

CAPF (ACs) Paper (2020): Paper I Solution

1. Ans. D.

three years ago, $(A - 2) = 3(B - 2) \Rightarrow A = 3B - 4 \quad \dots(i)$

Given that $B = 9$ then $A = 3 \times 9 - 4 = 23$

Let after x years the age of A will be double of the age of B

$$(A + x) = 2(B + x)$$

$$23 + x = 2(9 + x)$$

$$x = 5$$

2. Ans. A.

let the number of children like to play cricket, $n(C) = 64$

And the number of children like to play football, $n(F) = 53$

And number of children like to play both, $n(C \cap F) = 20$

Now, $n(C \cup F) = n(C) + n(F) - n(C \cap F) = 64 + 53 - 20 = 97$

If total number of children are 100.

Then the number children do not like to play cricket or football = $100 - 97 = 3$

3. Ans. A.

we can observe that the sum of the numbers written in outer circle is written in inner circle in opposite direction.

Correct answer should be $2 + 7 = 9$

4. Ans. C.

if the day before yesterday was Tuesday.

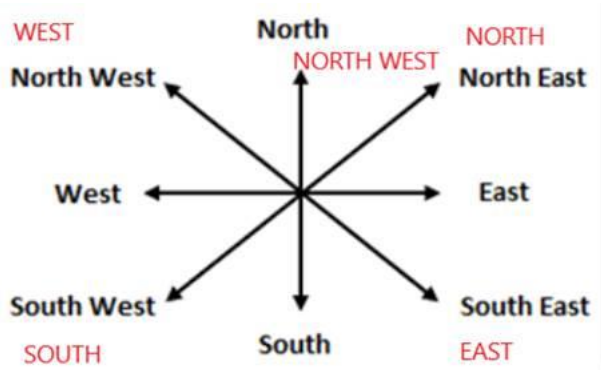
Then yesterday was Wednesday and Today is Thursday.

Tomorrow will be Friday and day after tomorrow will be Saturday.

5. Ans. C.



Let the old direction is written in Black colour and new direction is written in red colour.



From the above diagram North is called North-west.

6. Ans. A.

the number which when divided by 9 and 12 leaves remainder 8.

$$\begin{aligned} A &= LCM(9,12) + 8 \\ &= 36 + 8 \\ &= 44 \end{aligned}$$

The number which when divided by 9 and 12 leaves remainder 5

$$\begin{aligned} B &= LCM(9,12) + 5 \\ &= 36 + 5 \\ &= 41 \end{aligned}$$

$$\text{So, } A - B = 44 - 41 = 3$$

7. Ans. A.

let define the number for each alphabet from 0-9

$$A-0, B-1, C-2, D-3, E-4, F-5, G-6, H-7, I-8, J-9$$

$$\begin{aligned} &= AGJ - CEG + EDB \\ &= 069 - 246 + 431 \\ &= 254 \\ &= CFE \end{aligned}$$

8. Ans. B.



let the radius of the wire is r m and the radius after stretching
 $= 80\%$ of $r = 0.8r$

Since the volume remains constant. So,

$$\pi r^2 h = \pi (0.8r)^2 h' \quad h' = \text{new height}$$

$$\frac{h'}{h} = \frac{1}{0.64}$$

$$\frac{h' - h}{h} \times 100 = \frac{1 - 0.64}{0.64} \times 100$$

$$\% \text{age change} = \frac{36}{0.64} \% = 56.25\%$$

9. Ans. B.

we have 6 distinct balls and 5 distinct boxes.

Each ball can be put in each box

Total number of ways $= 5 \times 5 \times 5 \times 5 \times 5 \times 5 = 5^6 = 15625$

10. Ans. A.

let the amount of sum is P and the rate of interest is $r\%$. then

In 10 years,
$$3P = P \left(1 + \frac{r}{100} \right)^{10} \Rightarrow \left(1 + \frac{r}{100} \right) = 3^{\frac{1}{10}}$$

Let in n years,
$$9P = P \left(1 + \frac{r}{100} \right)^n$$

$$9 = \left(3^{\frac{1}{10}} \right)^n$$

$$3^2 = 3^{\frac{n}{10}}$$

$$\frac{n}{10} = 2$$

$$n = 20 \text{ years}$$

11. Ans. B.

let the number of boys in the class is $2n$

then the number of girls in the class $= 150\%$ of $2n = 3n$



new average of the class $= \frac{12 \times 2n + 11 \times 3n}{2n + 3n} = \frac{57}{5} = 11.4$ years

12. Ans. D.

let the weight of the gold is $w = 20$ decigram and its cost is x .

Then according to the question $x \propto w^3 \Rightarrow x = kw^3$

$$1000 = k \times 8000$$

$$k = \frac{1}{8}$$

The new weight of the pieces $w_1 = \frac{2}{2+3} w = \frac{2}{5} \times 20 = 8$ decigram

$$w_2 = \frac{3}{2+3} w = \frac{3}{5} \times 20 = 12 \text{ decigram}$$

$$\text{New price } x' = k(w_1^3 + w_2^3) = \frac{1}{8}(8^3 + 12^3) = 280$$

$$\text{Loss} = 1000 - 280 = \text{Rs.}720$$

13. Ans. D.

given that 15% of A is double of 30% of B

$$\frac{15}{100} \times A = 2 \left(\frac{30}{100} \times B \right)$$

$$15A = 60B$$

$$\frac{A}{B} = \frac{4}{1}$$

$$A : B = 4 : 1$$

14. Ans. C.

let the three consecutive even number are $2k, 2(k+1)$ and $2(k+2)$.

$$\text{Multiplying all the numbers} = 2k \times 2(k+1) \times 2(k+2)$$

$$= 2^3 k(k+1)(k+2)$$



We know that the multiple of three consecutive natural number have a multiple of 2 and 3.

So, the highest factor in three consecutive even numbers $= 2^3 \times 2 \times 3 = 48$

15. Ans. C.

let the number of correct questions = x

And number of incorrect questions = y

Total number of Question $x + y = 20$... (i)

And according to the question $5x - 2y = 72$... (ii)

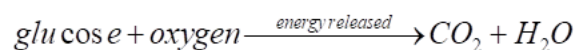
By solving these two equations, the number of correct questions $x = 16$

16. Ans. A.

The top surface part of a wave is called the crest, and the lowest part is the trough. The distance between two successive crests or troughs of sea waves is called the wavelength. The time elapsed between the crossings of two successive crests through a given point is the period of the wave.

17. Ans. C.

During the process of cellular respiration, glucose is broken down in the presence of oxygen to produce carbon dioxide and water. During the reaction, energy is released and captured by the energy-carrying molecule ATP (adenosine triphosphate).



18. Ans. A.

During fertilization, one of the male gametes fuses with the egg inside of an ovule. In plants, after fertilization, the ovule develops into seeds. Every seed contains a tiny undeveloped plant called an embryo and the ovary which surrounds the ovules develops into the fruits that may contain one or more seeds inside it.

19. Ans. C.

Glucose is converted into pyruvate inside the cytoplasm of a cell. ATP is the energy currency of the cell. This process is known as glycolysis which



generates some NADH from NAD^+ . If NAD^+ will not be regenerated, glycolysis will halt.

20. Ans. A.

Heterocyclic compound consists of a heteroatom like oxygen, nitrogen, or Sulphur atoms. These atoms should be part of the ring to be a heterocyclic aromatic compound. Tropolone is not a heterocyclic compound. In this atom, the ring is made up of carbon atoms, not oxygen atoms.

21. Ans. B.

Consider a chlorine atom, it will have 17 protons, and its two isotopes are chlorine - 35 and chlorine - 37.

Chlorine - 35

The number of protons is 17 and the number of neutrons is 18. It happens in nature about 75 percent of the time.

Chlorine - 37

The number of protons is 17 and the number of neutrons is 20. It happens in nature about 25 percent of the time.

$$M_{av} = \frac{35 \times 0.75 + 37 \times 0.25}{0.75 + 0.25} = 35.5 \text{ gm/mol} = 35.5 \text{ u}$$

22. Ans. C.

When a photoelectric effect is perceived, the number of electrons ejected is directly proportional to the intensity of the incident light. Though, the maximum kinetic energy of the photoelectrons is independent of the light intensity. The maximum kinetic energy of the photoelectrons increases with the increasing frequency of incident light.

23. Ans. A.

During a constant-temperature process, Latent heat energy is released or absorbed, by a body or a thermodynamic system. This term was introduced by British chemist Joseph Black. He used this term in the context of calorimetry where a heat transfer caused a change in the volume of a body while its temperature remains constant.

24. Ans. D.



the triple point of a material is the temperature and pressure at which the three phases of matter i.e., gas, liquid, and solid of that material coexist in thermodynamic equilibrium. This fact often helps in identifying the compounds or in problem solving.

