Lion-tailed Macaque
138. Which of the following statements are correct with respect to functioning of the Central Bureau of Investigation (CBI)? (Level-Medium)
1. State government's consent is required to extend CBI's investigation beyond Union Territories.
 2. There are two types of consent- General consent and specific consent.
 3. When a general consent is withdrawn, the CBI needs to seek case-wise consent for investigation from the concerned state government.
- Options:
- A. 1 and 2 only
 - B. 2 and 3 only
 - C. 1 and 3 only
 - D. 1, 2 and 3
139. Which of the following statement/s is/are correct with respect to Stephan's Quintet? (Level-Difficult)
1. It is the first compact galaxy group ever discovered.
 2. It is visible in the Pegasus constellation.
 3. It was discovered recently by the James Webb Space Telescope.
- Options:
- A. 1 and 2 only
 - B. 2 and 3 only
 - C. 1 and 3 only
 - D. 1, 2 and 3
140. In the context of wearable technology, which of the following tasks is/are accomplished by wearable devices? (CSE Prelims-2019) (Level-Medium)
1. Location identification of a person
 2. Sleep monitoring of a person
 3. Assisting the hearing impaired person
- Select the correct answer using the code given below.
- A. 1 only
 - B. 2 and 3 only
 - C. 3 only
 - D. 1, 2 and 3
141. Consider the following statements with regards to the world waters: (Level – Medium)
1. There is no international treaty focusing on protecting ocean health.
 2. The UNCLOS led to the establishment of territorial sea boundaries 22km offshore.
 3. A 'High Ambition Coalition', consisting of over 100 nations, including India and the US came about and put the focus on '30x30' goals – protecting 30% of the ocean by 2030.
- Choose the correct code:
- A. 1 & 2 only
 - B. 2 & 3 only
 - C. 1 & 3 only
 - D. All of the above

142. Consider the following statements with respect to exploration of the Universe: (Level – Difficult)
1. With the Artemis programme, NASA aims to land humans on the moon by 2024, and it also plans to land the first woman and first person of colour on the moon.
 2. Artemis I is an uncrewed space mission where the spacecraft will launch on SLS (Space Launch System) – the most powerful rocket in the world.
 3. In 1959, NASA's uncrewed Luna 1 and 2 became the first rover to visit the Moon.
- Choose the correct code:
- A. 1 & 2 only
 - B. 2 & 3 only
 - C. 1 & 3 only
 - D. All of the above
143. Consider the following statements with regards to nuclear weapons: (Level – Easy)
1. The parties to the NPT (Nuclear Non-proliferation Treaty), which came into force in 1970, undertake a review of the treaty's implementation every five years.
 2. India is not a signatory to the Comprehensive Test Ban Treaty.
 3. India is a signatory to the Partial Test Ban Treaty.
- Choose the correct code:
- A. 1 & 3 only
 - B. 2 only
 - C. 1 & 2 only
 - D. All of the above
144. Consider the following statements with regards to the Scheme for Economic Empowerment of DNTs (SEED) for the welfare of Denotified, Nomadic and Semi Nomadic Communities: (Level – Medium)
1. The term 'De-notified Tribes' stands for all those communities which were once notified under the Criminal Tribes Acts, enforced by the British Raj between 1871 and 1947.
 2. Major components of the SEED scheme include free coaching to students from these communities for Civil Services, and entry to professional courses like medicine, engineering, MBA, etc.
 3. The Ministry of Social Justice & Empowerment decided in February 2014 to constitute a National Commission for Denotified, Nomadic and Semi Nomadic Tribes for three years.
- Choose the correct code:
- A. 1 & 2 only
 - B. 2 & 3 only
 - C. 1 & 3 only
 - D. All of the above
145. Recently "oilzapper" was in the news. What is it? (Level – Easy) PYQ (2011)
- A. It is an eco friendly technology for the remediation of oily sludge and oil spills
 - B. It is the latest technology developed for under-sea oil exploration
 - C. It is a genetically engineered high biofuel-yielding maize variety
 - D. It is the latest technology to control the accidentally caused flames from oil well
146. Consider the following statements with regards to PARAKH: (Level – Medium)
1. The National Education Policy 2020 envisages the establishment of a National Measurement Centre, PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development).
 2. PARAKH will act as a standard-setting body to achieve the objectives of establishing norms, benchmarks, and recommendations for student assessment and evaluation to promote and enhance learning.
 3. PARAKH would also facilitate the sharing of best practices across educational institutions and guarantee that academic expectations are consistent across all school boards.
- Choose the correct code:
- A. 1 & 2 only
 - B. 2 & 3 only
 - C. 1 & 3 only
 - D. All of the above
147. Consider the following statements with respect to La Nina: (Level – Easy)
1. La Nina events represent periods of below-average sea surface temperatures across the east-central Equatorial Pacific.
 2. It is indicated by sea-surface temperature decreasing by more than 0.9 for at least five successive three-month seasons.
 3. As La Nina brings rain to South America, it brings droughts to Indonesia and Australia.
- Choose the correct code:
- A. 1 & 2 only
 - B. 2 & 3 only
 - C. 1 & 3 only
 - D. All of the above

