Q1. C

The T cells are a part of the immune system that focuses on specific foreign particles. Rather than generically attack any antigens, the T cells circulate until they encounter their specific antigen. As such, the T cells play a critical part in immunity to the foreign substances. **The most common context of T cells is within infectious diseases,** but they are used for other aspects of adaptive immunity too. This includes responses to allergens and tumors. They maintain immune homeostasis in the humans over decades, but can also be responsible for inflammatory or auto-immune diseases. **The T cells originate in the bone marrow,** but are matured in the thymus. However, they are not activated until they find their specific antigen. They bind to this antigen on the surface of the antigen-presenting cells (APCs).

Q2. C

Article 3 of the Constitution of India authorizes the Parliament to:

a) form a new State by separation of territory from any State or by uniting two or more States or parts of States or by uniting any territory to a part of any State,
b) increase the area of any State,
c) diminish the area of any State,
d) alter the boundaries of any State, and
e) alter the name of any State.

However, Article 3 lays down two conditions in this regard:

1. **A Bill contemplating the above changes can be introduced in the Parliament only with the prior recommendation of the President;**
2. **Before recommending the Bill, the President has to refer the same to the State Legislature concerned for expressing its views within a specified period.**

The President (or the Parliament) is not bound by the views of the State Legislature and may either accept or reject them, even if the views are received in time. Further, it is not necessary to make a fresh reference to the State Legislature every time an amendment to the Bill is moved and accepted in the Parliament.

Hence both the statements are correct..

Q3. D

Statement 1: It made the Governor-General of Bengal as the Governor-General of India and vested in him all civil and military powers. Thus, the act created, for the first time, a Government of India having authority over the entire territorial area possessed by the British in India. It thus deprived the governor of Bombay and Madras of their legislative powers. **The Governor- General of India was given exclusive legislative powers for the entire British India.**

Statement 2: The Charter Act of 1833 attempted to **introduce a system of open competition** for selection of civil servants, and stated that the Indians should not be debarred from holding any place, office and employment under the Company. However, this provision was negated after opposition from the Court of Directors.

Q4. B ONLY 1 AND 3 ARE CORRECT

Q5. A

Biosphere is a part of the earth where life can exist. Biosphere represents a highly integrated and interacting zone comprising of atmosphere (air), hydrosphere (water) and lithosphere (land). It is a narrow layer around the surface of the earth. If we visualize the earth to be the size of an apple the biosphere would be as thick as its skin.

The energy required for the life within the biosphere usually comes from the sun. But, Chemosynthetic bacteria are organisms that use inorganic molecules as a source of energy and convert them into organic substances. They do not need sunlight for their survival. Chemosynthetic bacteria, unlike plants, obtain their energy from the oxidation of inorganic molecules, rather than photosynthesis. Chemosynthetic bacteria use inorganic molecules, such as ammonia, molecular hydrogen, sulfur, hydrogen sulfide and ferrous iron to produce the organic compounds needed for their subsistence.

Most chemosynthetic bacteria live in environments where sunlight is unable to penetrate and which are considered inhospitable to most known organisms.

Q6. (a)

Statement 1 is not correct but Statement 3 is correct: Kanishka I became the great patron of **Mahayana** Buddhism. He sponsored the **fourth Buddhist council** during his reign to discuss matters relating to Buddhist theology and doctrine. The **doctrines of the Mahayana form of Buddhism were finalized at the council.** Missionary activity was given an impetus and during his period Buddhist monks started traveling to Central Asia and to China. **Kanishka was also a patron of art and Sanskrit literature.**

Statement 2 is not correct: Mahayana Buddhism encouraged Buddha's worship as a god in human form. As a result a large number of Buddha images were built in different regions. In **Hinayana Buddhism, certain things associated with the Buddha were worshiped as his symbols.** These were **replaced with his images at the time** when the Christian era began. Image worship started with Buddhism but was followed on a large scale in Brahmanism.

Q7. B ONLY 1 AND 2 ARE CORRECT

The International Solar Alliance (ISA) was launched jointly by the Prime Minister of India and the President of France during COP21 in Paris.

The ISA is a treaty based inter- governmental organization, working to create a global market system to tap the benefits of solar power and promote clean energy applications. With 75 signatory countries in this global collective, the ISA creates a multi-stakeholder ecosystem, where sovereign nations, multilateral organizations, industry, policymakers and innovators work together to promote the common and shared goal of meeting energy demands of a secure and sustainable world.

The Paris Declaration, that established the ISA, states that the countries share the collective ambition to undertake innovative and concerted efforts to reduce the cost of finance and technology for the deployment of ISA solar generation assets. The ISA aims to pave the way for future solar generation, storage and technologies for the member countries' needs by mobilizing over USD 1,000 billion by 2030. The achievement of the ISA's objectives will also strengthen the climate action in the member countries, helping them fulfil the commitments expressed in their Nationally Determined Contributions (NDCs). **The ISA's vision to enable 'One World, One Sun, One Grid'.**

Q8. Ans: (a)

Statement 1 is correct: The first Saka King in India was Maues or Moga, who established Saka power in Gandhara. Maues is known from a series of coins and also from inscriptions, one of which contains a date. A dated copper plate inscription discovered in Taxila records the establishment of the relics of Buddha in a Stupa during the period of Maues.

Statement 2 is not correct: The tradition of **Vikram Samvat did not begin with the defeat of the king of Ujjain by a Saka ruler.** Instead, it began when the **king of Ujjain effectively fought against the Shakas and succeeded in driving them out during his reign**. He called himself

Vikramaditya, and an era called Vikrama Samvat is reckoned from his victory over the Shakas in 57 BC.

Q9. b

Statement 1 is incorrect. Unlike South India which usually have elaborate boundary walls or gateways North India Nagara style, it is common for an entire temple to be built on a stone platform with steps leading up to it. There is not much focus on gateways and boundary walls.

Statement 2 is correct. Entrance to the North Indian temple's garbhagriha, it would be usual to find images such as mithunas and the river goddesses, Ganga and Yamuna, in the south you will generally find sculptures of fierce dvarapalas or the door-keepers guarding the temple.

Statement 3 is correct. The North Indian idea of multiple shikharas rising together as a cluster was not popular in South India. At some of the most sacred temples in South India, the main temple in which the garbhagriha is situated has, in fact, one of the smallest towers. This is because it is usually the oldest part of the temple.

Q10. c

Rights guaranteed by "The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act of 2006" –

- **Title rights:** The ownership to the land that is being farmed by the tribals or the forest dwellers, subject to a maximum of 4 hectares. The ownership is only for the land that is actually being cultivated by the concerned family, meaning that no new lands are granted.
- **Use rights:** To minor forest produce (also including ownership), to grazing areas, to pastoralist routes, etc.
- **Relief and development rights**
- To rehabilitation in case of illegal eviction or forced displacement
- And to basic amenities, subject to the restrictions for forest protection.
- Forest management rights
- To protect forests and wildlife.

Q11. A

Option (a) is correct. A presidential form of government ensures stability of the government because the President remains in office for a fixed term and is not dependent on the legislature for continuing in office. Hence, the policies continue uninterrupted for a fixed period, that is, till the end of its full term.

Option (b) is incorrect. In the Presidential system, the executive, legislature and judiciary are independent of each other. This separation of power contributes to checks and balances in the system. However, despite strict separation, there are inherent conflicts between the legislature and the executive. If the legislature is dominated by the same party to which the President belongs, a "strong President" may prevent any contrary move from the legislature. On the other hand, if the President and legislature have different political affiliations, there would be discord in governance and not harmony.

Option (c) is incorrect. A presidential system of government centralizes power in one individual unlike the parliamentary system, where the Prime Minister is the first among equals. The concentration of power and authority on a single individual may lead to autocracy.

Option (d) is incorrect. In the Presidential system, the President is the head of the State and also the head of the Government. The cabinet appointed by the President is responsible only to him and can be removed by him at any time. The President is not responsible to the legislature, for

example, in the United States, the President and his secretaries are not responsible to the Congress for their acts. They neither possess membership in the Congress nor attend its sessions.

Q12. D

Answer-(d)

Context: Recently, the Ministry of Finance proposed changes to Rule 11UA in respect of Angel Tax.

Statement 1 is not correct: The term **"Angel Tax,"** which was first used in 2012, describes a tax imposed on money raised **by unlisted businesses**. Concept of Angel tax was introduced by then finance minister in union budget 2012, to curb money laundering of funds in India economy. 'Angel Tax' refers to section 56 (2) (viib) of the Indian Income Tax Act, 1961, wherein the Income Tax Authorities are challenging additional taxes from Start-up Companies who have received financial support from Indian Angel Investors at a valuation higher than what can be ascertained for an early stage start-up venture.