25. Ans. D.

Due to the polarity, water molecules have a stronger attraction towards each other than they do toward oil molecules. Molecules of oil try to connect to water, but hydrogen bonds connecting water molecules together remain too strong to let them in. If pulled across the surface of the water, surface tension arises which results that oil will stretch out a layer the thickness of one molecule since each oil molecule attempts to attach itself to water. If shaken in the water, oil molecules form to separate balls because the bonds holding water molecules together will not easily break to let them in.

26. Ans. A.

The de Broglie wavelength of a particle of a photon is given by

$$\lambda = \frac{h}{P}$$

Where h is the Planck's constant and P is the momentum.

If an electron and the photon are having the same wavelength λ , then they have the same linear momentum.

27. Ans. A.

Platelets are small fragments of bone marrow cells. Its major functions are:

1. Secrete vasoconstrictors which compress blood vessels, causing vascular spasms in broken blood vessels.
2. Form interim platelet plugs to stop bleeding
3. Secrete procoagulants (clotting factors) to promote blood clotting
4. Dissolve blood clots when they are no longer in use
5. Digest and destroy bacteria
6. Secrete chemicals that engage neutrophils and monocytes to sites of inflammation



7. Secrete growth factors to maintain the linings of blood vessels

28. Ans. C.

There are about 300 000 small vesicles within the nerve endings, which contain the chemical neurotransmitter, acetylcholine. When a wave of electrical innervation arrives at the nerve ending, some Ca^{2+} ions flow into the nerve and cause around 300 vesicles to fuse with the nerve cell membrane. The region of raised calcium concentration within the nerve terminal is localized close to the active zones and, by a process that is not yet understood, causes vesicles in this region to fuse with the nerve terminal membrane and to open outward (exocytosis), thereby discharging their contents into the synaptic cleft.

29. Ans. A.

In the human body, the Adrenaline hormone is released into the blood which controls the rate of heartbeat, increasing blood pressure, expanding the air passages of the lungs, enlarging the pupil in the eye, redistributing blood to the muscles, and altering the body's metabolism, so as to maximize the blood glucose level during the stress or shocking condition of a person.

30. Ans. C.

During the gaseous exchange, oxygen moves from the lungs to the bloodstream. At the same point in time carbon dioxide passes from the blood to the lungs. This happens in the lungs between the alveoli and a network of tiny blood vessels called capillaries, which are situated in the walls of the alveoli.

31. Ans. D.

Bilateral symmetry refers to organisms with body shapes which are mirror images along with a midline called the sagittal plane. The internal organs though are not necessarily distributed symmetrically.

The majority of animals exhibits bilateral symmetry; also known as plane symmetry, this is a trait that applies to 99% of all animals, in the majority of phyla: *Chordata*, *Annelida*, *Arthropoda*, *Platyzoa*, *Nematoda*, and most *Mollusca*. The bilateral body plan is also advantageous because it allows organisms to be more streamlined.

32. Ans. B.

Chromatin is a complex of DNA and proteins which forms chromosomes inside the nucleus of eukaryotic cells. Nuclear DNA never gets appeared in



free linear strands; as it is highly condensed and wrapped around the nuclear proteins in order to fit inside the nucleus.

33. Ans. B.

Ion exchange method can be used to remove the permanent hardness of the water. In this method, resins are used to remove the permanent hardness of the water. Ca^{2+} / Mg^{2+} ions are exchanged with chloride and sulfate ions are exchanged with anion exchange resin (RNH_2OH) . Demineralized water is formed in this process.

34. Ans. D.

When an electric current is passed through a gas, then due to the current the gas emits light. Neon and argon are the two most commonly used gases because these are the least expensive and most available. Neon emits a red glow when electricity flows through it.

35. Ans. D.

Purity is not always desirable, at least not for gemstones. A gemstone is a mineral that can be cut and polished for use in jewellery. Gemstones are often used as birthstones, which honour the month in which a person is born. Gemstones are valued for their beautiful colours and crystal forms. Light reflects off them in brilliant patterns. The crystal forms are the result of very exact arrangements of atoms in the gemstone. Its magnificence contributes to its beauty and its monetary value. But gemstone colour is due to very small impurities in the mineral. For example, the mineral known as corundum is colourless when pure. But a very small amount of chromium produces a bright red colour. The corundum is now a ruby.

36. Ans. C.

Thiourea, also called thiocarbamide, an organic compound that resembles urea (q.v.) but contains sulfur instead of oxygen. Thiourea is used as an accelerator in rubber production (e.g. neoprene), and as an antioxidant to photo paper, photographic chemicals, rubber, and plastics. It is also found as an additive in etchants, cleaners, and polishes but not in the paint.

37. Ans. A.

Magnesium is used in fireworks to burn a very bright white, so it is used to add white sparks or improve the overall brilliance of a firework.

38. Ans. D.



There is no cause-effect relationship implied in the third law states that there is no time lag between the action and reaction force. They come into existence simultaneously, they act together, and then disappear together.

39. Ans. C.

Radar detectors are those electronic devices that help to detect radio waves or radio signals. These are the forms of electromagnetic energy that are emitted from radars, such as those used by police to locate cars driving over the speed limit. The radar used by police to check over-speeding vehicles works on the principle of the Doppler effect. A Doppler radar is a specialized radar that uses the Doppler effect to produce velocity data about the objects at a distance and it is possible by bouncing a microwave signal on a preferred target and analyzing how the object's motion has changed the frequency of the returned signal.

40. Ans. B.

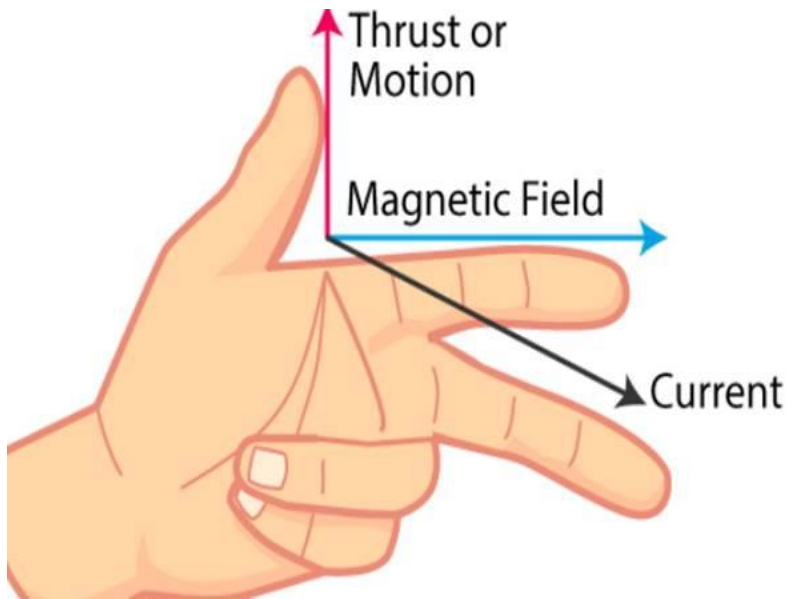
Periodic motion is that motion that is repeated identically after a fixed interval of time e.g. (i) the revolution of the earth around the sun, (ii) the rotation of the earth about its axis, etc.

Simple harmonic motion is a special case of periodic motion in which the body moves to and from about its equilibrium position. The force acting on the body at any instant is directed towards equilibrium position and is proportional to the displacement of the body from the equilibrium position, i.e., $F = -ky$

41. Ans. A.

When a current-carrying conductor is placed under a magnetic field, a force acts on the conductor. The direction of this force can be determined using **Fleming's Left-Hand Rule**.





42. Ans. A.

Two magnetic field lines produced by the same source can never intersect each other, because if tangent drawn to the field lines then it will have two directions of the magnetic field at the same point of intersection which is not possible in this case, since magnetic field line has only one direction at a point.

43. Ans. D.

The sign of acceleration cannot determine whether the particle's speed is increasing or decreasing. The sign of acceleration depends on the choice of the positive direction of the axis. For example, if the vertically upward direction is chosen to be the positive direction of the axis, the acceleration due to gravity is negative. If a particle is falling under gravity, this acceleration though negative results in an increase in speed and it is constant throughout the free fall.

44. Ans. D.

Tamilakam refers to a geographically contiguous region inhabited by Tamil people in ancient India. Tamilakam covers present day states of Tamil Nadu, Kerala, Puducherry, Lakshadweep and southern parts of Andhra Pradesh and Karnataka. Traditional accounts and Tolkāppiyam referred to these territories as a single cultural area, where Tamil was the natural language and culture of all people. The ancient Tamil country was divided into kingdoms. The best known among them were the Cheras, Cholas, Pandyan and Pallavas. The Sangam period marked the spread of Tamil culture outside Tamilakam.

45. Ans. A.



The British Committee of the Indian National Congress was a committee established by the INC in 1889. The committee was set up to raise awareness regarding Indian issues among the public of Britain, to whom the Government of India was responsible. It followed the work of W.C. Bonnerjee and Dadabhoi Naoroji, who raised India related issues in the British parliament through the support of radical MPs like Charles Bradlaugh. William Wedderburn served as the first chairmanship and William Digby as secretary.