148. Consider the following statements with regards to IAEA: (Level – Medium)

1. In 2005, it was awarded the Nobel Peace Prize for its work for a safe and peaceful world.
2. It is an independent international organization that reports annually to the United Nation General Assembly.
3. When necessary, the IAEA also reports to the UN Security Council in regards to instances of members' non-compliance with safeguards and security obligations.

Choose the correct code:

- A. 1 & 3 only
- B. 2 only
- C. 1 & 2 only
- D. All of the above

149. 'Man of the Hole', recently seen in the news, belongs to which of the following nations? (Level – Easy)

- A. Brazil
- B. Australia
- C. Senegal
- D. Costa Rica

150. According to India's National Policy on Biofuels, which of the following can be used as raw materials for the production of biofuels? (Level – Difficult)

1. Cassava
2. Damaged wheat grains
3. Groundnut seeds
4. Horse gram
5. Rotten potatoes
6. Sugar beet

Select the correct answer using the code given below:

- A. 1, 2, 5 and 6 only
- B. 1, 3, 4 and 6 only
- C. 2, 3, 4 and 5 only
- D. 1, 2, 3, 4, 5 and 6

Prelims Test Series

18 tests covering the entire syllabus of
General Studies Paper-I and CSAT Paper



General Studies Paper I -
10 Module Wise test



General Studies Paper II -
2 Module Wise test



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paper I and II)



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ranking after each test



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tests – Live and
recorded videos will be
provided



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and offline mode

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To be filled by the Supervisor

| | | | |
|-------------------|-----------------|---------------------|---------------------------|
| केन्द्र CENTRE | विषय SUBJECT | विषय कोड S. CODE | अनुक्रमांक ROLL NUMBER |
|-------------------|-----------------|---------------------|---------------------------|

| पुस्तिका सिरीज BOOKLET SERIES | विषय SUBJECT | अनुक्रमांक ROLL NUMBER |
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| B | 1 1 | 1 1 1 1 1 1 1 |
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| <p>निर्देश : DIRECTIONS:</p> <p>केवल काला बाल प्वाइंट पेन इस्तेमाल करें </p> <p>USE BLACK BALL POINT PEN ONLY</p> <p>उदाहरण EXAMPLE a b c d</p> <p>निरीक्षक पुस्तिका सिरीज काला बाल प्वाइंट पेन से कूटबद्ध करें</p> <p>BOOKLET SERIES to be coded by Invigilator with Black Ball Point Pen a b c d</p> <p>Invigilator in Black Ball Point Pen</p> <p>Initials of</p> <p>निरीक्षक काला बाल प्वाइंट पेन से आक्षर करें</p> | 1 a b c d | 41 a b c d | 81 a b c d | 121 a b c d |
| | 2 a b c d | 42 a b c d | 82 a b c d | 122 a b c d |
| | 3 a b c d | 43 a b c d | 83 a b c d | 123 a b c d |
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| | 5 a b c d | 45 a b c d | 85 a b c d | 125 a b c d |
| | 6 a b c d | 46 a b c d | 86 a b c d | 126 a b c d |
| | 7 a b c d | 47 a b c d | 87 a b c d | 127 a b c d |
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| | 27 a b c d | 67 a b c d | 107 a b c d | 147 a b c d |
| | 28 a b c d | 68 a b c d | 108 a b c d | 148 a b c d |
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| | 30 a b c d | 70 a b c d | 110 a b c d | 150 a b c d |
| | 31 a b c d | 71 a b c d | 111 a b c d | 151 a b c d |
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कृपय इस जगह पर कोई निशान न लगायें
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ANSWER KEYS