Statement 2 is not correct: The **Ministry of Finance** informed **foreign firms** that they will be exempted from the tax laws and recommended adjustments to the way **angel taxes** are calculated. **Therefore, not only Indian firms, but the foreign firms are also excluded.**

Q13. B ONLY 1 AND 3 ARE CORRECT

Statement 1: Nitrous oxide emissions occur naturally through many sources associated with the nitrogen cycle, which is the natural circulation of nitrogen among the atmosphere, plants, animals, and microorganisms that live in soil and water.

Statement 2: Nitrous oxide is actually removed from the atmosphere when it is absorbed by certain types of bacteria or destroyed by ultraviolet radiation or chemical reactions. **So, 2 is wrong**.

Statement 3: A natural source of nitrogen oxides occurs from a lightning stroke. The very high temperature in the vicinity of a lightning bolt causes the gases oxygen and nitrogen in the air to react to form nitric oxide. The nitric oxide very quickly reacts with more oxygen to form nitrogen dioxide.

Q14. D

Structural reforms address the fundamental weaknesses of an economy. For e.g. an economy might have too much state control. So, easing government regulation and promoting ease of doing business may be a structural reform. Some other such structural reforms can be:

- Attempting higher participation of private capital—Indian and foreign
- Increasing aggregate supply in the economy by addressing supply side issues.
- Improving administration of Subsidies
- Investment Infrastructure, for e.g. addressing power sector woes in India
- Fiscal Consolidation and Financial Inclusion

Such reforms improve macroeconomic performance and ensure sustainable economic growth.

Q15. -(b)

Pair 1 is not correctly matched: Over the rocky beds of hill-streams more or less **circular depressions called potholes** form because of **stream erosion** aided by the abrasion of rock fragments.

Pair 2 is correctly matched: When waves break over a gently sloping sedimentary coast, the coastal deposition leads to building bars, barrier bars, spits and lagoons. An off-shore bar which is exposed due to further addition of sand is termed a barrier bar. The off-shore bars and barriers commonly form across the mouth of a river or at the entrance of a bay. Sometimes such barrier bars get keyed up to one end of the bay when they are **called spits.**

Pair 3 is correctly matched: Fluvial or river deposition develops a floodplain just as erosion makes valleys. Natural levees are found along the banks of large rivers. They are low, linear and parallel ridges of coarse deposits along the banks of rivers, quite often cut into individual mounds.

Pair 4 is not correctly matched: Sinkholes are very common in limestone/karst areas. A sinkhole is an opening more or less circular at the top and funnel-shaped towards the bottom with sizes varying in area from a few sq. m to a hectare and with depth from a less than half a metre to thirty metres or more.

Q16. C

The Melghat Tiger Reserve is a typical representative of the Central Indian Highland forming a part of the Biogeographic Zone '6 E-Deccan Peninsula'– Central Highlands. This area constitutes forests which are part of the world's fifth biologically richest heritage country. **The Reserve forms an important corridor between the forest areas of Madhya Pradesh and Maharashtra, ensuring contiguity of forests in the Satpuras.** It beholds one of the viable populations of tigers. The Melghat, nestling in the Satpura hill ranges of Central India's vast tracts of inviolate natural forests, consisting of unique and representative ecosystems with rich biodiversity and varied habitats offered by deep valleys (locally known as the Khoras) and high hills (locally known as the Ballas), daunted with rivers and nallahs having water all the year round in the 'Doh', was the natural choice for the community of the foresters in Maharashtra, when it came to choose an area for preserving it for posterity and for ensuring that the 'Tiger', the most magnificent and flagship of the Indian wild species, could sustain a viable population and survive for the eternity. The fascinating landscape, its enchanting beauty and richness leave everlasting imprints on the people visiting the area. **The Melghat Tiger Reserve is one of the earliest 9 Tiger Reserves established by the Government of India and is the first Tiger Reserve to be declared in the state of Maharashtra**. It came into being in 1974. **The Reserve forms a very important catchment to the Tapi and the Purna river systems,** with important tributaries, like the Dolar, the Khandu, the Sipna, the Gadga, the Khapra and the Wan Rivers. The Chandrabhaga River, which originates from Chikhaldara, has its watershed in the Reserve. The basic life support systems that the area beholds in terms ofconserving soil, water and clean air, it serves as life-line for the people of Amravati and Akola districts.

Q17. C

Statement 1 is correct. During his reign, Balban ruled with an iron fist. He broke up the 'Chahalgani', a group of the forty most important nobles in the court because he himself once was part of Chahalgani and thus feel threatened by it.

Statement 2 is correct. He started Iranian method Sijda and Paibos to the sultan in India. He also introduced the Persian festival Navroz.

Q18. A

(**Source: India - Resources and Regional Development** [Old NCERT - Hard Copy], Page - 110)

Nearly two-thirds of the total area of Japan is forested. The most popular species of trees are **sugi** or **Japanese cedar**, **hinoki** or **Japanese cyprus**, and **akamatsu** or **Japanese red pine**. These forests provide building materials such as timber and pulp for paper production.

Q19. D

Statement 1 is incorrect. Under Chola administration every village was a self- governing unit. A number of such villages constituted a Korram or nadu or Kottam in different parts of the country. Taniyur was a large village big enough to be a Kurram by itself.

Statement 2 is incorrect. Vetti (forced labour) system consisted of work performed by lower castes at the will of the landlord. Manigramam and valanjiyar were some of merchant guilds who used to control trade.

Q20. b

Statement 1 is correct. Unlike single-humped camels found in Rajasthan and other parts of India, Bactrian camels in Hunder have two humps and joyride on these camels would be a memorable experience in the Himalaya with a difference.

Statement 2 is correct. The two humps store fat, which can be converted to energy when sustenance is not available. As the fat depletes, the humps become floppy and flabby. The camel's body is covered with thick brown hair which is shed during the summer months. These camels rarely sweat, helping them conserve fluids for longer durations.

Statement 3 is incorrect. In the valley of Nubra The road from Diskit to Hunder, which falls along the historic Silk Route, winds through sand dunes where one can spot Bactrian camels. It is one of the two surviving species of camels, they are a critically endangered subspecies with very few of them left in the wild. These shaggy camels with a coat of thick hair have double humps on them. These tuff beasts are the natives of Central Asia. After the closure of the Silk Route, most of the camels were let off into the wild. **Most of them have been tamed and are being used for domestic work and to ferry tourists to the villages of diskit and hunder.**

Q21. D

Prime Minister inaugurated Param Shivay Supercomputer of 833 teraflop capacity built under National Supercomputing Mission at IIT BHU. The National Supercomputing mission is an important initiative of Government of India. It supports the vision of the government's Digital India and Make in India and it will also play an important role in keeping India in the forefront of the world's supercomputing map. Under this project, the Center for Development of Advanced Computing (C-DAC) has developed the first supercomputer Param Shivay of 833 teraflop capacities under the chain of NSM. Uses of Param Shivay would be in the areas like Climate assessment, weather forecasting, space engineering, seismic analysis, finance, disaster simulation and management, search astrophysics, macro-data analytics, information collection. India's first supercomputer called PARAM 8000 was launched in 1991. At present, Indian Institute of Tropical Meteorology has Pratyush, National Centre for Medium Range Weather Forecasting has Mihir and IISc has SERC- Cray as supercomputers in India.

Q22. B

Statement 1 is incorrect. Bhadrabahu was an exponent of Digambara sect and he moved to Karnataka along with his disciples after predicting a long famine.

Statement 2 is correct. Digambara Jains believe that women can't be tirthankaras and that 19th Tirthankar Mallinath was a man. But Svetambaras believe that Mallinath was a woman.

Statement 3 is correct. Svetambaras trace their practices and dress code to the teachings of Parshvanatha, the 23rd tirthankara, which they believe taught only four restraints (a claim, scholars say are confirmed by the ancient Buddhist texts that discuss Jaina monastic life). Mahavira taught five vows, which Digambara follow. The Digambara sect disagrees with the Svetambaras interpretations and reject the theory of difference in Parshvanatha and Mahavira's teachings.