46. Ans. D.

The Dandi March was initiated by Mahatma Gandhi on March 12, 1930, from the Sabarmati Ashram. The movement had the following impacts on the Indian freedom struggle:

- * It marked an important stage in the progress of the freedom struggle.
- * Imports from Britain fell considerably. For example, imports of cloth from Britain had fallen by half.
- * It was more widespread than the previous movements. All sections of the Indian society including women, urban elements like merchants, shopkeepers, peasants, workers, students, provided legitimacy to Congress leadership.
- * The movement came to be supported by all strata of Indian society, the poor and the illiterate both in the town and countryside.
- * For Indian women, the movement was the most liberating experience to date and can truly be said to have marked their entry into the public space.

Kamaladevi Chattopadhyay was a member of the seven member lead team created by Mahatma Gandhi to prepare salt at the Bombay beachfront.

Kamaladevi and Avantikabai Gokhle were the only female members of this team.

Kamaladevi prepared the salt and went to a High Court judge to sell her "freedom salt" in protest. While trying to enter into the Bombay Stock Exchange to sell the "Freedom Salt", she was arrested and spent a year in prison.

This made her the first woman to be arrested in the Indian freedom struggle. She went on to become the president of Congress Socialist Party in 1936.



Even though Congress decided to withdraw the Civil Disobedience movement eventually in 1934, it received global attention and it was heavily documented by worldwide press.

In August 1931, Gandhiji travelled to the conference as the sole representative of the nationalist Indian National Congress. Although the meeting did not achieve any conclusion British leaders had acknowledged Gandhi as a force they could not suppress or ignore.

47. Ans. B.

In 1897, Swami Vivekananda founded the Ramakrishna Mission, 11 years after the death of his spiritual guru Ramakrishna Paramhansa, to carry out humanitarian and social work. To achieve its objective, the Mission opened various charitable schools, hospitals, orphanages, library etc in different parts of the country.

Swami Vivekananda was regarded by Subhash Chandra Bose as the 'spiritual father of the modern nationalist movement.'

The Paramhansa Mandali was founded by Dadoba Pandurang Tarkhadkar in 1849. It was the first reform organisation of 19th century Maharashtra. The chief objective of this Mandali was the demolition of all caste discrimination. The Mandali functioned as a secret society due to fear of facing the wrath of the orthodox sections.

In 1867, under the guidance of Keshab Chandra Sen, the Prarthana Samaj was set up in Bombay. Keshab Chandra Sen was a follower of the Brahmo Samaj established by Debendranath Tagore. The followers of Prarthana Samaj worked in the field of widow remarriage, women's education, raising the age of marriage for both men and women and denunciation of caste system.

48. Ans. D.

The Harappan script, which has not yet been deciphered has the following characteristics:

1. It is a symbolic script and not alphabetical. Different symbols and their combinations are used to convey meaning.
2. As of now, a total of about 375-400 symbols have been observed.
3. It is mostly written from right to left but at a few places, boustrophedon style of writing (written from right to left and from left to right in alternate lines) has been found.



The records found of Mesopotamian civilisation, dating back to 2350 BC have referred to trade relations with Meluha, which was the ancient name given to the Indus region.

The records also mention of two intermediate stops on the trade route called 'Dilmun' (later recognised as Bahrain on the Persian Gulf) and Makan (Makran Coast).

49. Ans. C.

The Treaty of Amritsar (1809) - signed between Ranjit Singh, the Sikh leader who founded the Sikh empire and the British East India Company.

This treaty is considered as the starting point of modern history for Kashmir. It came to be ruled by the Hindu Dogra rulers of Jammu.

For strategic and diplomatic reasons, Lord Minto concluded a treaty with Ranjit Singh at Amritsar in 1809 through Metcalf in order to check the Sikh advance beyond Sutlej.

Under the provisions of this treaty, the Sutlej was declared the boundary between the British East India Company and Maharaja Ranjit Singh.

50. Ans. A.

There was a rise of a faction within the INC after the withdrawal of Non-Cooperation Movement in 1921. It was during this period from 1922-29, there was a rising presence of Swarajists in the INC. The Swarajist were all members of the Swaraj Party which were operating within INC and they had declared a constitution for the party which proclaimed that Swarajists aimed to attain Swaraj, which meant the inclusion of Indians in the machinery of the government. They wanted to change the system by active participation in politics.

With this vision, they participated in the Central Legislative Assembly, which was at the time dominated by the British. The Swarajists slowly outnumbered the British and were able to elect Vithalbai J Patel as the first Indian President of the Central Legislative Assembly.

51. Ans. C.

In 1719, the Mughal emperor Muhammad Shah granted Shahu of Marathas the Chauth and sardeshmukhi rights over the six Deccan provinces in exchange for his maintaining a contingent of 15,000 troops for the emperor. This period was marked by the consistent decline in the power of the Mughals and the revenues from Chauth were in turn divided into four parts that went to various functionaries of the Maratha empire.



52. Ans. D.

Tulsidas has written the Ramcharitmanas. Apart from this, there are the five major works of the Tulsidas which are:

- * Dohavali: collection of at least 573 Dohas and Sorthas written in Braja and Awadhi.
- * Kavitavali: collection of Kavitas in Braja. It has seven books and many episodes.
- * Gitavali: collection of 328 Braja songs further sub-divided into seven books and all are of Hindustani classical music type.
- * Krishna Gitavali/Krishnavali: collection of 61 Braja songs devoted to Lord Krishna. Out of the total, 32 songs have been dedicated to the childhood and Rasa Lila of Krishna.
- * Vinaya Patrika: collection of 279 Braja stanzas. 43 hymns in the book are praise to the variety of deities, Rama's courtiers and attendants.

Other popularly recognized works of Tulsidas are:

- * Hanuman Chalisa
- * Sankatmochan Hanumanashtak
- * Hanuman Bahuka
- * Tulsi Satsai

53. Ans. C.

Development of Akbar's religious views and measures taken (in the chronological order):

- * Akbar stopped the practice of converting the prisoners of war to Islam (1562)
- * He abolished the pilgrimage tax (1563)
- * He abolished Jaziya which was a tax paid by Hindus while going on a pilgrimage journey (1564). He also established the Ibadat Khana or House of Worship in 1575.
- * He issued Infallibility Decree (1579)
- * He founded a new religion called Din-i-Ilahi (1581)

* He forbade the killing of animals on certain days (1583)

54. Ans. B.

Akbar used to host discussions on religion with the Ulemas, Brahmanas, Jesuit priests (both Roman Catholics and Zoroastrians).

During 1570s, one of these discussions took place during his stay at Fatehpur Sikri in the Ibadat Khana.

From here. Akbar came up with an idea known as 'sulh-i kul', which focused on a system of ethics – honesty, justice and peace.

Abul Fazl helped Akbar in framing a vision of governance around this idea of sulh-i kul, which was also followed by Jahangir and Shah Jahan as well.

55. Ans. D.

Pradhan Mantri Sahaj Bijli Har Ghar Yojana also known as the 'Saubhagya' scheme was launched in September 2017.

Under this scheme, free electricity connections to all households (both Above Poverty Line and Below Poverty Line families) in rural areas and poor families in urban areas will be provided.

Rural Electrification Corporation (REC) has been designated as the nodal agency for the Saubhagya scheme.

The scheme aims to achieve universal household electrification in all parts of the country.

56. Ans. C.

The Vittala Temple is one of the most-popular protected monuments at Hampi. There is a famed stone chariot inside the Vitthala Temple.

During the reign of Vijayanagar Empire, Hampi was the capital city, located in Bellary District of Karnataka.

Vittal Temple Complex is the finest example of Vijaynagar Temple Architecture.

Temples of Hampi are known for:

* large dimensions

* florid ornamentation



* bold and delicate carvings

* sturdy pillars with carvings from stories of the Ramayana and the Mahabharata

57. Ans. D.

In the 12th century AD, a new movement emerged in Karnataka, led by a Basavanna, who was a Brahmin by birth and a minister in the court of a Chalukya king.

His followers came to be known as Virashaivas or Lingayats. Some practices of Lingayats were:

1. They worshipped Shiva Linga and wore a small linga on their left shoulder.
2. They believed that on death, a devotee will be united with Shiva and will not return to the world. Therefore, they did not practice cremation. Instead, they buried their dead and also questioned the theory of rebirth.
3. They challenged the idea of caste and the association of 'pollution' to certain castes by the Brahmins. They also practice disapproved in the Dharmashastras.

58. Ans. D.

The Kandariya Mahadeo is the largest temple at Khajuraho, attributed to king Ganda.

These temples were made in the 10th century AD and are a part of the UNESCO World Heritage Site.

These temples were patronized by the Chandela rulers and are all made of sandstone.

