

## 100 GK Questions for NDA - Solutions

1. Ans. B.

Lothal (modern-day Gujarat) port of Harappan civilisation was the largest port.

2. Ans. D.

After the cancellation of permission for establishing the factory in Surat, the British established their first trading factory in Masulipatnam in 1611. Masulipatnam was the main port of Golconda state.

3. Ans. B.

Amuktamalyada is an epic poem in Telugu composed by Krishnadevaraya of the Vijayanagar Dynasty. It describes the story of the wedding of the Hindu lord Vishnu and Andal, the Tamil Alvar poet and daughter of Periyalvar at Srirangam.

4. Ans. A.

Aihole inscription of Pulakesin II mentions the defeat of Harsha by Pulakesin, who after this achievement assumed the title Paramesvara. Hiuen Tsang's accounts also give account of the victory of Pulakesin.

5. Ans. D.

Yaksha worship is a characteristic of all three religions. Yaksha worship was very popular before and after the advent of Buddhism and it was assimilated in Buddhism and Jainism.

They appear in texts of Hindu religious scripts. Yakshas were placed at entrances of Hindu temples to guard the main deity.

6. Ans. B.

\* **The 1917 congress session was held in Calcutta.**

\* The 1917 session was a landmark session in congress history because in this session, Annie Besant became the First woman president of the INC.

7. Ans. B.

- Ibn Batuta was a Moroccan traveller who visited India in 14<sup>th</sup> century CE.
- Before he set off for India in 1332-33, he had made pilgrimage trips to Mecca, and had already travelled extensively in Syria, Iraq, Persia, Yemen, Oman and a few trading ports on the coast of East Africa.

- Muhammad Bin Tughlaq, the sultan of Delhi, was impressed by his scholarship and appointed him the *qazi* or judge of Delhi.
- He also went to China as the envoy of Muhammad Bin Tughlaq.

Hence, Option B is correct.

8. Ans. A.

- The Bardoli Satyagraha, 1928 was a major civil disobedience movement led by Sardar Vallabhai Patel for the farmers of Bardoli against the unjust raising of taxes.
- Gandhiji also lent support to the movement through his writings in 'Young India' magazine.
- In this struggle, Vallabhbhai Patel got the title of "**Sardar**" by local farmers of Bardoli.

9. Ans. A.

- The programme of Non Corporation Movement included boycott of British Goods, adoption of Swadeshi, picketing of liquor shops, boycott of government offices, councils, law courts, educations institutions and constructive programmes such as Khadi and Charkha.
- The **Charkha and Khadi became symbols of Indian Nationalism.**

10. Ans. D.

Madam Cama (Bhikaiji Rustom Cama) was one of the prominent figures in the Indian independence. She is considered as the 'Grandmother of Indian Revolutionary Movement. She attended the International Socialist Conference held in Germany in 1907, as the Indian representative and for the first time unfurled the National Flag of India. During the lecture in the Socialist Conference, she gave some Quotes about the Indian Flag. The Quotes are- "This flag is of Indian Independence! Behold, it is born! It has been made sacred by the blood of young Indians who sacrificed their lives. I call upon you, gentlemen to rise and salute this flag of Indian Independence. In the name of this flag, I appeal to lovers of freedom all over the world to support this flag."

11. Ans. C.

A) Treaty of Allahabad - 1765

B) Treaty of Manglore - 1784

C) Treaty of Salbai - 1782

D) Treaty of Madras - 1769

12. Ans. C.

The chronological order of the given events is-

IV. Civil Disobedience Movement, 1930

II. Gandhi – Irwin Agreement, 1931

I. Poona Pact, 1932

III. Cripps Mission, 1942

13. Ans. B.

The poem Aamarsonar Bangla, written by Rabindranath Tagore, was later adopted by Bangladesh as his national anthem, his major compositions being Geetanjali, Gora Ghare Bire, Jana Gana Mana, Amar Sonar Bangla, Rabindra Sangeet, Nauka Dubi. In which Jan Gana Mana was adopted as the national anthem of India on 24 January 1950 and for his composition Gitanjali, he received the Nobel Prize for Literature in 1913 as the first Indian.

14. Ans. C.

Statement 1 is correct: During the freedom movement, the struggle for Women's right and equality was seen as an integral part of the struggle for national Independence. Many women who fought for the country's freedom were also active on the issues of women's rights. In 1885 the Indian National Congress was founded. In its 1889 Bombay Session, ten women participated. With the spread of women's education among the middle class by the last part of the nineteenth century, several women became active in the social and political life of India. Gandhiji's call to women and large scale participation of women in India's freedom movement brought about changes in the perception of nationalist leaders.

Statement 2 is correct: The emergence of women's organisations was closely linked with both the social reform movement and the nationalist movement. During the early twentieth century, several women's organisations were formed. The Women's India Association (WIA) was formed in 1917 by Margaret Cousins, an Irish and an Indian nationalist. This was followed by the formation of the National Council of Indian Women (NCIW) in 1926 and the All India Women's Conference (AIWC) in 1927. Jyoti Singh in Gujarat (1934) played an active role in harnessing the energies of women.