Q23. A

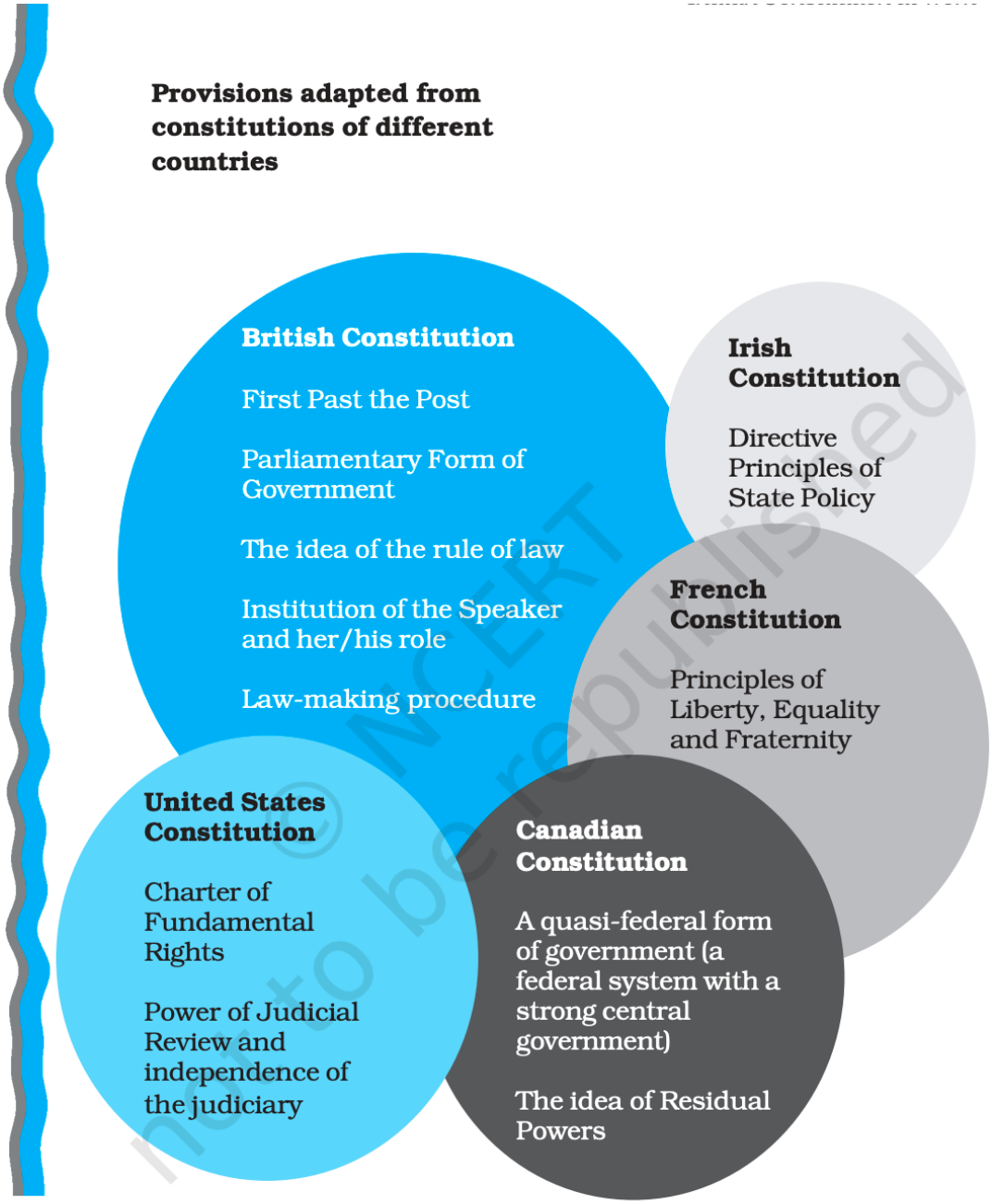
- The Financial Action Task Force (FATF) was established in 1989 by the Group of Seven (G-7) Summit in Paris, initially to examine and develop the measures to **combat money laundering.**
- In 2001, the FATF expanded its mandate to incorporate efforts to combat **terrorist financing, in addition to money laundering.** In 2012, it added efforts to counter the financing of proliferation of **weapons of mass destruction.**
- The objectives of the FATF are to set standards and promote effective implementation of legal, regulatory and operational measures for combating money laundering, terrorist financing and other related threats to the integrity of the international financial system.
- Currently, North Korea and Iran are under its Black List.

Q24. - (b)

The First Past the Post System, Parliamentary form of government, **the idea of rule of law, institution of Speaker** and his/her role and the law making procedure are some of the provisions that have been borrowed from the British Constitution.

Power of Judicial Review and Independence of Judiciary have been adapted from the US Constitution.

Directive Principles of State Policy have been taken from the Irish Constitution.



Q25. A

If we want to have more of something, we will have less of the other thing. Say with a fixed space in your belly, you can only eat 500g of food. You can stuff yourself with 200g of Pizza and then a 300g of Calzone, or 100g of cheese cake and 400g of Tofu fried rice, but there is always a cost involved, where you are trading off more of a good (food here) for other. So, if you want to eat more cheesecake, it comes at a cost of having to forego eating Tofu fried rice. This is known as the opportunity cost of an additional unit of the goods.

Statement 1: Every economy has to choose one of the many possibilities that it has. In other words, one of the central problems of the economy is to choose from one of the many production possibilities. If the consumers start demanding more of the other good, say Pizza, the demand for

calzone and thus its price would go down. The opportunity cost of eating more Pizza would be lower now because Calzone is valued lesser than previously.

Statement 2: Note that the concept of opportunity cost is applicable to the individual as well as the society. Wherever there is a choice and cost involved, the concept of opportunity cost would apply.

Q26. A

The first amendment to the Indian Constitution added the Ninth Schedule to it. The First Amendment that brought in Articles 31A and 31B conferring upon the state the right to make laws to acquire private property and to deem such laws as not being discriminatory and to further protect all such laws from any judicial review by creating something called the Ninth Schedule. **In a landmark ruling on 11 January 2007, the Supreme Court of India ruled that all laws (including those in the Ninth Schedule) would be open to Judicial Review if they violated the basic structure of the constitution**. If laws put in the Ninth Schedule abridge or abrogate fundamental rights resulting in violation of the basic structure of the constitution, such laws need to be invalidated. The Supreme Court judgment laid that the laws placed under Ninth Schedule after April 24, 1973 shall be open to challenge in court if they violated fundamental rights guaranteed under Article 14, 19, 20 and 21 of the Constitution.

Q27. D

Philosophy of the Bomb was written by Bhagwati Chandra Vohra, Chandrasekhar Azad and Yashpal.

Q28. A

Statement 1 is incorrect: Network for Certification and Conservation of Forests (NCCF) is a non-profit organization, registered as a Society.

Statement 2 is incorrect: It was not formed under United Nations.

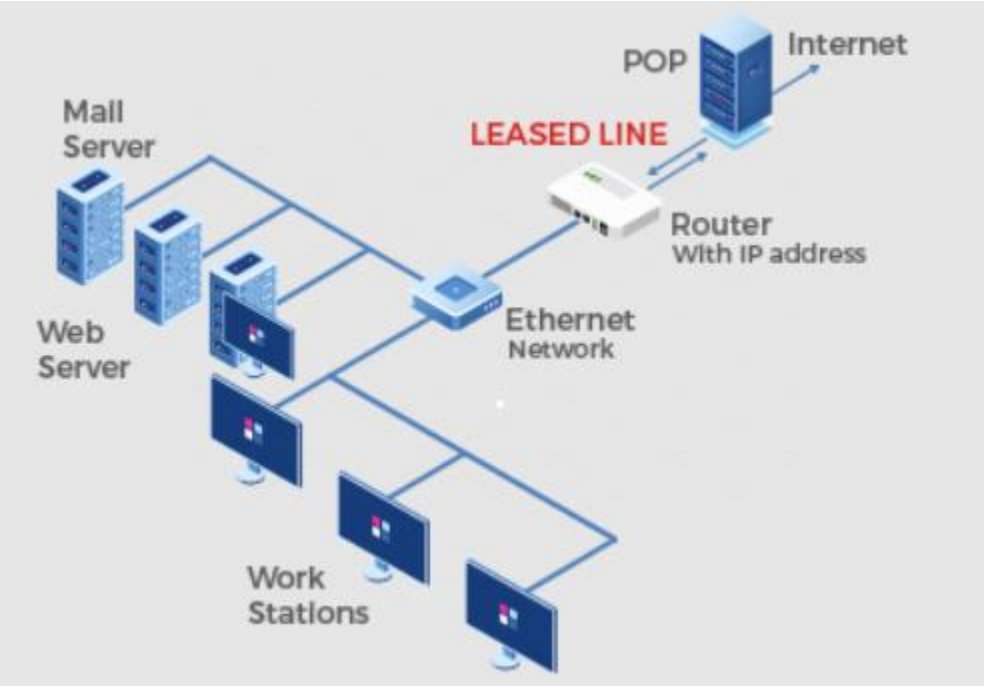
Statement 3 is correct: NCCF is working towards developing national sustainability certification standards in diverse areas of natural resource management, majorly forestry, trees outside forests, protected areas and wetlands, non-wood forest products, quality planting material, ecotourism, biofuels, sustainable mining and water quality etc. and also engaged in policy advocacy and diverse conservation activities. It has a globally aligned certification program developed within India.

Q29. A

Santhal revolt was a revolt against the oppression of the colonial rule propagated through a distorted revenue system, enforced by the local zamindars, the police and the courts of the legal system set up by the British. Role of Christian missionaries was a factor in Munda revolt, not in Santhal revolt.