59. Ans. B.

Kiratarjuniya is an epic poem composed by Bharavi, one of the court poets during the Gupta period. The poem is considered to be the most powerful and profound poem in Sanskrit.

Believed to have been composed in the 6th century or earlier, it consists of eighteen cantos describing the combat between Arjuna and Lord Shiva (in the guise of a kirāta, or "mountain-dwelling hunter") at Indrakeeladri Hills in present-day Vijayawada.



The Gupta period is known for the literary and cultural development of India. It is often called the Golden age of India. Gupta Kings patronized the Sanskrit literature. They generously helped Sanskrit scholars and poets.

60. Ans. C.

Alvar Saints

The Alvar saints were Tamil-poet saints, who were part of the medieval Bhakti and Sufi movements. They lived between 6th and 9th century AD and practiced 'emotional devotion' or bhakti towards lord Visnu-Krishna through their songs.

The collection of their hymns is known as Divya Prabandha. All the saints were male except one named Andal.

Nayanar Saints

The 63 Nayanars saints were the Shiva devotional poets, who lived between 5th and 10th centuries. One saint "Appar" is said to have converted Pallava King Mahendravarman to Saivism. The compilation of their poetry / literature Tirumurai. These 63 Nayanar saints, along with the 12 Alvars are known as South India's 75 Apostles of Bhakti movement.

Karaikal Ammaiyar, meaning "The Revered Mother of Karaikal", is one of the three women amongst the 63 Nayanmars and one of the greatest figures of early Tamil literature. She was born in Karaikal, South India, and lived during the 5th century AD. She was a devotee of Shiva.

Tamil Veda

There is varied opinion among the people of South India regarding which text is called the Tamil Veda. Depending on faith, these three books are considered as the Tamil Vedas:

- 1) Thirukkural, a secular book of 1,330 ethical sayings, by Valluvar, which is over 2,000 years old and of probable Jain origin.
- 2) Tirumurai, a twelve compilation of hymns dedicated to Lord Shiva, written by Nayanars. The first seven volumes of Tirumurai is called Thevaram.
- 3) Divya Prabandham, a compilation of 4,000 devotional hymns written by Vaishnavites, the Alvars. The book is over 1000 years old and the



songs are sung in Vaishnava shrines of South India and given preference over Sanskrit Vedic hymns.

61. Ans. A.

The Ministry of Petroleum & Natural Gas (MOPNG) has undertaken the Pratyaksh Hanstantrit Labh (PaHaL) scheme:

1. Aims to reduce diversion and eliminate duplicate or bogus LPG connections.
2. Under PaHaL, LPG cylinders are sold at market rates and entitled consumers get the subsidy directly into their bank accounts.

PAHAL scheme has been acknowledged as the world's largest cash transfer program (households) by the Guinness Book of World Records.

62. Ans. A.

The Satavahana dynasty came to power in the Deccan India during the 2nd century BC. They were a contemporary dynasty of the Kanva dynasty which ruled over Magadha.

The term "Satvahana" originated from the Prakrit which means "driven by seven" which is an implication of the Sun God's chariot that is driven by seven horses as per the Hindu mythology.

The first king of the Satavahana dynasty was Simuka and the kingdom was spread across the whole of present-day Maharashtra, parts of Karnataka, Chattisgarh, Odisha.

Sudarshan Lake is located in the middle of a hill called Girnaar in Saurashtra, Gujarat. It was repaired in around 150 AD by the Shaka ruler Rudradaman I. During the reign of Skandagupta (415-455 AD), the lake was repaired again by Skandgupta's governor Paramatta.

63. Ans. B.

The Dharmasutras and Dharmashastras contained rules about the ideal 'occupations' of the four categories or varnas.

- (i) Brahmanas were supposed to study and teach the Vedas, perform sacrifices and get sacrifices performed, give and receive gifts.
- (ii) Kshatriyas had the responsibility of warfare, protection of people, administration of justice and study of the Vedas.



(iii) The last three 'occupations' were also assigned to the Vaishyas, who were additionally expected to engage in agriculture, pastoralism and trade.

(iv) Shudras were assigned only on the occupation that of serving the three 'higher' varnas.

64. Ans. D.

S. No	Mahajanapada	Capital	Present-day location
1	Kasi	Varanasi	Benaras
2	Kosala	Sravasti	Ayodhya
3	Magadha	Rajagriha	South Bihar
4	Anga	Champa	East Bihar
5	Vajji	Vaisali	North Bihar
6	Malla	Pavapuri/Kusinagara	Gorakhpur
7	Chedi	Sukmitai	Bundhelkandh
8	Kambhoja	Rajpur	North East India
9	Gandhara	Taxila	Peshawar & Rawalpindi
10	Matsya	Viratnagara	Jaipur
11	Vatsa	Kausambhi	Allahabad
12	Kuru	Indraprastha	Meerut-Delhi
13	Panchala	Ahicchatra/Kampila	Uttar Pradesh
14	Avanti	Mahismati	Malwa
15	Surasena	Mathura	Mathura
16	Assaka	Pratisthana	Maharashtra

Kalinga does not find any mention in the texts belonging to the Mahajanapada period. It is assumed that

it was most probably a part of the Magadha empire and not a separate Mahajanapada.

65. Ans. B.

The Harappan Civilisation was an ancient civilisation that existed in the North-West region of the Indian subcontinent from circa 2500-1700 BC.

The most extensively used material for making seals was steatite, which is a kind of soft stone, which made engravings easier. Other materials used for seal making were terracotta, ivory, gold, agate etc.

It was a civilisation known for meticulous town planning:

- * Streets intersected at right angles
- * Drainage system covered with lids
- * Use of identical sized burnt bricks

The most extensively used metals were copper and bronze. Gold and silver were also used but for ornamental purposes, other materials were used. Although gold bangles and silver spittoons were found in excavations from Harappan Civilisation, they are not the most distinctive features of the civilisation.

66. Ans. B.

"Amphan", pronounced as "Um-pun", means sky. Thailand proposed this name in 2004.

The name was proposed in a list created by the World Meteorological Organisation/United Nations Economic and Social Commission for Asia and the Pacific (WMO/ESCAP). This list includes names recommended by India, Bangladesh, Myanmar, Pakistan, the Maldives, Oman, Sri Lanka and Thailand. Names from this list are used to name the Cyclones in Indo-Pacific region.

This was the last name in the list and now a new list will be created.

67. Ans. C.

The "Development of Solar Cities" scheme launched by the Ministry of New and Renewable Energy (MNRE) had envisaged the development of 60 Solar Cities including 13 Pilot and 5 Model Cities up to 12th Five-year Plan period (2012–2017).

Until now, a master plan for only 49 Solar Cities has been prepared. In 21 cities, Stake-holder Committees have been set up and in 37 cities, Solar City Cells have been set up.

The Scheme aims at reducing a minimum 10% in projected demand of conventional energy at end of five years, through a combination of enhancing supply from renewable energy sources in city and energy efficiency measures.

The scheme also aims to:

- * empower Urban Local Governments (ULBs) to address energy challenges at City-level.

* implement sustainable energy technology through PPP model(public-private partnerships).

68. Ans. C.

Indian Army	Indian Navy	Indian Air Force
General	Admiral	Air Chief Marshal
Lieutenant General	Vice Admiral	Air Marshal
Major General	Rear Admiral	Air Vice-Marshal
Brigadier	Commodore	Air Commodore
Colonel	Captain	Group Captain
Lieutenant Colonel	Commander	Wing Commander
Major	Lieutenant Commander	Squadron Leader
Captain	Lieutenant	Flight Lieutenant
Lieutenant	Sub-Lieutenant	Flying Officer

69. Ans. A.

Operation Sadbhavana is an initiative of the Indian Army to achieve sustainable peace.

Since the declaration of Jammu and Kashmir as a union territory, the Himalayan state has been on an informal insurgency. A feeling of neglect and lack of development have been at the core of this problem in border towns and villages, feelings of marginalization are widely prevalent.

The key result areas under Operation Sadbhavana are:

- * primary education
- * comprehensive health care
- * adult literacy and vocational training
- * enhancement of agricultural output
- * electrification of area and establishment of communication networks
- * adoption of villages for integrated development

- * empowerment of women
- * employment generation

70. Ans. C.

World Economic Forum's Global Energy Transition Index evaluates 115 countries based on their current performance in energy systems across economic development and growth, environmental sustainability and energy security and access indicators and their adaptability for secure, sustainable, affordable and inclusive energy systems.

In the 74th edition of the Index in 2020, Sweden ranked first for the third consecutive year, followed by Switzerland and Finland in the top three.

France (8th) and the UK (7th) are the only G20 countries in the top ten.

India has improved its performance by two ranks and landed the 74th with improvements in all three dimensions of the energy triangle namely:

- * Economic development and growth.
- * Energy access and security.
- * Environmental sustainability.