15. Ans. B.

Statement 1 is Incorrect: The first printing press was established in Bombay in 1674, the second in Madras in 1772 and the third in Calcutta in 1779. Although, the British were responsible for bringing the printing press in India, they were most allergic to the emergence of a newspaper in this country. Dr. R. Das Gupi, former Director, National Library, Calcutta, writes: "About 14 years before the establishment of the Bengal Gazette, one William Bolts, a merchant of Dutch origin, pasted a notice on the door of the council House in Calcutta to inform the public that the want of a Printing press in this city is a great disadvantage.

Statement 2 is correct: The Vernacular Press Act on March 1, 1878, for spingently controlling the newspapers. The law came down heavily on the press. Under these regulatiolls, any district magistrate or a police commissioner was empowered to force the printer and publisher of a newspaper to agree not to publish certain kinds of material, to demand security, and to confiscate any printed matter it deemed to be objectionable.

16. Ans. A.

Prakash Utsav festival is celebrated on the birthday of Guru Nanak Dev.

17. Ans. B.

\* **Statement 1 is incorrect:** High boundary walls are features of the Dravidian style of temple architecture and are absent in Nagara style.

\* The front boundary walls had a **high entrance gateway** known as the **gopuram**.

\* Similar to Nagara style, the temple premise was laid out in **the panchayatan style** with a **principal temple and four subsidiary shrines**.

\* The spire is in the form of a **stepped pyramid** that rises up linearly rather than curved (unlike curved Sikhara in Nagara style) and is known as **vimana**.

\* Water tank was present inside the temple enclosure. It was a unique feature of the Dravidian style. **Example: Brihadeswara temple at Tanjore, Gangaikondacholapuram temple**

\* **Statement 2 is correct:** Odisha style of temple architecture was developed in **Kalinga region of Odisha** having a distinct style of temple building.

\* They are characterised by the presence of intricate carvings on the exterior walls but plain inner walls.

\* Sikhars are unique and are called '**Rekhadeul**' while Mandapa is called "**Jagmohan**".

\* Examples of this school is a **trinity** of **Sun Temple**, Konark (Black Pagoda), **Jagannath temple** (White Pagoda) at Puri and **Lingaraj temple** at Bhubaneswar, etc.

- \* Solanki school developed under the patronage of the **Solanki rulers** in the north-western parts of India including **Gujarat and Rajasthan**.
- \* A unique feature of this school is the **presence of step-tank** called the **Surya Kund** in the proximity of the temple.
- \* The **steps of the tank consists of many small temples**. Most of the temples are east-facing which were designed in such a way that every year, during the equinoxes, the sunrays fall directly into the central shrine. **Example: Modhera Sun Temple, Gujarat**.
- \* **Statement 3 is correct:** Vesara or Karnataka style of the temple is a **hybrid architecture style** having features of both **Nagara school and Dravidian school**.
- \* Like Dravidian style, this temple architecture has an emphasis on **vimana (stepped pyramid style) and mandapa (similar to Dravidian style which is in square shape.)**.
- \* Like Nagara style, **Curvilinear Shikhara and square base** are featured in Vesara temples.
- \* **Chalukyas of Badami and Kalyani, Rashtrakutas and Hoysala Dynasty** were patrons of this type of temple architecture.
- \* Examples of this type of temples are at Halebid, Belur, **Doddabasappa temple** at Dambal, **Ladkhan temple at Aihole**, temples at Badami, etc.

18. Ans. D.

The **Theosophical Society** was officially formed in **New York City**, United States, on **17 November 1875** by **Helena Petrovna Blavatsky, Colonel Henry Steel Olcott, William Quan Judge**, and others.

Its objectives:

- To form a nucleus of the universal brotherhood of humanity without distinction of race, creed, sex, caste, or colour
- To encourage the study of comparative religion, philosophy, and science
- To investigate the unexplained laws of nature and the powers latent in man

19. Ans. B.

- The second Jain Council was held at **Vallabhi, Gujarat in AD 512**.
- Devardhi Kshmasramana was the chairman of this council.
- It resulted in the final compilation of 12 Angas and 12 Upangas.

20. Ans. A.

As currency is devaluated, it becomes relatively cheaper compared to other currencies. So, its products become cheaper compared to others in the international market and their demand increases in the international market, which encourages exports.

21. Ans. B.

The Governor is empowered to issue ordinances under Article 213. The Governor exercises this power when both the Houses of the Legislature are not in session.

22. Ans. D.

Money Bill is introduced only in Lok Sabha and not in Rajya Sabha. Prior to the introduction of the Money Bill, the permission of the President is necessary. There is no provision for a joint session in relation to Money Bill. The President cannot return the Money Bill for reconsideration. The money bill can be retained by the Rajya Sabha only for 14 days, the money bill is deemed to have been passed by the Rajya Sabha after 14 days.

23. Ans. C.

According to Article 101 clause 4, if a member of a House of Parliament is absent from the meetings of Parliament for more than 60 consecutive days without the permission of the House, his membership shall cease.