Q30. : a

Statement 1 is not correct and Statement 3 is correct: A leased line is an **exclusive, allocated, and dedicated data connection or internet with a fixed bandwidth which is not shared between several people or businesses.** It provides **symmetrical speeds for uploads and downloads**. It enables data-driven businesses to connect to the internet in a secure, reliable, and highly efficient manner, with maximum upload and download speeds, resilience, and uptime. Leased lines often have speeds ranging from 1 Mbps to 10 Gbps.



Statement 2 is not correct: A **'leased line'** is a connection that is leased directly from an internet leased line service provider (ISP) to a business, providing service beyond what standard broadband offers. **It is an allocated circuit between two points of communication. It is always switched on and rented for a monthly charge or according to the service provider's terms.** They are different from traditional telecommunications technologies, which use and reuse the circuit by switching. They establish a continuous tunnel between the two communication points, allowing data to flow continuously.

A data center facility that houses multiple tenant computing servers and equipment is typically referred to as a **Colocation Data Centre** or simply a Colocation facility. In such a setup, multiple businesses or organizations rent space within the data center to house their servers, networking equipment, and other hardware.

Q31. C

The following States and Union Territories have one seat each in the Lok Sabha

- Mizoram
- Nagaland
- Sikkim
- Andaman and Nicobar Islands
- Chandigarh
- Dadra and Nagar Haveli
- Daman and Diu
- Lakshadweep
- Pondicherry

Population is the basis of allocation of seats of the Lok Sabha. As far as possible, every State gets representation in the Lok Sabha in proportion to its population as per census figures.

Q32. B

Global warming potential (GWP) is a measure of how much heat a greenhouse gas traps in the atmosphere up to a specific time horizon, relative to carbon dioxide. The GWP depends on the following factors:

- The absorption of infrared radiation by a given species
- The spectral location of its absorbing wavelengths
- The atmospheric lifetime of the species thus, a high GWP correlates with a large infrared absorption and a long atmospheric lifetime.

A substance's GWP depends on the timespan over which the potential is calculated. A gas which is quickly removed from the atmosphere may initially have a large effect, but for longer time periods, as it has been removed, it becomes less important. Thus methane has a potential of 34 over 100 years but 86 over 20 years; conversely sulphur hexafluoride has a GWP of 22,800 over 100 years but 16,300 over 20 years (IPCC Third Assessment Report). Carbon dioxide has a GWP of exactly 1. The substances subject to restrictions under the Kyoto protocol are either rapidly increasing their concentrations in Earth's atmosphere or have a large GWP. Because the GWP of a GHG depends directly on the infra- red spectrum of that species, the use of infrared spectroscopy to identify GHGs is centrally important in the effort to understand the impact of human activities on global climate change.

Q33. B

Explanation:

Statement 1 is correct: Ozone occurs in two layers of the atmosphere. The layer closest to the Earth's surface is the troposphere. There is **'good' ozone**; this ozone is found in the **upper part of the atmosphere** called the **stratosphere**, and it acts as a shield absorbing ultraviolet radiation from the sun.

Statement 2 is not correct: Ground level or **"bad" ozone** is an air pollutant that is harmful to breathe and it damages crops, trees and other vegetation. Bad ozone is found in the **lower stratosphere.**

Statement 3 is correct: UV rays are highly injurious to living organisms since **DNA and proteins of living organisms** preferentially absorb UV rays, and its high energy breaks the chemical bonds within these molecules.

Ozone is thermodynamically **unstable and decomposes** to molecular oxygen. Thus, a dynamic equilibrium exists between the production and decomposition of ozone molecules.

Q34. : a

Explanation:

During the nuclear fission reaction in the nuclear power plants, neutrons leak out (escape) from the surface of the fissionable material (Nuclear fuel), are absorbed by the nuclei of non fissionable atoms within the material (used to control the reaction), or are involved in further fission reactions. Neutrons that escape from fissionable material or that are absorbed by non-fissionable nuclei will be **lost without causing a fission.** When more neutrons are lost than are produced in the fission process, the reaction is not self-sustaining. Fissionable material in this condition is said to be in a safe or **Subcritical Condition.**

If the fission process continues so that the neutron production rate becomes equal to the neutron loss rate, a controlled chain reaction is achieved. The condition of the fissionable material in this case is critical and this state of the nuclear reactor is called **'Nuclear Criticality'** where precise control of neutrons is possible**.**

When more neutrons are being produced than are lost, the condition is supercritical and this state of the nuclear reactor is called a **Criticality Accident.**

Q35. A

The khāliṣah, the territory whose revenues accrued directly to the sultan's own treasury, was expanded significantly, enabling the sultan to pay a much larger number of his soldiers and cavalry troops in cash. Through these measures the sultan struck hard at all the others—his officials and the local rural potentates—who shared economic and political power with him.

Q36. D

NFC is a standards-based technology used to provide short range wireless connectivity technology that carry secure two-way interactions between electronic devices. Communications are established in a simple way, not requiring set up by users as in the case of many other wireless communications. NFC near field communication provides contactless communication up to distances of about 4 or 5 centimeters. As no physical connectors are used with NFC near field communication, the connection is more reliable and does not suffer problems of contact wear, corrosion and dirt experienced by systems using physical connectors.

Applications of Near Field Communication

1. **Smart Cards.** Payment using NFC integrated smart cards offers easier payment compared to conventional multiple step payment process. Top payment services like Visa and MasterCard are offering NFC embedded smart cards to customers. NFC integrated smart cards can be used for fast payments at grocery shops, parking tickets, adding shopping points, redeem coupons with just a single tap of the card. Ease of payment is because the contactless card need not be inserted in the slot of the point of sale (PoS) terminal devices. In PoS devices that have contactless payment facility, all the customer needs to do is take the card/ smartphone near the reading device and the payment is done. The whole payment process takes about three seconds. The Reserve Bank of India has ruled that for transactions below Rs 2,000, no PIN has to be entered.
2. **E-wallet (payment using smart phone).** Using smartphone applications, payments can be made using a simple tap or waving the card within the proximity. Service providers can integrate payment option into smartphones using an NFC tag embedded inside the device. Apple pay, Google wallet (Android pay) and Samsung pay are the most popular among smartphone payment systems. Data transfer using smart device are possible using NFC technology like Android beam. Two users can share documents, photos, resumes and business cards by just waving their smartphone.
3. **Smart Ticketing.** Smart chips can be used to replace traditional ticketing systems with smart tickets for airlines, train and bus tickets etc... NFC tags can be used for Smart posters,

movie tickets, and tickets to concerts, advertisements, flyers and information links. Customers will be able to access a reserved area or activate tickets by just tapping NFC tags located at assigned location. More information can be found by just scanning the smart tag.

4. **Medicine and Healthcare**. NFC integrated system can be used in medicine and healthcare activities. NFC offers greater accuracy and convenience in prescribing medicine, easier check-in, payments, checking status of patients, tracking records by embedding NFC tags to patient's charts. NFC integrated devices can be easily paired and configured. Medical professionals can easily check schedules and access medical devices and equipments.
5. **Manufacturing Smart tags** are used in modern manufacturing industries to identify each product from it's different process stages within the company, packaging, transportation and tracking of products during shipment. Unique identification numbers allow manufacturers to efficiently manage products in case of return during the warranty period for replacement, service and maintenance.
6. **Logistics and Shipping.** NFC and RFID tags can be conveniently used in logistics and shipping industry. Tracking and scanning of goods using smart tags make the system smart, errorless and efficient.
7. **Smart Inventory Management Retail shops** and large scale super markets can make use of smart RFID tags for better management of inventories in their system. Smart inventory management software can give a real- time update on product details for customers, items in their inventory stock and it could trigger automatic order if a particular item has low quantity.

Q37. C

Option (c) - Seshanchalam, Agasthyamalai, Nilgiri, is the correct .

Seshachalam Biosphere Reserve, is situated in the Seshanchalam hills in the southern part of the Eastren Ghats, covering an area of 4,755.99 sq km in the districts of Chittoor and Kadapa of Andhra Pradesh. It was designated as a Biosphere Reserve in 2010. It has large reserves of red sandalwood. The Nilgiri Biosphere Reserve encompasses 5,520 km2 in the states of Tamil Nadu, Karnataka and Kerala. It forms an almost complete ring around the Nilgiri Pleatue. The biosphere lies between 10°50′N and 12°16′N latitude. Agathyamalai Biosphere Reserve straddles the border of Pathanamthitta, Kollam and Thiruvananthapuram districts in Kerala and Tirunelveli and Kanyakumari districts in Tamil Nadu, South India at the southern end of the Western Ghats. The Biosphere lies between 8° 8' to 9° 10' North Latitude.

Q38. -(C)

Statement 1 is correct: The GTI report is produced by the Institute for Economics & Peace (IEP) using data from TerrorismTracker and other sources. TerrorismTracker provides event records on terrorist attacks since 1 January 2007.