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| 148 | D |
| 149 | A |
| 150 | A |

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MAINS PRACTICE QUESTIONS

GS Paper 1

Social Issues

1. Should the state stop focusing on population control and focus on investment in human capital, on older adults living with dignity, and on healthy population ageing? Evaluate. (10 Marks, 150 Words)

History

1. "A good beginning means half the job is done." In light of this statement, evaluate the legacy of Jawaharlal Nehru as India's first Prime Minister. (250 words; 15 marks)

GS Paper 2

Polity and Governance

1. What is the history of Section 295 (A) of the Indian Penal Code? What has the Supreme Court ruled? (10 Marks, 150 Words)
2. Lack of long term policy on cryptocurrency in India may force the government to play the catching up game in the coming years. Do you agree? Elaborate.
3. Write a note on the journey of the Personal Data Protection Bill and explain why the government withdrew the Bill. (10 Marks, 150 Words)
4. Growing proxy politics in rural local body is diluting the ideas of decentralization and becoming one of the key factors in distorting rural democracy in India. Examine. (10 Marks, 150 Words)
5. Equating money laundering with terrorism enhances the scope of misuse of the PMLA law by the authorities. Do you agree? Elaborate. (250 words; 15 marks)
6. Discuss the merits and demerits of offering medical education in vernacular languages in India. (250 words; 15 marks)
7. What are the pros and cons of Customs wanting Passenger Name Record Information on international travelers? How will the process work? (10 Marks, 150 Words)
8. The problem of distrust between the police and the public in India can be resolved by following the Supreme Court's judgment in the Prakash Singh case. Do you agree? Elaborate. (250 words; 15 marks)
9. There needs be to a fine balance between National Security and Freedom of speech. Elaborate in the context of Information Technology Act, 2000. (250 words-15 marks)
10. Is there merit in the idea of setting up a commission to ensure efficient use of public finances in India? Critically analyze. (250 words; 15 marks)
11. Discuss the controversy surrounding the revision of electoral rolls in the erstwhile State of J&K? (10 Marks, 150 Words)
12. Analyse the impact of Pegasus spyware on human rights and fundamental freedoms, and discuss the recommendations given by the panel to prevent surveillance. (10 Marks; 150 Words)
13. Any mandatory linking of Aadhaar to the voter ID is problematic. Do you agree? Justify. (15 Marks, 250 Words)
14. "Bail is the rule and jail is the exception". Comment. (250 words; 15 marks)
15. Why are Sections 6 to 10 of the Special Marriage Act under scrutiny? How are these provisions being misused? (250 words; 15 marks)

International Relations

1. China's policy towards Taiwan and the US stand on the issue has increased tensions in the region. Examine the issue and discuss India's position on it. (250 words; 15 marks)
2. India's relations with Taiwan must not be guided by China's relation with Taiwan. Discuss. (250 words; 15 marks)
3. Playing host to the G20 summit gives a chance to India to assert its standing as a global thought leader. Comment. (250 words; 15 marks)
4. Common grounds such as climate change can lead to the revival of strained India-China ties. Do you agree? Elaborate. (250 words; 15 marks)
5. Should India reconsider its policy on the Rohingyas? Critically Examine. (15 Marks, 250 Words)
6. Huawei's role in the global telecom market has become increasingly controversial on security grounds. Examine the issue in detail. (250 words; 15 marks)
7. Discuss the need for India to have an official refugee policy in the wake of the ongoing Rohingya crisis in the Indian subcontinent. (250 words; 15 marks)
8. Write a note on Falkland Islands dispute between Argentina and United Kingdom. (10 Marks; 150 Words)
9. Trade relations between India and Pakistan have been derailed by tensions in the relationship. Examine. (250 words; 15 marks)
10. As Sri Lanka faces its gravest economic crisis, examine the ways in which India can further help the country. (250 words; 15 marks)

Social Justice

1. The attempts to include LGBTQ community in the mainstream society would be incomplete until they are given equal rights of adoption as well. Comment. (250 words; 15 marks)
2. Mismatch between the number of people looking to adopt a child and the number of children available for adoption points out towards a lacunae in Government's policies. Comment. (250 words; 15 marks)
3. Despite being prohibited in India for over seven decades, untouchability still remains a part of Indian society. Discuss ways to eradicate this evil from the Indian society. (250 words-15 marks)
4. Despite a series of laws prohibiting the practice of manual scavenging in India, it still remains a huge problem. Comment. (250 words; 15 marks)