71. Ans. A.

India was requested by Maldives, Mauritius, Madagascar, Comoros and Seychelles to assist in mitigating the Covid-19 pandemic.

To help these countries, India sent INS Kesari, stocked with food items and medical assistance teams. This was a part of India's "Mission Sagar (Security and Growth for All in the Region)" initiative.

SAGAR was launched in 2015 as a strategic vision for cooperation with the countries in the Indian Ocean Region (IOR). Through SAGAR, India seeks to establish deeper economic and security bonds with maritime neighbours and help in enhancing its maritime capabilities.

72. Ans. C.

May 11th of each year is celebrated as the National Technology Day to cherish the achievements of

scientists and engineers in their respective fields.

Since 1999, the Technology Development Board (TDB) observes the day by awarding those technological innovations which have added to the national growth. Each year, the board also declares a theme for the event. The theme for 2020 – RESTART(Rebooting the Economy through Science, Technology and Research Translations).

73. Ans. A.

The Fed Cup Heart Award is an award ceremony started by the International Tennis Federation to recognise those Fed Cup players who:

- * Have represented their countries with distinction.
- * Have shown exceptional courage on the court.
- * Have demonstrated outstanding commitment to the ideals of the competition.

Sania won the award for Asia/Oceania zone after securing a whopping 10,000 plus votes out of the total 16,985 casts for this year's three regional Group I nominees. She beat Indonesia's 16-year-old Priska Madelyn Nugroho for this category & received the award for her successful return to the court after becoming a mother.

74. Ans. B.

Dr. Rajendra Prasad was the President of the Constituent Assembly. It was comprised for the purpose of drafting & adopting a constitution.

The Constituent Assembly held its first-ever meeting on 9th December 1946. Dr. Sachchidanand Sinha, the oldest member, was then elected as the temporary President of the Assembly.

Later, on 11th December 1946, Dr. Rajendra Prasad & H C Mukherjee were elected as the President & Vice-President of the Assembly respectively.

75. Ans. A.

The election of the Speaker of Lok Sabha is not conducted by the Election Commission of India. The speaker is elected usually in the first meeting of the Lok Sabha following the general elections. Serving for a period of five years, the speaker chosen from sitting members of the Lok Sabha, and is by convention a member of the ruling party/alliance.

The Lok Sabha Speaker is one of the members of Parliament. He or she takes the oath along with other members by the pro-tem Speaker. There is no separate oath of affirmation is administered to him/her. Technically

speaking speaker doesn't take any oath alone like President & Prime Minister of the country.

As per Article 100, The Chairman/Speaker, or person acting as such, shall not vote in the first instance itself, but shall have and he/she exercise a casting vote in the case of an equality of votes.

76. Ans. A.

The financial committee has overall 22 members. All the members are taken from the Parliament of India. Among the 22 members, 15 are elected from Lok Sabha and 7 members are elected from Rajya Sabha.

Every member elected by the Indian Parliament from both Lok Sabha & Rajya Sabha are a part of the committee for a year. After the completion of year, a new election takes place and members are changed/re-elected. Similar to that of Estimates Committee, a minister can't be elected as the member of the Public Accounts Committee.

Lok Sabha speaker has the power to appoint the chairman of the committee. The Chairman of the PAC (Public Accounts Committee) used to be appointed from the ruling party of the day until 1966-67 although; a convention later decided that the chairman of the committee will be appointed invariably from that of the opposition party.

77. Ans. B.

Article 145 describes the resolution for removal for Speaker or Deputy Speaker

(1) A member wishing to provide a notice if a resolution under clause (c) of Article 179 of the Constitution, for the removal of the Speaker/the Deputy Speaker shall do so in writing to the Secretary.

(2) On receipt of a notice under the sub-rule (1) a motion for leave to move the resolution shall be entered, in the list of business in the name of the member concerned, on a particular day fixed by the Speaker given that the day so fixed shall be any day after 14 days from the date of the receipt of notice of the resolution.

78. Ans. A.

South Africa is the African nation that occupies the most southern part of Africa. It is surrounded by Botswana, Mozambique, Swaziland, Namibia, and Zimbabwe and it surrounds the small Kingdom of Lesotho. South Africa possess a coastline on both the South Atlantic Ocean in west & the Indian Ocean in east.



79. Ans. D.

Average annual precipitation of some places in India:

Place	State	Inches	Millimetres
Agra	Uttar Pradesh	27.4	695
Prayagraj	Uttar Pradesh	37.7	958
Shimla	Himachal Pradesh	60.6	1540
Dehradun	Uttarakhand	87.4	2220
Chandigarh	Chandigarh	41.9	1063
Guwahati	Assam	67.8	1722
Indore	Madhya Pradesh	41.8	1062
Raipur	Chhattisgarh	51.9	1319
Lucknow	Uttar Pradesh	38.6	979
Patna	Bihar	43.9	1116
New Delhi	Delhi	31.1	790
Bengaluru	Karnataka	35.6	906
Chennai	Tamil Nadu	60.7	1541
Hyderabad	Telangana	31.6	803
Varanasi	Uttar Pradesh	40.3	1023

80. Ans. A.

According to Koppen's climatic classifications of India, Great Northern plains are represented by Cwg climate.

Below is the Koeppen climatic classification:



Group	Type	Letter Code	Characteristics
A-Tropical Humid Climate	Tropical Wet	Af	No dry season
	Tropical Monsoon	Am	Monsoonal, Short dry season
	Tropical wet & dry	Aw	Winter dry season
B-Dry Climate	Subtropical Steppe	BSh	Low-latitude semi-arid or dry
	Subtropical Desert	BWh	Low-latitude arid or dry
	Mid-latitude Steppe	BSk	Mid-latitude semi-arid or dry
	Mid-latitude Desert	BWk	Mid-latitude arid or dry
C-Warm temperate Climates	Humid subtropical	Cfa	No dry season
	Mediterranean	Cs	Dry hot summer
	Marine west coast	Cfb	No dry season, warm & cool summer
D- Cold Snow-forest Climates	Humid Continental Subarctic	Df	No dry season, severe winter
		Dw	Winter dry & very severe
E-Cold climates	Tundra	ET	No true summer
	Polar ice cap	EF	Perennial ice
H-highland	Highland	H	Highland with the snow cover

81. Ans. B.

Statement 1 and 2 is correct, i.e., river cauvery has well-developed valley and valley of river alakananda is still in process of growing.

- The river Godavari is the largest river system of the Peninsular India and then is revered as Dakshina Ganga.
- The Godavari basin extends over states of Andhra Pradesh, Maharashtra, Chhattisgarh & Odisha in addition to smaller parts in Karnataka, Madhya Pradesh, and Union territory of Puducherry having a total area of approx. 3 lakh Sq.km.
- The river Krishna is the second largest east flowing Peninsular River which get rises near Mahabaleshwar in Sahyadri.

82. Ans. B.

Mahogany is chiefly found in the tropical rain forest & tropical moist deciduous forest, in Central America, Mexico & South America. The Rain forest is found in the coastal plains of the Gulf of Mexico region; in the Sierra Madre range in Chiapas of Mexico; and in the Caribbean coast across the Pacific coast in Central America.

Chaparral is found in areas with a climate similar to that of the Mediterranean area, which is characterized by hot, dry summers & mild, wet winters.



Mosses & lichens are mostly found in tundra vegetation. The climatic environment of tundra, which doesn't exceed 10°C in the summer season, which makes it difficult for plants to survive, therefore lichens are of great importance.

Bamboo, teak, sal, shisham, sandalwood, khair, kusum, arjun and mulberry are some of the significant species of moist deciduous forests.

83. Ans. C.

Speaker is the presiding officer of the lower house. There is a deputy speaker also and a panel of ten chairpersons for the Lok Sabha, i.e. lower house nominated by the speaker from amongst Lok Sabha member of parliament to preside if both are absent.

It denotes the members of Lok Sabha nominated by Lok Sabha Speaker to fill the post of Speaker/Deputy Speaker in their absence. These members are from various political parties, generally as per their numbers in the house. One important point to note here is this provision is limited to absence only and not at all for vacant post. The vacancy would mean death, resignation/removal and in this case the President would nominate one member for such role.

For how much time a member of Panel of Chairperson can preside:

- Till the time Speaker or Deputy Speaker absent.
- Till the time a new panel of chairpersons gets nominated. In this case someone from the fresh panel would hold office.

84. Ans. D.

On the dissolution of the Lok Sabha, although the Speaker ceases to be a member of the House, he/she does not vacate his/her Office. The Speaker may, at any time, resign from Office by writing under his/her hand to the Deputy Speaker. The Speaker can be removed from Office only on a resolution of the House passed by a majority of all the then members of the House.

Such a resolution has to satisfy some conditions like: it should be specific with respect to the charges and it should not contain arguments, inferences, ironical expressions, imputations or defamatory statements, etc. Not only these, discussions should be confined to charges referred to in the resolution. It is also mandatory to give a minimum of 14 days' notice of the intention to move the resolution.