Statement 2 is correct: Violent conflict remains the primary driver of terrorism, with over 88 percent of attacks and 98 percent of terrorism deaths in 2022 taking place in countries in conflict. All ten countries most impacted by terrorism in 2022 were also involved in an armed conflict. Attacks in countries involved in conflict are seven times deadlier than attacks in peaceful countries.

Statement 3 is correct: Despite being in the top 25 of the most affected countries by the index, India only dropped one place from 12th to 13th place from last year. War and terrorism were not the main concerns for the safety of Indians.

Q39. B

Statement 1 and 3 are correct. Kathakali is a blend of dance, music and acting and dramatizes stories, which are mostly adapted from the Indian epics. Kathakali draws its themes from epics and Puranas and it presents the eternal conflict between good and evil in a grand manner.

Statement 2 is incorrect. Many musical instruments are used in Kathakali. Three major drums found are Maddalam (barrel shaped), Centa (cylindrical drum played with curved sticks) and Itaykka (Idakka, hourglass shaped drum.

Q40. A

Tropical Evergreen forests are found in the western slope of the Western Ghats, hills of the north-eastern region and the Andaman and Nicobar Islands. They are found in warm and humid areas with an annual precipitation of over 200 cm and mean annual temperature above 22C. Tropical evergreen forests are well stratified, with layers closer to the ground and are covered with shrubs and creepers, with short structured trees followed by tall variety of trees. In these forests, trees reach great heights up to 60 m or above. There is no definite time for trees to shed their leaves, flowering and fruition. As such these forests appear green all the year round. Species found in these forests include rosewood, mahogony, aini, ebony, etc.

Q41. -(c)

The representative revolutionary terrorists of northern India met at Feroz Shah Kotla Ground in Delhi on 9th and 10th September, 1928. They accepted Socialism as their official goal and changed the name of the party Hindustan Socialist Republican Association (Army) (HSRA). The leadership of the HSRA was rapidly moving towards the idea of mass-based armed struggle and away from individual heroic action. But when Lala Lajpat Rai, one of the greatest of nationalist leaders, died as a result of a brutal lathi-charge when he was leading an anti-Simon Commission demonstration at Lahore on 30 October, 1928, the angry and romantic youth felt that it was necessary to avenge this grave insult to the nation. This compelled them to take recourse once again to the earlier practice of individual assassination. And so, **on 17th December, 1928, Bhagat Singh, Chandrashekhar Azad and Rajguru assassinated John Saunders, a police official involved in the lathi-charge.**

Q42. C

When farm loans get waived there will be more disposal income with farmers which will increase their private consumption and govt. expenditure will increase because it will need to spend money for waiving off farm debts.

Q43. B

Office of Profit mainly aims at ensuring separation of power between executive and legislature. Thus, statement b is correct. In Parliamentary democracy it is the duty of the legislature to keep executive under check. If legislatures are appointed in various post then this function will be diluted. It is to maintain independence of legislature and not of executive. Thus statement (c) is incorrect. Statement (a) and (d) are incorrect as it has nothing to do with limited post nor with workload.

Q44. C 1, 2 and 3 is the correct .

The basic objectives that should govern the National Forest Policy are the following:

- Maintenance of environmental stability through preservation and, where necessary, restoration of the ecological balance that has been adversely disturbed by serous depletion of the forests of the country.
- **Conserving the natural heritage of the country by preserving the remaining natural forests with the vast variety of flora and fauna, which represent the remarkable biological diversity and genetic resources of the country.**

- **Checking soil erosion and denudation in the catchments areas of rivers, lakes, reservoirs in the "interest of soil and water conservation, for mitigating floods and droughts and for the retardation of siltation of reservoirs.**
- **Checking the extension of sand-dunes in the desert areas of Rajasthan and along the coastal tracts**.
- Increasing substantially the forest/tree cover in the country through massive afforestation and social forestry programmes, especially on all denuded, degraded and unproductive lands.
- Meeting the requirements of fuel-wood, fodder, minor forest produce and small timber of the rural and tribal populations.
- Increasing the productivity of forests to meet essential national needs.
- Encouraging efficient utilisation of forest produce and maximising substitution of wood.
- Creating a massive people's movement with the involvement of women, for achieving these objectives and to minimise pressure on existing forests.

Q45. -(b)

Barabar Caves in Bihar are the **ancient rock-cut Buddhist chambers** that **date back to 3rd Century A.D.** and are renowned as the place of origin of the Ajivika sect. The temple was built during the Gupta period in the 7th Century A.D. The local legends attribute the construction of the temple to Bana Raja. (the father-in-law of the legendary king Jarasandha of Rajgir.

Ellora Caves comprises 34 monasteries and temples, extending over more than 2 km at Aurangabad, in Maharashtra. Ellora, with its uninterrupted sequence of monuments **dating from A.D. 600 to 1000,** brings the civilization of ancient India to life. Not only is the Ellora complex a unique artistic creation and a technological exploit but, with its sanctuaries devoted to Buddhism, Hinduism and Jainism, it illustrates the spirit of tolerance that was characteristic of ancient India.

Ganga Ruler Rachamalls's able General and Commander-in-Chief Chavundaraya commissioned the curving of the Gommateshwara statue at Shravanbelagola from a granite monolith under the **supervision of sage Arishtanemi between 980 and 983 AD.** The north-facing stone sculpture of Lord Gommateshwara is depicted in the upright posture of meditation known as Kayotsarga that is practiced to attain salvation by practicing renunciation, self-restraint and complete dominance of ego.

One of the largest temples in India, the Brihadeeswara Temple also known as Peruvudaiyar Kovil is located in Thanjavur, Tamil Nadu. Dedicate to Lord Shiva represented as a huge 'Lingam', the temple was built around **1010 AD by the Chola king Rajaraja Chola I.** Considered as one of the three 'Great Living Chola Temples' along with the Gangaikondacholeeswaram Temple and Airavastesvara Temple, the complex is also listed as a part of the UNESCO World Heritage Sites.

Q46. D

The Biological and Toxin Weapons Convention (BTWC) of 1972 prohibits the signatory nations to develop, produce, stockpile or otherwise, acquire or retain biological weapons. India ratified and pledged to abide by its obligations in 2015.

Q47. C

A Patent is an exclusive right granted for an invention, which is a product or a process that provides, in general, a new way of doing something, or offers a new technical solution to a problem. **The Office of the Controller General of Patents, Designs and Trademarks (CGPDTM)** generally known as the Indian Patent Office, is an agency under the Department for Promotion of Industry and Internal Trade which administers the Indian law of Patents, Designs and Trademarks.

Statement 1 is correct: To obtain a patent, it is **mandatory for the applicant to disclose all the technical information about the invention to the public in the patent application. The** patent protection means that the invention cannot be commercially made, used, distributed, imported or sold by others without the patent owner's consent.

Statement 2 is correct: The **Paris Convention** (Paris Convention for the Protection of Industrial Property) adopted in **1883**, applies to industrial property in the widest sense, including **patents,** trademarks, industrial designs, utility models, service marks, trade names, geographical indications and the repression of unfair competition. This international agreement was the **first major step taken to help creators ensure that their intellectual works were protected in other countries.**

Q48. D

The Courts were setup for two purposes:

Statement 1 and 2: One, to protect the supremacy of the Constitution by exercising the power of judicial review; and two, to settle the disputes between the Centre and the states or between the states. The Constitution contains various measures like security of tenure to judges, fixed service conditions and so on to make the judiciary independent of the government.

Statement 3: Via provisions like judicial review, the judiciary checks abuse of powers by the executive and legislative organs, for e.g. exceeding jurisdiction by District Collector, or unconstitutional legislation by Parliament.

Q49. -(c)

Pair 1 is correctly matched: Bottleneck inflation is also known as **Structural inflation.**
It is caused due to structural deficiencies of the economy. Like, scarcity of capital, infrastructural bottleneck.

Pair 2 is not correctly matched: Core inflation is the change in the costs of goods and services but **does not include those from the food and energy sectors (volatile commodities).** Food and energy prices are exempt from this calculation because their prices can be too volatile or fluctuate wildly. Core inflation is important because it's used to determine the impact of rising prices on consumer income.

Pair 3 is correctly matched: Skewflation is an **uneven increase in price level.** Price of certain items increases much more as compared to other commodities.

Pair 4 is correctly matched: Headline inflation **includes all aspects** within an economy that experience inflation, headline inflation is not adjusted to remove highly volatile figures, including those that can shift regardless of economic conditions. Headline inflation is often closely related to shifts in the Cost of living, which provides useful information to consumers within the marketplace.

Q50. B

Explanation:

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted on 22 March 1989 by the Conference of Plenipotentiaries in Basel.