24. Ans. D.

Allocation of Rajya Sabha seats in major states:

Andhra Pradesh - 11

Bihar - 16

Gujarat - 11

Madhya Pradesh - 11

Tamil Nadu - 18

Maharashtra - 19

Karnataka - 12

Orissa - 10

Rajasthan - 10

Uttar Pradesh - 31

West Bengal - 16

25. Ans. C.

According to Article 95, when the post of the Speaker is vacant or the Speaker is absent, the Deputy Speaker presides over the Lok Sabha.

26. Ans. B.

Article 356, President's rule can be imposed on the basis of the failure of the constitutional machinery in the state. The proclamation must be approved within 2 months, this proclamation is approved by a simple majority of Parliament.

27. Ans. C.

Some provisions of the constitution can be amended by the Parliament by passing a bill with a simple majority, such as

# Entry of new states in the Union (Article 2)

# Creation of new states or changes in the name or extent of the current territory (Article 3)

# Provisions relating to citizenship (Article 11)

# Creation or abolition of Legislative Council in states (Article 169)

# Salaries and allowances of the members of Parliament

28. Ans. B.

The 24th constitutional amendment was challenged in Keshavanand Bharti's case. A special bench of 13 judges headed by Chief Justice Shri Sikri gave a decision on 24 April 1973. It was decided by a majority of 7: 6 that under Article 368, the power of Parliament to amend the Constitution is broad enough, but it is not unlimited and cannot make any amendment, by which the basic elements of the Constitution or its fundamental structure is destroyed.

29. Ans. C.

Article 50 provides that the State shall take steps to separate the judiciary from the executive in the public services of the State.

Article 51 provides that the State shall endeavour to—

(a) promote international peace and security;

(b) maintain just and honourable relations between nations;

(c) foster respect for international law and treaty obligations in the dealings of organised peoples

with one another; and  
(d) encourage settlement of international disputes by arbitration.

30. Ans. D.

The NITI Aayog came into existence from 1 January 2015 as part of the Cabinet proposal. This new institution has been named the National Institution for Transforming India, commonly called the "NITI Aayog".

On 6 August 1952, on the recommendation of the Niyogi Committee, the "National Development Council" was formed as a non-statutory body.

31. Ans. B.

The NIA works under the administrative control of the Ministry of Home Affairs, Government of India. The state government extends all assistance and co-operation to the NIA for investigation of the offences specified under the NIA Act. The National Investigation Agency (NIA) was constituted in 2009 under the provisions of the National Investigation Agency Act, 2008 (NIA Act). It is the central counter-terrorism law enforcement agency in the country. The NIA was established in the backdrop of the 2008 Mumbai terror attacks, popularly known as the 26/11 incident.

32. Ans. A.

- Article 371G: Special provision with respect to the State of Mizoram
- Article 371J: Special provisions with respect to the State of Karnataka
- Article 371F: Special provisions with respect to the State of Sikkim
- Article 371H: Special provision with respect to the State of Arunachal Pradesh

33. Ans. A.

Special Officer for Linguistic Minorities is to be appointed by the President. The Seventh Constitutional Amendment Act of 1956 inserted a new Article 350-B in Part XVII of the Constitution. This Officer is known as National Commissioner Linguistic Minorities. The commissioner falls under the ministry of Minority Affairs at central level.

34. Ans. C.

- Article 224 provides for appointment of additional and acting Judges.
- Article 223 provides that when the office of Chief Justice of a High Court is vacant or when any such Chief Justice is, by reason of absence or otherwise, unable to perform the duties of his office, the duties of the office shall be performed by such one of the other Judges of the Court as the President may appoint for the purpose.

- Article 224A provides for appointment of retired Judges at sittings of High Courts.

35. Ans. A.

- Article 131: Original jurisdiction of the Supreme Court.
- Article 132: Appellate jurisdiction of Supreme Court in appeals from High Courts in certain cases.
- Article 133: Appellate jurisdiction of Supreme Court in appeals from High Courts in regard to civil matters.
- Article 134: Appellate jurisdiction of Supreme Court in regard to criminal matters.

36. Ans. C.

Governor appoints the Advocate-General of the State. He has the power to appoint judges of the courts, other than the High Court. He, however, is consulted when the judges of the State High Court are appointed by the President of India.

37. Ans. A.

Article 158 (2) provides that, the Governor shall not hold any other office of profit. Article 158 (3) provides that, the Governor shall be entitled without payment of rent to the use of his official residences and shall be also entitled to such emoluments, allowances and privileges as may be determined by Parliament by law. Article 158 (4) provides that, the emoluments and allowances of the Governor shall not be diminished during his term of office.

38. Ans. D.

It is no longer possible to declare a National Emergency on the ground of 'internal disturbance' as was done in 1975 by the Congress government headed by Indira Gandhi.

39. Ans. B.

Originally, the Constitution mentioned 'internal disturbance' as the third ground for the proclamation of a National Emergency, but the expression was too vague and had a wider connotation. Hence, the 44th Amendment Act of 1978 substituted the words 'armed rebellion' for 'internal disturbance'.