85. Ans. B.



As per the Delimitation Commission of India and subject to Article 333 of the Constitution of India, the maximum number of members that a State Legislative Assembly may have are 500.

Under Article 333 of the Constitution, the total number of Anglo-Indians, who may be nominated to the State Legislative Assemblies, is left to the Governor's discretion. This amendment will not although affect representation of the Anglo-Indian community in the existing Legislative Assemblies until their dissolution.

86. Ans. B.

An ecotone is a transition area among the two biomes. It is an area where two communities meet and integrate. It may be narrow/wide, and it may be local (i.e. the zone between a field and forest) or regional (i.e. the transition between forest & grassland ecosystems).

Ecocline (i.e. ecological gradient) is a Gradation from one ecosystem to another when there is no sharp boundary among the two. It is the joint expression of associated community (i.e. coenocline) and complex environmental gradients.

Ecotopes are the smallest ecologically unique landscape features in a landscape mapping & classification system.

87. Ans. B.

The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an int. agreement which targets to ensure the safe handling, transport and use of LMOs (Living Modified Organisms) resulting from modern biotechnology which may have adverse effects on biological diversity, taking also into account risks to human health. It was adopted on 29th January 2000 and entered into force on 11th September 2003.

88. Ans. A.

The Shifting Cultivation is known by different name in different countries. Below are some:

- Ladang in Indonesia
- Caingin in Philippines
- Milpa in central America and Mexico
- Ray in Vietnam
- Taungya in Myanmar



- Tamrai in Thailand
- Chena in Sri Lanka
- Conuco in Venezuela
- Roca in Brazil
- Masole in central Africa
- In India, it is known by several local names. Most common among these is 'Jhum' cultivation.

89. Ans. C.

Article 123 of the Constitution empowers the President to promulgate ordinances during the recess of the Parliament. (The ordinances are temporary laws having the effect of an act.)

The President can issue ordinance when one of the houses is not in session. The maximum validity of an ordinance is six months & six weeks. An ordinance will expire after six weeks once both houses are in session. A constitutional amendment can't be made through ordinance route.

90. Ans. C.

Both statement 1 and 3 are correct, i.e., Even in the sphere (State List) exclusively reserved for the States, Parliament can legislate under certain circumstances and A resolution supported by two- thirds of the members present and voting is required to be passed by Rajya Sabha to pass a law under the State List.

The Parliament may make laws on the subjects mentioned in the State List in the following circumstances:

- As per Article 249 of Indian Constitution, when a resolution is passed by the Rajya Sabha by 2/3 majority making it lawful for the Parliament to legislate on a subject mentioned in the State List in national interest.

- As per Article 250 of Indian Constitution, when a proclamation of emergency is in operation, the Parliament has the power to make laws for the whole or any part of India on any of the matters stated in the State List.

- As per Article 252 of Indian Constitution, when two or more States give their consent and then pass resolutions for the same in their respective Legislatures to provide the Parliament to make a law on any matter listed



in the State List. Any such type of law will be applicable to only those States which have passed such resolution, not to all states.

91. Ans. B.

The Indian Constitution provides for a three-fold distribution of legislative subjects among the Union and the states, viz., List-I (includes the Union List), List-II (includes the State List) and List-III (includes the Concurrent List) in the Seventh Schedule. The Parliament has exclusive powers to make laws regarding any of the matters enumerated in the Union List.

The Union Parliament & the State Legislature, notwithstanding anything under clause 3 and even clause 1, is empowered to legislate on any matters comprised in the Concurrent List.

A jurisdiction made under the Concurrent List by Parliament should be ratified by not just $\frac{1}{2}$ of the State Legislatures so as to become a law of the country.

Both, the Parliament & state legislature can make laws with respect to any of the matters enumerated in the Concurrent List. In United States, only the powers of the Federal Government are enumerated in the Constitution, whereas the residuary powers are left to the states.

92. Ans. A.

Article 260 describes that the GoI may by agreement with the govt. of any territory not being part of the territory of India undertake any executive, legislative/judicial functions vested in the govt. of such territory, but every such agreement shall be subject to, and governed by, any law relating to the exercise of foreign jurisdiction for the time being in force.

Article 258A describes that power of the States to entrust functions to the Union. Notwithstanding anything in the Indian Constitution, the Governor of a State may, with the consent of the GoI, entrust either conditionally/unconditionally to that Government or to its officer's functions in relation to any incident to which the executive power of the State extends.

Article 257 (2) describes that the executive power of the Union shall also extend to the giving of directions to a State as to the maintenance and construction of means of communication declared in the direction to be of national/military importance.

The Governor may, with consent of GoI, entrust its officers with functions on matters which fall within the state's executive power.



93. Ans. C.

Vittala Temple or Vitthala Temple in Hampi is an ancient monument that is well-known for its exceptional architecture and unmatched craftsmanship. It is considered to be one of the largest and the most famous structure in Hampi. The temple is located in the north eastern part of Hampi, near the banks of the Tungabhadra River.

94. Ans. C.

Both the statement 2 & 3, i.e., a state may devolve powers to Panchayats in preparation of plans/economic development and social justice and also a state may devolve powers to Panchayats in implementation of schemes for economic development & social justice.

Statement 1 is incorrect because Article 243-G of the Indian Constitution provides that the States or UTs may, by law, endow the Panchayats with such powers & authority as may be compulsory to enable them to perform as institutions of self-government and to prepare plans for economic development & social justice and their implementation.

95. Ans. B.

Below are the Rights of the Attorney General of India:

- In the performance of his duties, he/she has right of audience in all courts in the Indian territory.
- He/she has the right to speak or to take part in the proceedings of both the parliament houses and their joint sittings, but without a right to vote.
- He/she has the right to speak or to take part in any committees' meeting of the Parliament of which he is named as a member, but without a right to vote.
- He/she enjoys all the privileges and immunities that are available to a member of parliament.

Following mentioned are the Limitations placed on the Attorney General of India:

- He/she should not advise or hold a brief against the GoI.
- He/she should not defend accused persons in criminal cases without the permission of the GoI.
- He/she should not accept appointment as a director in any company without the permission of govt.



- It should be noted that the Attorney General is not debarred from private legal practice. He/she is not a govt. servant as he is not paid fixed salary and his remuneration is decided by the Indian president.

96. Ans. A.

The idea of social justice needed that equal treatment be supplemented with principle of proportionality, due & equal consideration is given to all individuals as well as equality of treatment be transcended to recognise special needs.

The social justice is a political and philosophical theory which contends that there are dimensions to the phenomenon of justice beyond those embodied in the principles of civil/criminal law, economic supply & demand, or traditional moral frameworks.

The historically and in theory, the idea of social justice is that all sections of people should have equal access to wealth, health, justice, well-being, privileges, and opportunity regardless of their legal, political, economic, or other circumstances.

97. Ans. D.

Features of Money Bills:

- The Money Bill can be introduced only in the Lok Sabha.
- The Money bill is placed in Rajya Sabha thereafter and Rajya Sabha can return the Bill with/without its recommendations.
- In any case, the Money Bill has to be returned within a period of fourteen days from the date of its receipt by Rajya Sabha. If not, it is deemed to have been passed by both Houses of parliament at the expiration of the said period in the manner in which it was passed by Lok Sabha.
- If the Money bill is returned to Lok Sabha without any recommendation, a message to that effect is reported by the Lok Sabha's Secretary-General if in session, or it get published in the Bulletin for the information of the MPs, if it is not in session. The Bill shall then be presented to the President for his assent.
- If the Money bill is returned to the Lok Sabha with constitutional amendments it has to be put on the Table of the House and taken up for consideration.



- If the lower house, i.e., Lok Sabha accepts any constitutional amendments as recommended by the Rajya Sabha, the Bill shall be adjudged to have been passed by both the Houses with the amendments recommended by the Rajya Sabha and accepted by the Lok Sabha and a report to that effect has to be sent to the Rajya Sabha.
- If Lok Sabha doesn't accept the recommendations of the Rajya Sabha, the Money Bill shall be deemed to have been passed by both the Houses of parliament in the form in which it was passed by the Lok Sabha without any kind of amendments as recommended by the Rajya Sabha.

98. Ans. B.

The CoMs (Council of Ministers) remains in office as long as it relishes the confidence of Lok Sabha as per Article 75(3) of the Indian Constitution. To ascertain this confidence, the rules provide for moving a motion to this effect which is known as No-Confidence motion.

The Censure motion can be moved against the CoMs or an individual minister for their failure of commission/omission. Whereas a motion of no-confidence need not specify any specific grounds on which it is based, a Censure Motion should set out the grounds or charges on which it is based and is moved for particular purpose for censuring the government for certain policies & actions.

A motion of no-confidence once professed has to be taken up within 10 days of the leave being granted. No leave of the House is needed to move a Censure motion.