The overarching objective of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes. Its scope of application covers a wide range of wastes defined as "hazardous wastes" based on their origin and/or composition and their characteristics, as well as two types of wastes defined as "other wastes" - household waste and incinerator ash.

The provisions of the Convention center around the following principal aims:

- **the reduction of hazardous waste generation** and the promotion of environmentally sound management of hazardous wastes, wherever the place of disposal;

- **the restriction of transboundary movements of hazardous wastes** except where it is perceived to be in accordance with the principles of environmentally sound management; and
- **a regulatory system** applying to cases where transboundary movements are permissible.

The Rotterdam Convention is an international treaty designed to facilitate informed decision-making by countries with regard to trade in hazardous chemicals. It establishes a list of covered chemicals and requires parties seeking to export a chemical on that list to first establish that the intended importing country has consented to the import. It also requires that a party seeking to export a chemical that is not listed under the Convention but that is subject to a ban or severe restriction in its own territory must provide notice to the importing country of the proposed export. The Convention entered into force on February 24, 2004.

The Stockholm Convention is a global treaty that aims to protect human health and the environment from the effects of **persistent organic pollutants (POPs).** The Convention entered into force on May 17, 2004.

The Vienna Convention, which came into force in 1988 and achieved global ratification in 2009, marked a historic milestone as the initial treaty universally signed by all participating countries. This underscored the magnitude of the ozone depletion issue at that time and showcased the global commitment to collaborative solutions. **The primary objective of the Convention was to foster international cooperation by facilitating the exchange of information regarding the impact of human activities on the ozone layer.** The framers aspired to encourage policymakers to implement measures addressing activities that contribute to ozone depletion.

Q51. B

- Rhizofiltration is a form of phytoremediation that involves filtering water through a mass of roots to remove toxic substances or excess nutrients.
- It is used to reduce contamination in natural wetlands and estuary areas.
- This process is very similar to phytoextraction in that it removes contaminants by trapping them into harvestable plant biomass.
- Rhizofiltration is cost-effective for large volumes of water having low concentrations of contaminants that are subjected to stringent standards.
- It is relatively inexpensive, yet potentially more effective than comparable technologies, for e.g. the removal of radionuclides from water using sunflowers.

Q52. B

ONLY 1 AND 3 ARE CORRECT

Kyrgyzstan, often referred to as 'Central Asia's Only Democracy', had seen violent anti-government protests in the past. In 2005 and 2010, the sitting Presidents were forced out of office in the 'Tulip' and the 'Melon' revolutions. It hosts Russian air base. Russia sees this country as its political backyard and seeks to keep its dominance over it. During the early stages of the Afghan war, the US had used Kyrgyzstan for refueling and other logistical purposes. Kyrgyzstan is a landlocked country in Central Asia. It is bordered by Kazakhstan, Uzbekistan, Tajikistan and China. Its capital is Bishkek.

Q53. C

Explanation:

Pair 1 is correctly matched: The Global Environment Facility (GEF), established during 1992 Rio Earth Summit. The GEF is a unique partnership of 18 agencies — including United Nations agencies, multilateral development banks, national entities and international NGOs — working with 183 countries to address the world's most challenging environmental issues. **It is a financial mechanism for five major international environmental conventions:**

the Minamata Convention on Mercury, the Stockholm Convention on Persistent Organic Pollutants (POPs), the United Nations Convention on Biological Diversity (UNCBD), the United Nations Convention to Combat Desertification (UNCCD) and the United Nations Framework Convention on Climate Change (UNFCCC).

Pair 2 is correctly matched: Climate Investment Funds comprises two funds, the Clean Technology Fund and the Strategic Climate Fund. The Clean Technology Fund provides new large-scale financial resources to invest in clean technology projects in developing countries, which contribute to the demonstration, deployment, and transfer of low-carbon technologies with a significant potential for long-term greenhouse gas emissions savings. This fund is under the **World Bank.**

Pair 3 is correctly matched: The Adaptation Fund was **established in 2001** to finance concrete adaptation projects and programmes in developing country Parties to **the Kyoto Protocol under UNFCCC** that are particularly vulnerable to the adverse effects of climate change.

Pair 4 is not correctly matched: In 2001, Parties to the **UNFCCC** established the **Special Climate Change Fund (SCCF)** to support adaptation and technology transfer projects and programs that: are country-driven, cost-effective and integrated into national sustainable development and poverty-reduction strategies.

Q54. (d)

Statement 1 is not correct: The monetary policy committee is a **six membered committee with a chairman- the RBI Governor as its ex-officio chairperson**, the Deputy Governor in charge of monetary policy, an officer of the Bank to be nominated by the Central Board, and three persons to be appointed by the central government.

Statement 2 is not correct: RBI Governor acts as an ex-officio chairman of MPC, because the Union Finance Minister looks into mostly matters of fiscal policy.

Statement 3 is not correct: The committee has recommended setting a 4% target **inflation rate with a 2% acceptable deviation range**

Q55. D

Statement 1: In 1919 in the Montagu–Chelmsford Reforms, the British set up provincial legislatures, which had the power to grant women's suffrage. Madras in 1921 granted votes to wealthy and educated women, under the same terms that applied to men. The other provinces followed, but not the princely states (which did not have votes for men either, being monarchies). Whereas wealthy and educated women in Madras were granted voting right in 1921, in Punjab the Sikhs granted women equal voting rights in 1925 irrespective of their educational qualifications or being wealthy or poor. This happened when the Gurdwara Act of 1925 was approved.

Statement 2: There was universal suffrage, but not universal adult suffrage because the voting age in India was lowered to 18 (adult) from 21 only in 1988. Women in India were allowed to vote right from the first general elections after the independence of India in 1947 unlike during the British rule who resisted allowing women to vote.

Q56. -(d)

Right to own property: Article 17 of the UDHR states that “everyone has the right to own property alone as well as in association with others” and that “no one shall be arbitrarily deprived of his property”.

Right to equality before the law: Article 7 of the UDHR states that “all are equal before the law and are entitled without any discrimination to equal protection of the law”.

Right to freedom of movement: Article 13 of the UDHR states that “everyone has the right to freedom of movement and residence within the borders of each state” and that “everyone has the right to leave any country, including his own, and to return to his country”.

Q57. A

Statement 1 is incorrect. A rare-earth element (REE) or rare-earth metal (REM), as defined by IUPAC, is one of a set of seventeen chemical elements in the periodic table, specifically the fifteen lanthanides, as well as scandium and yttrium. Scandium and yttrium are considered rare-earth elements because they tend to occur in the same ore deposits as the lanthanides and exhibit similar chemical properties. Rarely, a broader definition that includes actinides may be used, since the actinides share some mineralogical, chemical, and physical (especially electron shell configuration) characteristics. The 17 rare-earth elements are cerium (Ce), dysprosium (Dy), erbium (Er), europium (Eu), gadolinium (Gd), holmium (Ho), lanthanum (La), lutetium (Lu), neodymium (Nd), praseodymium (Pr), promethium (Pm), samarium (Sm), scandium (Sc), terbium (Tb), thulium (Tm), ytterbium (Yb), and yttrium (Y).

Statement 2 is correct. Despite their name, rare-earth elements are – with the exception of the radioactive promethium – relatively plentiful in Earth's crust, with cerium being the 25th most abundant element at 68 parts per million, more abundant than copper. However, because of their geochemical properties, rare-earth elements are typically dispersed and not often found concentrated in rare-earth minerals; as a result economically exploitable ore deposits are less common. The first rare-earth mineral discovered (1787) was gadolinite, a mineral composed of cerium, yttrium, iron, silicon, and other elements. This mineral was extracted from a mine in the village of Ytterbyin Sweden; four of the rare- earth elements bear names derived from this single location.

Q58. - (d)

The Indian system reflects all the main features of a parliamentary government: (i) close relationship between the legislature and the executive, (ii) responsibility of the executive to the legislature, (iii) the executive having a Head of the State as the nominal executive, and a Council of Ministers headed by the Prime Minister as the real executive

Close Relationship between the Legislature and the Executive: In India, there is a close relationship between the executive, i.e. the Council of Ministers with the Prime Minister at the head and the legislature, i.e. the Parliament. Only the leader of the majority party or coalition of parties can be appointed as the Prime Minister. All the members of the Council of Ministers must be the Members of Parliament. **All the elected Members of the Parliament participate in the election of the President** and he/she can be removed from office only when an impeachment motion against him/her is passed by both the Houses of Parliament.

Responsibility of the Executive to the Legislature: The Council of Ministers is collectively responsible to Lok Sabha. It means that the responsibility of every Minister is the responsibility of the entire Council of Ministers. The Council of Ministers has to resign if it looses the confidence of Lok Sabha, which means the support of the majority in that House**. The Council of Ministers can also be removed from office by the Lok Sabha through a vote of no-confidence.**

Prime Minister as the real executive: It is the Prime Minister who is the pivot of the parliamentary executive. All the members of the Council of Ministers are appointed by the President on the recommendations of the Prime Minister. The allocation of portfolios among the Ministers is the prerogative of the Prime Minister. When the Prime Minister resigns, the entire Council of Ministers has to go.