40. Ans. A.

- Article 96: The Speaker or the Deputy Speaker not to preside while a resolution for his removal from office is under consideration.
- Article 97 states that, there shall be paid to the Chairman and the Deputy Chairman of the Council of States, and to the Speaker and the Deputy Speaker of the House of the

People, such salaries and allowances as may be respectively fixed by Parliament by law and, until provision in that behalf is so made, such salaries and allowances as are specified in the Second Schedule.

- Article 95: Power of the Deputy Speaker or other person to perform the duties of the office of, or to act as, Speaker.
- Article 98 states that each House of Parliament shall have a separate secretarial staff.

41. Ans. C.

Article 36 to 51 of the Indian Constitution deal with the provisions related to Directive Principles of State Policy. The framers of the Indian Constitution borrowed this idea from the Irish Constitution.

42. Ans. C.

The location of a cement plant is based on the limestone deposits in India. The average per capita consumption of cement in India is 110 kg against the world average of 260 kg.

43. Ans. C.

The Rossing Uranium Mine in Namibia is the longest-running and one of the largest open pit uranium mines in the world. The Olympic Dam mine is a large poly-metallic underground mine located in South Australia. SOMAIR is a national mining company of Niger in the mining area of its northern zone. The Cigar Lake Mine is a large high grade underground uranium mine, located in the uranium rich Athabasca Basin of northern Saskatchewan, Canada.

44. Ans. B.

Census has been conducted in India since 1872 and 2011 marks the first time biometric information was collected. Aadhaar is the world's largest biometric ID system.

45. Ans. B.

Earth is the only planet whose English name does not derive from Greek/Roman mythology. The name derives from Old English and Germanic. There are, of course, many other names for our planet in other languages.

46. Ans. C.

The heat is derived from solar energy, normally called solar radiation. Insolation is the solar radiation that reaches the earth's surface. It is measured by the amount of solar energy received per square centimetre per minute. Similarly, solar energy received by the earth is called insolation. It is the amount of incoming solar radiation that is received over a unit area of the earth's surface.

47. Ans. A.

Abrolhos wind occurs off the south-eastern coast of Brazil. The abrolhos is a violent squall occurring mainly between May and August. It is caused by the South East Trade winds acquiring heat and moisture traversing the warm Brazilian current of Eastern Brazil.

48. Ans. A.

The typhoon is a tropical cyclone originating in the northwest Pacific Ocean and China Sea in which winds move very rapidly (more than 12 on the Beaufort wind scale) from the outside to the center. Such cyclones also hit the southeastern coast of America, which are called 'Hurricanes' there. Hurricanes and typhoons are aquatic storms that rise from the surface of the water, on the other hand, 'tornado' is a storm that rises to land. In Japan, "taifu" is the Japanese word for "typhoon".

49. Ans. B.

The proportion of different salts in the ocean remains constant even at greater depths because of the free movement of ocean water. When there is a high rate of evaporation, the salinity is higher as in the case of the Red Sea. The range of salinity is negligible where water can freely mix.

50. Ans. A.

The Canary Current is a wind-driven surface current that is part of the North Atlantic Gyre. This eastern boundary current branches south from the North Atlantic Current and flows southwest about as far as Senegal where it turns west and later joins the Atlantic North Equatorial Current.

51. Ans. C.

The largest coffee-growing state in Brazil, Minas Gerais accounts for nearly 50% of the country's production.

52. Ans. A.

Atomic Minerals Directorate for Exploration and Research - Hyderabad

Nuclear Fuel Complex - Hyderabad

Nuclear Power Corporation of India Ltd. - Mumbai

Heavy Water Board - Mumbai

53. Ans. C.

Lake Victoria forms the border of Uganda, Tanzania and Kenya. The Volga River falls in the Caspian Sea.

54. Ans. B.

Willy Willy - Storms originating near the northwest coast of Australia.

Jonda - Warm dry wind in Argentina that moves towards the plains under the Andes mountain ranges in the west.

Mistral - Cold dry northwest or north winds moving rapidly from the cold high plateau of the Massif in the middle of France to the Mediterranean Sea, which is mainly in the Rhone Delta and the Gulf of Lions.

Chinook - With the eastern slope of the Rocky mountain ranges of North America, it affects from the southern part of Colorado in the south to the province of British Columbia in Canada in the north.

55. Ans. A.

Coffee is the main crop of South America, the red soil here (Terra rossa) is best for coffee cultivation. Brazil is the largest producer of coffee. Europe is the largest market for coffee in the world. Brazil is called the "home of coffee". Brazil, Vietnam, Colombia, and Indonesia are the largest producers of coffee in the world.

56. Ans. A.

Humboldt or Peru's cold stream, when the Atlantic current in the Southern Ocean has reached the southern tip of South America, collides with Capehorn and turns north. Peru then flows northwards along the west coast of the country and later merges into the southern Pacific. Near Peru, it is called the Peruvian current.