The Rajya Sabha is not empowered to consider a motion of no-confidence as the government is collectively responsible under the Indian Constitution only to the directly elected Lok Sabha. A censure motion may be moved in Lok Sabha or in a state assembly.

99. Ans. C.

सिंगापुर को पोर्ट ऑफ कॉल के रूप में जाना जाता है क्योंकि यह मुख्य समुद्री मार्ग पर है जहां जहाज ईंधन भरने, पानी और खाद्य पदार्थों को लेने के लिए लंगर का उपयोग करते हैं।

19 वीं शताब्दी में समग्र समुद्री व्यापार में वृद्धि होने के कारण, सिंगापुर समुद्री मार्गों में नौकायन और भाप के जहाजों के लिए एक महत्वपूर्ण बंदरगाह बन गया।

100. Ans. A.

Poljes may be defined as depressions in limestone karst. They generally occur as large-scale landforms in tectonically active karst areas. Their



origin is usually polygenetic. The Polje is the largest karst landform in size. A distinctive polje subtype, the 'turlough', occurs in various formerly glaciated/glacial-margin terrains. The Poljes exhibit complex hydrological & hydrogeological features and characteristics, like permanent & temporary springs and rivers, losing and sinking rivers, and swallow holes & estavelles.

The Poljes are regularly flooded in the cold & wet periods of the year. The determination of the catchment section for a karst polje is an unreliable procedure because of unknown morphology of underground karst features.

101. Ans. C.

The region surrounding the Mediterranean Sea encompasses portions of three continents, i.e., Europe & its southern peninsulas to the north, south-western Asia to the east, and the Maghreb region of northern Africa to the south.

Altogether, it is a densely populated region with a complex political history involving several different ethnic groups. This has result in a complex and patchy political map.

At present 21 countries, with surface areas ranging from 2 Km² to 2.4 million km², have coastlines on the Mediterranean Sea. They are Albania, Bosnia and Herzegovina, Algeria, Cyprus, Croatia, Egypt, France, Israel, Italy, Malta, Greece, Lebanon, Monaco, Libya, Morocco, Slovenia, Spain, Montenegro, Syria, Tunisia, and Turkey.

102. Ans. B.

Five sectors alone account for 60 per cent of the total stressed assets on the books of banks in the country.

These sectors are:

- Infrastructure
- Industrial
- Steel
- Power
- Telecom

103. Ans. C.



The mobile phone operators market in India is an example of oligopoly.

Various purchases that individuals make at the retail level which are produced in markets that are neither perfectly competitive, monopolies, nor monopolistically competitive. Instead, they are oligopolies. The oligopoly arises when a minimum number of large firms have all or most of the sales in an industry. Some examples of oligopoly abound and include the cable television, auto industry, and commercial air travel. The oligopolistic firms are like cats in a bag. They may either scratch each other to pieces/cuddle up & get comfortable with one another.

104. Ans. D.

The Administered prices are prices of goods lay by the internal pricing structures of firms that take into account cost rather than via the market forces of supply & demand and predicted by classical economics. Some examples of administered prices include price controls & rent controls.

The market price is the present price at which an asset/service can be bought or sold. The market price of an asset/service is determined by the forces of supply & demand. The price at which the particular quantity supplied equals quantity demanded is the market price.

The Price controls are often imposed to maintain the affordability of specific goods and to prevent price gouging during shortages (i.e. of gasoline, for example). The Rent control & stabilization are used to limit rent rises in certain cities.

In economics, a price support can be either a subsidy, a production quota, or via a price control, each with the targeted effect of keeping the market price of a good higher than that of the competitive equilibrium level. A Support price scheme can also be an agreement set in order by the govt., where the govt. agrees to purchase the surplus of at a minimum price. For instance, if a price floor were put in place for agricultural wheat commodities, the govt. would be forced to purchase the resulting surplus from that of the wheat farmers (thus subsidizing the farmers) & store or otherwise dispose of it.

105. Ans. B.

The phenomenon of the "invisible hand" was explained by Adam Smith in his classic foundational work in 1776, "An Inquiry into the Nature & Causes of the Wealth of Nations." It mentioned to the indirect or unintended benefits for society which result from the operations of a free market economy.



The Adam Smith's "laissez-faire," or free-market, theories are primarily supported by the supply-side Milton Friedman school of economic thought. Those particular theories stand in contrast to the 19th century demand-side Keynesian economic theories which became increasingly predominant in shaping the economic policies of western govt. (s) since the 1930s & the Great Depression.

106. Ans. C.

The HDI (Human Development Index) is a statistical tool used to calculate a country's overall achievement in its social & economic dimensions. The social & economic dimensions of a nation are based on the health of people, their education attainment level and their standard of living.

The calculation of the index unifies four major indicators:

- Life expectancy for health,
- expected years of schooling,
- mean of years of schooling for education, and
- Gross National Income per capita for standard of living.

Every year UNDP ranks countries based on the HDI report released in their yearly report. The HDI is one of the best way to keep track of the level of development of a nation, as it combines all the major social & economic indicators that are responsible for economic development.

107. Ans. A.

Eligibility criteria for Mini-ratna Status of CPSEs: The CPSEs which have made profits in the past three years continuously and have a positive net worth are eligible to be considered for grant of Miniratna status.

The Miniratnas are categorised in two categories. They are:

- * Category I: It includes Mini-ratnas that have made profits for the past three years continuously or earned a net profit of Rs. 30 Cr. or more in one of these three years. There are in overall 60 such companies.
- * Category II: It includes Mini-ratnas that have made profits continuously for the past three years and must have a positive net worth. There are in overall 15 such companies in this category.

Below are some Miniratnas in category I & II:



Miniratna Category - I PSEs	Miniratna Category - II PSEs
Company Name	Company Name
Airports Authority of India	Artificial Limbs Manufacturing Corporation of India
Antrix Corporation Limited	Bharat Pumps & Compressors Limited
Balmer Lawrie & Co. Limited	Broadcast Engineering Consultants (I) Limited
BEML Limited	Central Mine Planning & Design Institute Limited
Bharat Coking Coal Limited	Central Railside Warehouse Company Limited
Bharat Dynamics Limited	Engineering Projects (India) Limited
Bharat Sanchar Nigam Limited	FCI Aravali Gypsum & Minerals India Limited
Ed.CIL (India) Limited	Ferro Scrap Nigam Limited
Garden Reach Shipbuilders & Engineers Limited	HMT (International) Limited
Goa Shipyard Limited	Indian Medicines & Pharmaceuticals Corporation Limited
Hindustan Copper Limited	M E C O N Limited
Hindustan Newsprint Limited	Mineral Exploration Corporation Limited

108. Ans. A.

A pluralist democracy resembles a political system where there is more than one centre of power. The modern democracies are by definition pluralist because democracies allow freedom of association. Although, pluralism may exist without democracy. It has the capacity of class to ensure Governmental responsiveness code.

The People's democracy is a multi-class authority or rule in which the proletariat dominates, i.e., Social equality through a common ownership of wealth.

The Elitist democracy resembles that a small minority, comprising of members of the economic elite & policy-planning networks, holds the most power and also this power is independent of democratic elections.

As per Macpherson & Dunn to J. S. Mill democracy was a very powerful mechanism of moral self-development and harmonious expansion of individual capacities. We are therefore in a possession of two elements of development which includes one is moral self-development and the other is development of individual capacities.

109. Ans. C.

The Socialism is a populist economic & political system based on public ownership (even known as collective/common ownership) of the means of production. The Socialists contend that shared resource's ownership and central planning gives a more equal distribution of goods & services and a more equitable society.



110. Ans. B.

The state's governor can use his or her discretionary powers in the below conditions:

- When no party attains a clear majority, the governor has discretion to opt a candidate for CM (Chief Minister) who will put together a majority coalition as soon as possible.
- The governor can impose president's rule.
- The governor can submit reports on his own to the President or on the President's direction of the regarding the affairs of the state.
- The governor can withhold his assent to a bill and send it to the president for his approval.
- During an emergency rule per Article 353, governor can override the advice of the CoMs (Council of Ministers) if specifically permitted by the president.

111. Ans. D.

The Part IVA of Indian Constitution deals with Fundamental Duties (FDs). Presently, there are 11 FDs. Originally, the Constitution of India didn't contain these duties. The FDs were added by 42nd and 86th Constitutional Amendment acts.

The Indian Constitution prescribes certain FDs which are basic moral obligations on the citizens. One of the FD listed is to safeguard public property & to abjure violence. Though FDs are non-enforceable, it is the responsibility of every citizen to preserve public places in order to fulfil this moral duty.

FDs are not enforceable through courts but fundamental rights (FRs) are enforceable through the Supreme Court under Article 32 of the Indian Constitution and the High Court has the power to issue writs for the enforcement of the FRs under Article 226. The FDs and the DPSP (Directive Principles of State Policy) that are provided in Part IV of the Constitution are taken into account by the Courts whereas interpreting the FRs or any restrictions that are imposed on such rights.