Q59. A ONLY 2 IS CORRECT

The decennial Census of India has been conducted 15 times, as of 2011. While it has been conducted every 10 years, beginning in 1872, the first complete census was taken in the year 1881. Post 1949, it has been conducted by the Registrar General and Census Commissioner of India **under the Ministry of Home Affairs,** Government of India. All the census since 1951 are conducted under 1948 Census of India Act. According to an amended rule notified by the Registrar-General of India (RGI), the data collected during the 2021 Census will be stored electronically, the first time since the decennial exercise was conducted in 1951 in Independent India.

Q60. B

Statement 1 is incorrect: Hinayana does not consider Buddha as god. Buddha, "the Awakened One," is revered above all--not as "God" but as supreme sage, model of a fully enlightened person.

Statement 2 is correct: The school is more liberal and believes in the heavenliness of Buddha and Bodhisattvas embodying Buddha Nature. The concept of Bodhisattva is the result of Mahayana Buddhism.

Statement 3 is correct: Emperor Ashoka patronised Hinayana sect as Mahayana school came into being much later.

Statement 4 is incorrect: It is recorded that in the fourth council in King Kanishka's reign, there was a split in Buddhism and two sects were born: Hinayana and Mahayana Buddhism.

Q61. A

Peer-to-peer (P2P) lending system allows individuals to borrow and lend money without the use of an official financial institution as an intermediary**. Statement 1 is correct:** In September 2017, RBI notified that these will be registered as non-banking financial companies (NBFCs) and came out with guidelines for P2P lending platforms. **Statement 2 is incorrect**: It is regulated by RBI.

Q62. -(a)

A measuring instrument that meets the OIML standards gets a document called the OIML certificate. **The OIML-CS is a system that manages the creation, registration and use of these certificates and their related reports for different kinds of measuring instruments.** In 2023, India joined the list of 17 countries that can issue OIML certificates. This will make it easier for India to export its weights and measures without any extra testing.

Q63. B

Statement 3: The chairman or a member or UPSC is (after having completed his first term) not eligible for reappointment to that office (i.e., not eligible for second term).

Apart from S1 and S2, a member of UPSC is not eligible for any other employment in the Government of India or a state.

The Constitution has made the following provisions to safeguard and ensure the independent and impartial functioning of the UPSC:

a) The chairman or a member of the UPSC can be removed from office by the president only in the manner and on the grounds mentioned in the Constitution. Therefore, they enjoy security of tenure.
b) The conditions of service of the chairman or a member, though determined by the president, cannot be varied to his disadvantage after his appointment.
c) The entire expenses including the salaries, allowances and pensions of the chairman and members of the UPSC are charged on the Consolidated Fund of India. Thus, they are not subject to vote of Parliament.
d) The chairman of UPSC (on ceasing to hold office) is not eligible for further employment in the Government of India or a state

Q64. A

Head Quarters – Chennai;

Prevention of cruelty of Animals Act, 1960 is deriving power to AWBI and no mandatory provision to appoint Chairman as recently the govt. has appointed a govt. official to chair the body.

Q65. : b

Explanation:

Statement 2 is correct: POEM-3 (PSLV Orbital Experimental Module-3) is a unique **three-axis-altitude controlled platform developed by ISRO** (the Indian Space Research Organisation). It **features power generation, telecommand, and telemetry capabilities, designed to support payloads while ensuring zero debris in space.**

POEM-3 used the spent PS4 stages of the PSLV-C58 vehicle that launched XPoSat. After deploying the satellite into its intended orbit at 650 km, the vehicle was lowered to 350 km circular orbit to minimize the time of orbit decay after completion of the experiment.

By 25th day in orbit, POEM-3 completed 400 orbits. Its current orbit measures around 322 km by 352 km. It is predicted that POEM-3 will continue orbiting for approximately 73 more days before re-entering the Earth's atmosphere.

Statement 1 is not correct: PSLV Orbital Experimental Module-3 (POEM-3) is not a Space Astronomy Observatory. **'AstroSat' is India's first dedicated Space Astronomy Observatory** placed in an 6° inclination orbit at 650-km above the surface of the Earth.

Q66.

Ans: C

In the tropics there is a broad zone of low pressure which stretches either side of the equator. The winds on the north side of this zone blow from the north-east (the north-east trades) and on the southern side blow from the south-east (south-east trades).

Within this area of low pressure the air is heated over the warm tropical ocean. This air rises in discrete parcels, causing thundery showers to form. These showers usually come and go, but from time to time,

they group together into large clusters of thunderstorms. This creates a flow of very warm, moist, rapidly rising air, leading to the development of a centre of low pressure, or depression, at the surface.

There are various trigger mechanisms required to transform these cloud clusters into a tropical cyclone. These trigger mechanisms depend on several conditions being 'right' at the same time. The most influential factors are:

1. A source of warm, moist air derived from tropical oceans with sea surface temperatures normally in the region of, or in excess, of 27 °C;
2. Winds near the ocean surface blowing from different directions converging and causing air to rise and storm clouds to form;
3. Winds which do not vary greatly with height - known as low wind shear. This allows the storm clouds to rise vertically to high levels;
4. Sufficient distance from the equator to provide spin or twist.

The Coriolis force caused by the rotation of the Earth helps the spin of this column of rising air. The development of the surface depression causes an increase in the strength of the trade winds. The spiraling winds accelerate inwards and upwards, releasing heat and moisture as they do so.

Q67. B

Explanation:

Statement 1 is not correct: Squirrels are not nocturnal creatures. They are diurnal organisms, which means they are primarily active throughout the day. Many mammals have a diurnal pattern. Squirrels are technically crepuscular mammals, which means they are most active in the early morning and evening.

Statement 2 is correct: Flying Squirrels don't actually fly, but glide from one tree to the other. They basically use their patagium, a membrane stretching from the wrist (forelegs) to the ankle (hind legs), to glide. Once airborne, these squirrels use their arms, legs, and tail to effectively navigate and move from one tree top to another.

Statement 3 is correct: In India there is a kind of flying squirrel known only from a lone squirrel collected in the **Namdapha National Park in the Eastern Himalayas.**

Q68. A

The dedicated freight-only lines are being built along the four key transportation routes – known as the Golden Quadrilateral and connecting Delhi, Mumbai, Chennai, Howrah and its two diagonals (Delhi – Chennai and Mumbai – Howrah).

The WDFC 1,504-km-long route — from JNPT to Dadri via Vadodara-Ahmedabad- Palanpur-Phulera- Rewari — Western DFC will pass through Haryana, Rajasthan, Gujarat, Maharashtra and Uttar Pradesh. It is proposed to join the Eastern Corridor at Dadri. Covering a total of 10,122 km, all these DFC corridors carry the heaviest traffic and are highly congested. The route carries 52%

of passenger traffic and 58% of freight traffic, according to the Make-in-India report of 2017. Also, these routes are highly saturated, with line capacity utilisation reaching as high as 150%.

Q69. B (ONLY 1 AND 3 ARE CORRECT

Dharmashastras is a Sanskrit texts prescribing **social rules and code of behavior** composed from C.500BCE onwards.

Q70. C

An optical fibre is a flexible, transparent fibre made by drawing glass (silica) or plastic to a diameter slightly thicker than that of a human hair.

Optical fibres are used most often as a means to transmit light between the two ends of the fibre and find wide usage in fibre-optic communications, where they permit transmission over longer distances and at higher bandwidths (data rates) than electrical cables.

Fibres are used instead of metal wires because signals travel along them with less loss; in addition, **fibres are immune to electromagnetic interference, a problem from which metal wires suffer excessively.**

Fibers are also used for illumination and imaging, and are often wrapped in bundles so they may be used to carry light into, or images out of confined spaces, as in the case of a fiberscope. Specially designed fibres are also used for a variety of other applications, some of them being fibre optic sensors and fibre lasers.

Q71. B

Significant aspect of India's foreign trade during the British rule was the favorable balance of trade, i.e., excess of exports over imports. Theoretically, it implies a great advantage. But our foreign ruler was rather in an averse mood to confer any benefits to India. Practically, export surplus represented a drain of India's wealth and resources. Britain habitually maintained export surplus because India had to make considerable payments to Britain for which no visible return was made. These payments included Home Charges (comprising interest on public debt, civil and military expenditure, interest and profits on private foreign capital, service charges for using foreign banking, insurance, and shipping business, etc.). Thus the drain facilitated the penetration and exploitation of India by foreign capital. This drain exposed the exploitative nature of the foreign ruler.

Several essential commodities—food grains, clothes, kerosene etc. became conspicuous by their acute scarcity in the domestic market. Furthermore, this export surplus did not result in any flow of gold or silver into India.