The Falkland stream is a cold stream, the cold water of the Antarctic Sea colliding with the Capehorn in South America and flows 30 degrees south latitude Argentina.

57. Ans. D.

When one goes to the left from any longitude, there is a decrease of 4 minutes on every one degree of longitude while the right is increased by 4 minutes. Thus, 1 degree is equal to 4 minutes, then at an interval of 4 hours, there will be 240 minutes and a measurement of 60 degrees will be visible on longitude.

58. Ans. C.

Acidic rocks contain 65 to 85% sand or silica content. The remaining part consists of aluminium, magnesium and alkali, such as Granite, Rhyolite, Pitchstone and Obsidian.

Alkaline Rocks - The amount of silica in it ranges from 45 to 55%. The remaining fractions of Iron, Lime and magnesium are found. Basalt, dolerite, and gabbro are examples of alkaline rocks.

59. Ans. D.

Other active volcanoes and related countries

Kilauea	Hawaiian Islands
Mount Etna	Sicily
Stromboli	Lipari Island
Cotopaxi	Ecuador
Barren Island	Andaman Nicobar
Mauna Loa	Hawaii Islands
Ojos del Salado	on the Argentina-Chile border
Semeru	Indonesia

60. Ans. C.

Primary P waves are the highest velocity waves and they reach the seismograph station first. They can travel through solid, liquid, and gaseous substances. Surface waves reach the epicentre much later because their velocity is very low and it travels the entire surface. Their speed and effect are on water and land, so it is most destructive.

61. Ans. B.

The BMPT "Terminator" is a post-Cold war armored fighting vehicle (AFV) designed and manufactured by the Russian company, Uralvagonzavod. This vehicle was designed for supporting tanks and other AFVs in urban areas. Russia, according to Western intelligence inputs, has deployed the Terminator tank support system – the BMPT, also known as the BMPT 'Terminator', and its new version the BMPT-72 – in an area that remains its immediate tactical priority in the Ukraine war.

62. Ans. D.

\* Indian Defense Minister, Shri Rajnath Singh during his visit to Mumbai made a flight onboard the Indian Navy P8I Long Range Maritime Reconnaissance Anti-Submarine Warfare Aircraft, showcasing various capabilities by the Indian Navy.

- \* During the visit, the Indian Navy demonstrated long range surveillance, electronic warfare, imagery intelligence, ASW missions and search and rescue capabilities employing state-of-the-art mission suits and sensors.
- \* P8I aircraft were inducted into the Indian forces in 2013.
- \* The P-8I aircraft incorporates state-of-the-art sensors such as multi-mode radar, electronic intelligence system, sonobuoy, electro-optic, infrared cameras and advanced weaponry.
- \* P-8I aircraft have been used along the International Border, the Line of Control and the Line of Actual Control to monitor the movements of adversaries.

63. Ans. B.

Recently, NAL initiated taxi trials of SARAS Mk II. It is a light transport aircraft which is indigenously developed by National Aerospace Laboratory (NAL)

- The 19-seater aircraft, developed with a target cost of ₹50 crore, is at least 20-25% lower in cost than other aircraft in the similar category.
- NAL is been pitching Saras Mk-2 for the government's UDAN (Ude Desh Ka Aam Nagrik), since it has the capacity to operate in "ill-equipped", "semi-prepared" and "unpaved airstrips"

64. Ans. C.

Under **P-15B (Visakhapatnam Class)**, a total of four warships are planned (Visakhapatnam, Mormugao, Imphal, Surat).

India's indigenous Destroyer construction programme **commenced in the late 1990s with the three Delhi class (P-15 class) warships** and this was **followed by three Kolkata class (P-15A) destroyers** commissioned a decade later.

65. Ans. A.

An extended range version of the BrahMos supersonic missile was successfully test fired from a Su-30 MKI fighter aircraft. BrahMos missile flies at a speed of 2.8 Mach or almost three times the speed of sound.

The range of the advanced version of the missile is learnt to have been extended to around 350 km from the original 290 km.

This was the first instance of the extended range version of the missile being fired from a Su-30MKI aircraft. The extended-range capability of the missile coupled with the high performance of the Su-30MKI aircraft gives the Indian Air Force a strategic reach and allows it to dominate future battlefields.

66. Ans. B.

\* The recently decommissioned Indian Naval Ship (INS) Khukri will soon be developed into a full-scale museum at Diu, the Union Territory off the southern tip of the Kathiawar Peninsula in southwestern Gujarat.

67. Ans. B.

\* The Hindustan Aeronautics Limited (HAL) has started the Main Airframe Fatigue Test (MAFT) of Light Combat Aircraft Mark 1 (LCA Mk1) airframe in Bengaluru.

\* This test has been conducted to understand how the aircraft structure performs in real conditions.

\* The structure of the aircraft is mounted on a test rig to check for any cracks or damage.

68. Ans. D.

\* Vagsheer (sixth submarine, Yard 11880) of the P75 project of the Indian Navy was launched at Mazgaon Dock Ltd.

\* This is the last of the Scorpene class submarines made under the P75 project and can join the Navy fleet after sea trials.