The courts may use FDs for determining constitutionality of law. If any law is challenged in the court for its constitutional validity and if that particular law is providing force to any of the FDs then that law will be held reasonable.



112. Ans. D.

Under the premiership of Congress leader Indira Gandhi, the Green Revolution within the country commenced in the year 1966, leading to a raise in food grain production, majorly in Punjab, Haryana, & Uttar Pradesh. Major milestones in this process were the development of high-yielding wheat varieties, and rust resistant strains of wheat.

In case of Punjab, where it was first introduced, the Green Revolution led to critical increases in the state's agricultural output, supporting country's overall economy. By the year 1970, Punjab was producing 70 per cent of the country's total food grains, and incomes of the farmer were increasing by over 70 per cent. The prosperity of Punjab following the Green Revolution became a role-model to which other states aspired to reach.

113. Ans. D.

Other than tobacco, all three, wheat, paddy and sugar are included to estimate food inflation in India.

Most food items, such as, cereals, pulses, milk, fruits & vegetables, meat-fish-eggs (i.e. MFE) and sugar exhibited higher avg. rates of inflation when compared to overall WPI inflation during the latter period. The avg. inflation rates for pulses & MFE were even higher than that of the composite food WPI inflation during the period.

114. Ans. A.

1.33 is the price elasticity of demand for samosa by kumar.

The price elasticity of demand is calculated as % change in quantity divided by the % change in price.

$$e(p) = (dQ/Q)/(Dp/p)$$

where,

$e(p)$ = price elasticity

Q = quantity of demanded good

P = price of demanded good

115. Ans. A.

The PLFS, (which was launched by the NSSO (National Sample Survey Organisation) in the year 2017), suggests that job market conditions in the nation are more worrisome than what the headline numbers reveal.

As per PLFS (Periodic Labour Force Survey) 2017-18, 6.1 per cent of India's labour force, and 17.8 per cent of young people (I.e. 15 to 29 years) in the labour force are unemployed.

The data also shows that the proportion of the workforce engaged in regular wage or salaried jobs increased by 5% points between 2011-12 (it was when the last NSSO employment unemployment survey was conducted) & 2017-18.

The median daily earnings were higher for men & women in regular jobs, as compared to casual work and self-employment.

Across division of the workforce, wages & earnings were higher in urban areas compared to rural areas, and for men than for women.

About 15 per cent of regular workers were engaged in elementary occupations like building caretakers, garbage collectors & manual workers.

The median earnings in elementary occupations is accompanied by service workers & those engaged in skilled agricultural work & fisheries (i.e. median earnings of Rs. 8000 per month for both sets of workers).

Regular jobs are significant and in high demand globally as they tend to offer better pay & job security.

About 71 per cent of the regular workers in the non-agricultural sector didn't have a written job contract in the year 2017-18.

There was a 5.8% points decline in the proportion of regular workers who were not eligible for any kind of social security benefits between 2011-12 & 2017-18.

116. Ans. B.

The 2011 census has categorised the working population of India into four major categories:

- Cultivators
- Agricultural labourers – 54.6%
- Household labourers – 3.8%
- Other workers – 41.6%

117. Ans. A.



The Dards are a class of Indo-Aryan peoples found predominantly in northern Pakistan, north-western India & eastern Afghanistan. This group speak Dardic languages, which belong to the Indo-Aryan family of the Indo-European languages.

The largest populations of Dards are present in Gilgit-Baltistan & Khyber Pakhtunkhwa, Pakistan and in the Kashmir & Chenab Valley in India. There are smaller populations present in Ladakh in India & in eastern Afghanistan also. The Kashmiri people currently are the largest Dardic group, with a population of more than 5.5 million.

118. Ans. D.

The Acacia trees have long roots so that the trees may survive in dry climate. Its long roots penetrate out deep into the soil in search of water.

The Sharp, threatening thorns protect acacias precious leaves from that of herbivorous (i.e. plant-eating) animals. They require these thorns in the dry atmosphere where they grow. When it rarely precipitates, losing the water in one's leaves can be a death sentence. This is quite common strategy for desert plants.

The Acacia tree is an evergreen tree which grows between to 1 to 30 m tall, with a trunk up to 12 m long & 50 cm in diameter. The trunk is crooked & the bark vertically fissured. The roots are shallow & spreading. It has a dense foliage with an open, spreading crown which gives the foliage to absorb the maximum Sunlight. The leaves 10 to 16 cm long and 1.5 to 2.5 cm wide with 3 to 8 parallel nerves, thick, leathery & curved.

119. Ans. D.

From the tourism to marine recreation & sport fishing, coral reefs play an essential role in the economies of countries all around the globe. As per one estimate, coral reefs provide economic goods & services worth about USD 375 billion each year.

The Individuals polyps of hermatypic corals secrete calcium carbonate (i.e. limestone) skeletons which, in time develop coral reefs. Thus, hermatypic corals are even known as reef building corals.

The coral reefs can act as a natural barrier against extreme storms and help prevent loss of life and property as well as erosion. The coral reefs can effectively protect shorelines due to their ability to cause waves to break off offshore, therefore, limiting the energy impacting the coastline.

The earthquake results in damage to coral reefs was more severe when compared to damage cause by the tsunami. For example, in



26th December 2004 earthquake & tsunami results in serious damage to the coral reefs & other marine living organisms.

120. Ans. A.

The Sand Spits are long narrow beaches of sand/shingle that are attached to the land at one end. They extend around a bay, an estuary or at place where the coastline changes direction. They are usually formed by longshore drift in one dominant direction. At the beach's end, the material being carried by longshore drift is deposited. At a river estuary, the spit's growth also causes the river to drop its sediment. This happens mainly on the landward side (i.e. rather than the seaward side) of the spit and salt marshes may develop. The wind and waves may curve the end of the spit towards the land.

121. Ans. A.

The births & deaths are natural causes of change in population. The difference among the birth rate and the death rate of a nation or place is known as the natural increase. The natural rise is calculated by subtracting the death rate from that of the birth rate.

Natural increase = Birth rate - Death rate

The rate of natural increase is given as a % which is calculated by dividing the natural increase by 10. For instance, if the birth rate is 14 per 1,000 population, and the death rate is 8 per 1000 population, then the natural increase is equal to $14 - 8 = 6$, i.e., $6/1000$, which is equal to 0.6%.

122. Ans. D.

MSME stands for Micro, Small & Medium Enterprises. In a developing country such as India, MSME industries are the economy's backbone.

The MSME sector contributes to 45 per cent of India's TIE (Total Industrial Employment), 50 per cent of India's Total Exports and 95 per cent of all industrial units of the nation and more than 6000 kinds of products are manufactured in these industries. When these particular industries grow the country's economy grows as a whole & flourishes as well. These industries are even known as small-scale industries or SSI's.

123. Ans. B.

Corporation Tax has the largest contribution to the Gross Tax Revenue of Government of India in 2019-20 (BE).



For every rupee in the govt. coffers, 68 paise will come from direct & indirect taxes whereas states' share of taxes & duties is the single-largest expense head accounting for 23% of total spending, as per the budget.

As per the Budget for 2019-20 presented in Parliament, Goods & Services Tax collections contributed 19 paise in every rupee revenue.

Corporation tax is the single largest income source, contributing 21 paise to each rupee earned.

The collection from borrowings & other liabilities will be 20 paise whereas income tax will yield 16 paise to every rupee collection.

124. Ans. B.

- Growing of two or more crops in a definite row pattern is called as inter cropping.
- Inter cropping is a crop cultivation technique where two or more different kind of crops are cultivated combinedly in the same field but following a specific pattern, such as planting in rows.
- The seeds of these several varieties of crops are sown in rows which follows the specific pattern but they are not combined at the time of sowing.
- The specific needs of each crop such as fertilizer, pesticide etc. are catered to individually and not as a whole.
- This technique doesn't lead to competition between the crops and thus yields more production.

125. Ans. D.

The wide majority of the minerals which make up the rocks of Earth's crust are silicate minerals. These involve minerals like quartz, feldspar, mica, amphibole, zeolite, pyroxene, olivine, and a great variety of clay minerals.

Bauxite is not a naturally occurring mineral. It is a heterogeneous material comprised primarily of one or more aluminum hydroxide minerals plus several mixtures of silica, titania, iron oxide, and other impurities in trace amounts.

The Feldspars are combination of potassium alumino-silicate ($K_2O \cdot Al_2O_3 \cdot 6SiO_2$) & sodium alumino-silicate, even known as albite ($Na_2O \cdot Al_2O_3 \cdot 6SiO_2$). The Feldspars are naturally occurring substances, it is because of



this reason the ratio between the potash (K_2O) & the soda (Na_2O) will vary somewhat.

The Zeolites naturally occur & are comprised of aluminum complexed with silicate-containing minerals. Most of the commonly found natural zeolites are produced by alterations that occur when in contact with fresh or sea water in volcanic rocks.

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