Health

1. Discuss the various initiatives taken by the Indian government to counter the problem of HIV in India. Evaluate the performance of such initiatives. (250 words; 15 marks)

GS Paper 3**Economy**

1. It is time to acknowledge the positive side of contractual workers in India and use them to enhance business efficiency. Do you agree? Elaborate. (250 words; 15 marks)
2. Critically analyze the Government's decision to revive loss making public enterprises such as the BSNL. (250 words; 15 marks)
3. India needs to invest in quality school and higher education as well as healthcare in order to reap its demographic dividend. Evaluate. (250 words; 15 marks)
4. Discuss the implications of the depreciating Indian rupee on the Indian economy. (250 words; 15 marks)

5. The Open Network for Digital Commerce has the potential to create an even playing field between the local offline stores and big businesses in India. Do you agree? Elaborate. (250 words; 15 marks)
6. Will 5G launch in India help improve the debt situation of telecom providers? Critically Examine. (10 Marks, 150 Words)
7. What steps have been taken by the Union Government to correct the imbalance between the direct and indirect taxes in India? (250 words; 15 marks)
8. The past couple of decades have witnessed considerable weakening of the state governments' fiscal autonomy in India. Do you agree? Elaborate. (250 words; 15 marks)
9. The digital lending sector has come into spotlight because of the proliferation of extortionary lending practices. Discuss the RBI's new digital lending rules to curb rampant malpractices in the digital lending ecosystem. (15 Marks, 250 Words)
10. The share of the States in the divisible pool of taxes is shrinking despite their carrying a higher burden of expenditure. Examine. (250 words; 15 marks)
11. 'Revenue foregone' is nothing but a subsidy given to the corporate sector. Comment. (250 words; 15 marks)
12. Achieving the 'net-zero' target would be a boon for the economy as well, and not just the environment. Comment. (250 words; 15 marks)

Environment and Ecology

1. Illegal mining of minor minerals continues unabated in many States in India. Discuss how technology can be used to provide a sustainable solution. (10 Marks, 150 Words)

Science and Technology

1. What are the pros and cons of hybrid electric vehicles? How is it different from normal EVs? (15 Marks, 250 Words)
2. Discuss the significance of SSLV (Small Satellite Launch Vehicle) for ISRO. (250 words; 15 marks)
3. For the next century to be India's stepping stone into the future, the Government must increase its spending on research and development. Discuss. (250 words; 15 marks)
4. What are the key provisions of India's biofuel policy? How does it attempt to tackle the debate between food security and biofuels? (250 words; 15 marks)
5. "Any data accessibility-and-use policy is incomplete without adequate public safeguards provided through a comprehensive data protection framework". Analyze this statement in the context of the Government of India's efforts to pass the Data Protection Bill. (250 words; 15 marks)
6. Facial Recognition Technology offers numerous advantages but its usage in law enforcement has raised serious ethical and human rights concerns. Elucidate. (250 words; 15 marks)
7. Despite all the great possibilities of solving many problems, 5G comes with its own set of issues. Critically Analyze. (250 words; 15 marks)
8. Developing scientific temper in the nation requires a big push from the side of the government and the civil society. Elaborate. (250 words; 15 marks)

Defence and Security

1. The ageing condition of the Indian Airforce's fleet underlines the need to accelerate indigenous fighter jets projects in India. Comment. (250 words; 15 marks)
2. Despite some progress in the past decade, women's representation in the Indian Armed Forces is still way below the expected level. Elaborate. (250 words; 15 marks)

3. Explain with relevant examples the possible reasons for the rise of Smartphone malware and discuss the mobile security solutions. (10 Marks, 150 Words)

Disaster Management

1. India has witnessed many stampedes in the past. Discuss the reasons for such occurrences and suggest measures to overcome the issue. (15 Marks, 250 Words)
2. Rampant development of mountain areas over the years has upset the sensitive ecological balance of the Himalayas. Illustrate the consequences with examples. (250 words; 15 marks)

Energy

1. Discuss in detail some of the initiatives of the Union Government for giving a push to the expansion of solar power in India. (250 words; 15 marks)
2. The expansion of wind power generation projects in India has been slower than expectations. What are the major reasons behind these shortcomings? (250 words-15 marks)

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15 Tests covering 4 GS papers and Essay



8 Modular tests (2 for 4 GS papers)



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