\* Designed by: French naval defence and energy company 'DCNS'

\* Manufacturer: Mazagon Dock Limited, Mumbai

69. Ans. A.

Statement 1 is not correct - The laser missile defense system is a missile defense system which is developed by Israel, not Ukraine.

Statement 2 is correct- The laser missile defense system is based on a directed-energy weapon system, capable of providing air defense. In this, directed-energy is used as a direct means of harming or destroying enemy equipment, facilities and personnel.

It is notable that the laser missile defense system is also known as "Iron Beam".

70. Ans. C.

\* Russia has successfully tested a Sarmat intercontinental ballistic missile at the Plesetsk state test cosmodrome in northwest Russia's Arkhangelsk region.

\* The new missile system has the highest technical and tactical characteristics and is able to overcome all modern means of anti-missile defense.

71. Ans. A.

**Chloroplast plays an important role in photosynthesis.** It is the structure in a green plant cell in which photosynthesis occurs. All green plants take part in photosynthesis, which converts energy into sugars, and the byproduct of the process is oxygen that all animals breathe. The main role of chloroplasts is to conduct photosynthesis, where the photosynthetic pigment chlorophyll captures the energy from sunlight and converts it and stores it. This process happens in chloroplasts.

• **MORE DETAILS:**

Centrosome - An organelle near the nucleus of a cell which contains the centrioles (in animal cells) and from which the spindle fibers develop in cell division.

Tonoplast - A membrane which bounds the chief vacuole of a plant cell.

Nematoblast- A cell in a late stage of the development of the spermatozoon; it is a haploid cell derived from the secondary spermatocyte and differentiates by spermiogenesis into a spermatozoon.

72. Ans. B.

Apomixis is an asexual reproduction without fertilization or a seed formation. Apomixis helps in the preservation of good category crop plants which helps in the production of hybrid seeds.

**MORE DETAILS:**

The germination of a seed is the beginning of the growth of a seed into a new plant. For this process, the seed requires a warm and moist atmosphere to germinate.

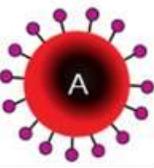
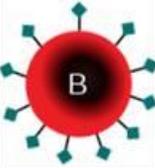
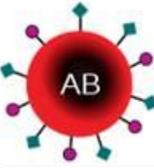
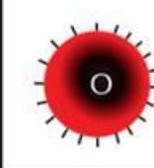
Sporulation is the formation of spores from vegetative cells during unfavorable environmental conditions and also can use the spores to preserve the genetic content of the organism during harsh environmental conditions.

Budding is a type of asexual reproduction. In this type of reproduction new organism develops from an outgrowth or bud due to cell division.

73. Ans. D.

The ABO blood group system consists of 4 types of blood group – A, B, AB, and O. It is mainly based on the antigens and antibodies.

The 'Antigens' are present in the red blood cells and the 'Antibodies' in the serum.

	Group A	Group B	Group AB	Group O
Red blood cell type				
Antibodies in plasma	 Anti-B	 Anti-A	None	 Anti-A and Anti-B
Antigens in red blood cell	A antigen 	B antigen 	A and B antigens 	None

Blood group AB individuals have both A and B antigens on the surface of their RBCs, and their blood plasma does not contain any antibodies against either A or B antigen. Therefore, an individual with type AB blood can receive blood from any group but cannot donate blood to any group other than AB. They are known as universal recipients.

Blood group A individuals have the A antigen on the surface of their RBCs, and blood serum containing antibodies against the B antigen. Therefore, group A individual can receive blood only from individuals of groups A or O and can donate blood to individuals with type A or AB.

Blood group B individuals have the B antigen on the surface of their RBCs, and blood serum containing antibodies against the A antigen. Therefore, a group B individual can receive blood only from individuals of groups B or O and can donate blood to individuals with type B or AB.

Blood group O individuals do not have either A or B antigens on the surface of their RBCs and their blood serum contains anti-A and anti-B antibodies. Therefore, a group O individual can receive blood only from a group O individual but can donate blood to individuals of any ABO blood group (i.e., A, B, O or AB).

74. Ans. B.

There are two types of flowers found in plants- unisexual and bisexual flowers. The unisexual flowers contain male and female reproductive organs in different flowers.

The bisexual flowers contain both male and female reproductive organs in the same flower.

The male parts of the flower are stamens, and the female part is known as the pistil.

75. Ans. C.

Flower participates in sexual reproduction in plants. These are the reproductive parts of a plant, while the other parts like stem, leaf, and root have no role in reproduction and these are vegetative parts of a plant.

MORE DETAILS:

The flower contains a stamen or pistil, or both. The stamen is the male reproductive organ and the pistil is the female reproductive organ.

Leaves take part in photosynthesis for making food.

Root takes part in absorbing minerals from the soil and transfers them to the whole parts of the plant.

76. Ans. A.

A meristem is a tissue in most plants containing undifferentiated cells (meristematic cells) found in zones of the plant where growth can occur. The meristem that occurs between mature tissues is known as the Intercalary meristem. Intercalary meristems are capable of cell division, and they allow for rapid growth and regrowth of many monocots. Intercalary meristems at the bamboo nodes allow for rapid stem elongation, while those at the base of most grass leaf blades allow damaged leaves to regrow rapidly. This leaf regrowth in grasses evolved in response to damage by grazing herbivores.

77. Ans. B.

**Tuberculosis** is curable and preventable. **TB** is **spread** from person to person **through** the **air**. When people with lung **TB** cough, sneeze or spit, they propel the **TB** germs into the **air**. A person needs to inhale only a few of these germs to become infected.

78. Ans. C.

Wheat, corn, rice, barley, sorghum, millet, oats etc. are examples of Cereals. Cereals are rich in carbohydrates but comparatively low in protein and deficient in Calcium and Vitamin A.

79. Ans. B.

Plant and Animal Cells are both Eukaryotic cells, so they have several features in common, such as the presence of a Cell Membrane, and Cell Organelles, like the Nucleus, Mitochondria and Endoplasmic Reticulum.

Prokaryotic Cells do not possess nucleus where it is present in Eukaryotic cells.

80. Ans. D.

Arthritis is **the swelling and tenderness of one or more of your joints**. The main symptoms of arthritis are joint pain and stiffness, which typically worsen with age. The

most common types of arthritis are osteoarthritis and rheumatoid arthritis. Osteoarthritis causes cartilage — the hard, slippery tissue that covers the ends of bones where they form a joint — to break down.

• **MORE DETAILS:**

- Cholera- Cholera is an infection of the small intestine by some strains of the bacterium *Vibrio cholerae*. Symptoms may range from none, to mild, to severe.
- Chicken-pox- Chickenpox, also known as varicella, is a highly contagious disease caused by the initial infection with varicella zoster virus (VZV).
- Tuberculosis- Tuberculosis (TB) is **an infectious disease usually caused by *Mycobacterium tuberculosis* (MTB) bacteria.**

81. Ans. A.

The loudness perception of a sound is determined by the amplitude of the sound waves. A sound which is faint will have a small amplitude, for higher amplitude the louder the sound will be. Amplitude is measured in decibels of sound pressure.

82. Ans. D.

Potential energy reduces as the body comes closer to surface as potential energy depends on height. However, Kinetic energy increases during fall because the velocity of body is increasing due to gravity. Linear momentum changes as it depends on velocity.

Sum of potential and kinetic energy would remain same due to law of conservation of energy. Mechanical energy is the sum of potential energy and kinetic energy. It is the energy associated with the motion and position of an object.

83. Ans. D.

As already mentioned, the mechanical energy of an object can be the result of its motion (i.e., kinetic energy) and/or the result of its stored energy of position (i.e., potential energy). The total amount of mechanical energy is merely the sum of the potential energy and the kinetic energy. Law of conservation of energy states that energy can neither be created nor destroyed but can be changed from one form to another. Now in the case of a freely falling body, the energy conservation is potential to kinetic energy and their sum is always constant.

84. Ans. C.

All are false regarding sound waves except B. Sound waves are mechanical waves that lack the capacity to travel through a vacuum. However, light waves are electromagnetic waves and can travel through the vacuum of outer space sound waves being mechanical involves that they require a medium to transport their energy from one point of location to another.

85. Ans. A.

White light is composed of all the visible colors in the electromagnetic spectrum, a fact that can be easily proven using a prism. When white light passes across a glass prism, it bends, or refracted, by the angles and plane faces of the glass prism and each wavelength of light is refracted by a slightly different amount. Violet is refracted the most because it has the highest frequency. **Red** is refracted the least because it has the lowest frequency. This happens because each color is refracted differently and bends at a different angle, which results in a fanning out and separation of white light into the colors of the spectrum.

86. Ans. D.

Light waves do not require physical material to travel, because light waves are disturbances in immaterial things: electric and magnetic fields. Light travels faster in a vacuum as compared to air because there are no dust particles present in vacuum. The speed of light in a vacuum is 299,792 km/s and it is always constant.

87. Ans. A.

At the equator, the distance of Earth surface is maximum because the geodetical shape of terrestrial globe and then the gravitational force is minimum. Due to the rotation of earth, centrifugal force will act on the bodies that lightens gravitational force as it is opposite. It opposes the gravitational pull of earth on the bodies. At equator centrifugal force is maximum. So, gravity is least at equator.

At poles, the gravitational force is maximum.

88. Ans. B.

An applied magnetic field creates an induced magnetic field in them in the opposite direction which causes a repulsive force, and the **Diamagnetic materials** are weakly or slightly repelled by the magnetic field.

Superconducting materials are strongly repelled from the permanent magnets whereas paramagnetic and ferromagnetic materials are attracted by a magnetic field.

89. Ans. A.

An electric current is a flow of electrical charge. When a solution conducts electricity, during the process charge is carried by ions moving through the solution which are responsible for conducting electricity. Not all substances are made up of ions. Some are made up of uncharged particles called molecules. Sugar is such a substance. When sugar is dissolved in water, the solution does not conduct electricity, because there are no ions present in the solution. These substances are made of molecules which form solutions that does not conduct electricity.

90. Ans. D.

$$F=ma$$
$$1= 1 \times a$$
$$a=1\text{m}\backslash\text{sec}^2$$

91. Ans. A.

Intermolecular forces of attraction increases due to increase in molar mass, hence the melting and boiling points increase. With an increase in molar mass, the melting point and boiling points of hydrocarbons increases generally. Due to the increase in molar mass, the molecule becomes larger and so the van der Waals forces and other binding forces between those molecules becomes stronger, which holds the particles very firmly together in solid or liquid phase and so it requires more energy to break these bonds and thus the melting point and boiling point of the hydrocarbons increases.

92. Ans. A.

Some substances such as camphor and naphthalene balls possess the property of sublimation. Such substances directly change from solid to the gaseous state without changing into liquid-like ice to water to water vapours does. Hence, Naphthalene balls disappear with time without leaving any residue.

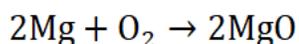
93. Ans. C.

The poisonous gas that can be prepared from chlorine gas is phosgene gas and Chloropicrin or tear gas ( $\text{CCl}_3\text{NO}_2$ ). It appears colourless or sometimes yellowish-white. It has a pleasant odour of newly harvested hay or green corn. The odour is strong and unpleasant at high concentrations. While cooling under pressure, this can be transformed into a liquid so that it can be shipped and stored. This is a poisonous gas at room temperature. Breathing the air with the presence of it can cause difficulty in breathing. It can cause skin and eye irritation also.

The boiling point of Chloropicrin is  $112^\circ\text{C}$ . Its vapours cause irritation to the skin, eyes, and upper respiratory tract, and it has been used in chemical warfare as tear gas. It is mostly prepared by chlorination of either picric acid or nitromethane.

94. Ans. B.

When magnesium ribbon is burnt in the presence of air, it combines with oxygen to form white powder magnesium oxide (MgO) with the release of heat and light.



The colour produced by the burning of the magnesium ribbon in the presence of air is white and produces white coloured ash.

95. Ans. A.

In the dairy industry, Centrifuges are used to separate the cream from the skim milk. It is comprised of 120 discs stacked together at a 45 to 60-degree angle and separated by a 0.4 to 2.0 mm gap or separation channel. Milk is introduced to the stack of discs that have vertically aligned distribution holes.

Centrifugal separation is a process used quite often in the dairy industry. Some uses include clarification, skimming, standardizing, whey separation, bactofuge treatment, quark separation, and butter oil purification.

More Details:

Sedimentation involves the formation of a layer of protein-rich material at the base in the packet of UHT milk. Usually, it occurs quickly after manufacture, and the sediment is compact, quite robust, and not easily dislodged. The sediment layer is voluminous, soft, and gelatinous.

Crystallization is an important separation process in the dairy industry that is used in the refining of lactose from whey solutions. In this process, lactose crystals are separated from the whey solution through nucleation or aggregation.

96. Ans. C.

**Fluorine** is the **most electronegative element** because it has 5 **electrons** in its 2P shell. The optimal **electron** configuration of the 2P orbital contains 6 electrons, so since **Fluorine** is so close to ideal **electron** configuration, the electrons are held very tightly to the nucleus.

97. Ans. B.

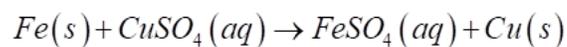
Polymer may be defined as the high molecular mass compounds prepared by the combination of a large number of one or more types of molecules. Polymers are also called macromolecules because of their large size but the converse is not always true. The small molecules which combine with each other to give a polymer are called monomers. Bakelite, polythene, Teflon, melamine, etc are plastics polymer like synthetic fiber.

98. Ans. D.

A chemical compound becomes hard on mixing with the proper quantity of water. It is also used in surgery to maintain joints in a fixed position. The chemical compound is a plaster of Paris.

99. Ans. C.

It is due to the displacement reaction. Iron displaces copper from copper sulphate solution and forms a pale green coloured solution of  $FeSO_4$  and reddish-brown copper metal gets deposited.



More Details:

Decomposition reaction: In this reaction, a compound splits into two or simpler substances. The general form of a decomposition reaction is  $AB \rightarrow A + B$ .

Precipitation reaction: This reaction occurs due to the formation of an insoluble salt when two solutions containing soluble salts are combined. The insoluble salt which falls out of the solution is called a precipitate, hence the reaction's name. It helps in the determination of the presence of various ions in the given solution.

Combination reaction: This reaction is a combination of two or more elements or compounds to form a single compound. Such reactions are represented by equations as  $A + B \rightarrow AB$ .

100. Ans. C.

There is no place given isotopes in Mendeleev's periodic table. According to Mendeleev's Periodic Law, isotopes of an element must be given separate places in the periodic table because they have different atomic masses. It does not explain the electronic arrangement of elements. Elements that are chemically similar are placed in separate groups such as Gold and Platinum.