Q72. -(c)

Statement 1 is correct: The causes of climate change can be grouped into astronomical and terrestrial causes. Milankovitch cycle is one of the examples of the astronomical causes. These cyclical orbital movements cause variations of up to 25 percent in the amount of incoming insolation at Earth's mid-latitudes (the areas of our planet located between about 30 and 60 degrees north and south of the equator).

Statement 2 is correct: The astronomical causes are the changes in solar output associated with sunspot activities. Sunspots are dark and cooler patches on the sun which increase and decrease in a cyclical manner. According to some meteorologists, when the number of sunspots increases, cooler and wetter weather and greater storminess occur. **A decrease in sunspot numbers is associated with warm and drier conditions.**

Q73. C

Recently, the State Department of Archaeology, Chennai has identified 250 cairn-circles from the Kodumanal excavation site in Erode district of Tamil Nadu. These excavations at Kodumanal reveal megalithic belief in after-life. Megaliths refer to the large stone structures that were constructed either as burial sites or as commemorative sites. They are spread across the peninsular India, in Maharashtra and in the southern states of Karnataka, Tamil Nadu, Kerala, Andhra Pradesh and Telangana. The megalithic culture finds mention in the ancient Tamil Sangam literature.

Q74. A

None of option B, C or D are the reasons, because these factors varied from farm to farm and region to region in both parts of India. Moreover, they are not convincing argument for decentralization of the land revenue system in the South.

- Ryotwari was tried first on a small scale by Captain Alexander Read in some of the areas that were taken over by the Company after the wars with Tipu Sultan.
- Subsequently developed by Thomas Munro, this system was gradually extended all over south India.
- Read and Munro felt that in the south there were no traditional zamindars. The settlement, they argued, had to be made directly with the cultivators (ryots) who had tilled the land for generations.
- Their fields had to be carefully and separately surveyed before the revenue assessment was made. Munro thought that the British should act as paternal father figures protecting the ryots under their charge

Q75. C

Bioluminescence is the light produced by a chemical reaction within a living organism. Bioluminescence is a type of chemiluminescence, which is simply the term for a chemical reaction where light is produced. (Bioluminescence is chemiluminescence that takes place inside a living organism). Bioluminescence is a "cold light". Cold light means less than 20% of the light generates thermal radiation, or heat. **Most bioluminescent organisms are found in the ocean**. These sbioluminescent marine species include fish, bacteria and jellies. Some bioluminescent organisms, including fireflies and fungi, are found on the land. There are almost no bioluminescent organisms native to the freshwater habitats. The chemical reaction that results in bioluminescence requires two unique chemicals: Luciferin and either luciferase or photoprotein. Luciferin is the compound that actually produces light. In a chemical reaction, luciferin is called the substrate. The bioluminescent colour (yellow in fireflies, greenish in lanternfish) is a result of the arrangement of luciferin molecules. Some bioluminescent organisms produce (synthesize) luciferin on their own.

Q76. C

The intended goal of the programme is to meet the "annual average air quality standards at all locations in the country in a stipulated timeframe". In order to achieve this, all the 100 non-attainment cities would have to design city-specific action plans with specific timelines for implementation of listed initiatives.

The NCAP aspires to overcome the deficits of the ongoing government initiatives targeted towards air pollution control. It lays down a comprehensive strategy framework for enhanced management of air quality. **Augmentation of existing air quality monitoring network by increasing number of existing manual and continuous monitoring stations, introducing rural monitoring stations, identifying alternative technology for real-time monitoring network and augmenting capabilities of existing monitoring stations** to measure PM2.5 concentration, are integral components of the strategy framework.

Q77. C

This is an arrangement, between two friendly countries, which have regular, substantial or increasing trade, to basically involve in trading in their own local currencies, where both pay for import and export trade, at the pre-determined rates of exchange, without bringing in third country currency like the US Dollar.

A currency swap agreement between two countries is signed between the central banks. In this case, RBI will get a certain amount of yen and the Bank of Japan will get an equivalent amount in Indian rupees. The rate will be decided on the basis of prevailing market rates.

"Later, both of the countries will repay the amount at the same exchange rate. In return, there will be a swap rate to be decided by the two countries. Normally, they will be linked to London inter-bank rate, called Libor. Japan has done this with a number of countries, including China, Malaysia, Singapore, Indonesia and Thailand, among others.

In such arrangements no third country currency is involved, thereby eliminating the need to worry about exchange variations.

Japan and India have entered into a $75-billion currency swap arrangement that will bolster the country's firepower as it battles a steep drop in the rupee's value. An agreement to this effect was signed during Prime Minister's ongoing visit to Japan. The Agreement shall aid in bringing greater stability to foreign exchange & capital markets in India. The facility will serve as a second line of defence for the rupee after the $393.5 billion of foreign exchange reserves that the Reserve Bank of India (RBI) has at its disposal. The arrangement will be used only when required, and will help meet short-term liquidity mismatches.

Q78. - (d)

Statement I is incorrect but Statement II is correct

Coal in India occurs in two important types of coal fields. They are the Gondwana coal fields and Tertiary coal fields. **Out of the total coal reserves and production in India, Gondwna coal fields contribute 98% and the rest 2% is produced by tertiary coal fields.** The Gondwana coalfields are located in the sedimentary rock systems of the lower Gondwana Age. They are distributed chiefly in the river valleys of the Damodar (Jharkhand - West Bengal); the Son (Madhya Pradesh–Chhattisgarh); the Mahanadi (Orissa), the Godavari (Andhra Pradesh) and the Wardha (Maharashtra). **Tertiary coalfields occur in the extra-peninsular areas which include Assam, Meghalaya, Nagaland, Arunachal Pradesh, Jammu & Kashmir and Sikkim.** Besides lignite or brown coal are found in coastal areas of Tamil Nadu, Gujarat and in land basins of Rajasthan.

Q79. B

One of India's competitive advantages is its demographic dividend. Demographic dividend occurs when the proportion of working people in the total population is high because this indicates that more people have the potential to be productive and contribute to growth of the economy.

Option A: Withdrawing such critical support systems may make the poor worse off and likely to lead to greater impoverishment than enhanced demographic dividend.

Option B: UHC systems can be crucial to building a healthy workforce and augment human capital. So, B is correct.

Option C: FII is short-term in nature and doesn't contribute to permanent capital formation in the nation. So, C is wrong.

Option D: A command economy is characterized by state control and state-led planning. Many East Asian nations have been able to reap demographic dividend without resorting to such a strict control system. So, D is wrong.

Q80. A

Usually, the marketing approval for new drugs takes substantial amount of time. Hence, upon the expiry of the patented drugs, the entry of the cheaper generic medicines into the market may get delayed. Hence, Bolar Exception, under the TRIPS Agreement, allows the potential competitors to use a patented invention during the patent term, without the consent of the patent owner for the purpose of obtaining marketing approval for a prospective generic product.

Q81. -(c)

Context: Recently, the Union Minister Shri Sarbananda Sonowal launched 'Harit Sagar' the Green Port Guidelines 2023.

Statement 1 is correct: Harit Sagar Guidelines - 2023 envisages ecosystem dynamics in port development, operation and maintenance while aligning with **'Working with Nature'** concept and minimizing impact on biotic components of the harbor ecosystem. It lays emphasis on use of Clean/Green energy in Port operation, developing Port capabilities for storage, handling and bunkering Greener Fuels viz. Green Hydrogen, Green Ammonia, Green Methanol/Ethanol etc.

Statement 2 is correct: The **objective of guidelines** is to minimize waste through Reduce, Reuse, Repurpose and Recycle to **attain zero waste discharge from port operations and promote monitoring**, based on Environmental Performance Indicators. This also covers **aspects of National Green Hydrogen Mission** pertaining to ports, development of green hydrogen facility, LNG bunkering, Offshore Wind Energy etc and provides provision for adopting **global Green Reporting Initiative (GRI) standard.**

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Q82. -(a)

Statement 1 is correct: Alluvial soils are widespread in the northern plains and the river valleys. These soils cover **about 40 per cent of the total area of the country**. They are **depositional soils**, **transported** and **deposited by rivers and streams**. Most alluvial soils are derived from the **sediment being deposited by the Himalayan rivers like Ganga, Indus, and Brahamputra** in the Indo–Gangetic plain, ranging from Punjab in the west to West Bengal and Assam in the east.

Statement 2 is not correct: Alluvial soil is generally rich in potash but poor in phosphorus and nitrogen. This soil has very soft strata with the lowest proportion of nitrogen and humus but with an adequate amount of phosphate. There is a wide variation in the amount of iron oxide and lime in different regions. Alluvial soil is one of the best soils, requiring the least water due to its high porosity.

Statement 3 is not correct: In the Peninsular region, they are found in deltas of the east coast and in the river valleys.

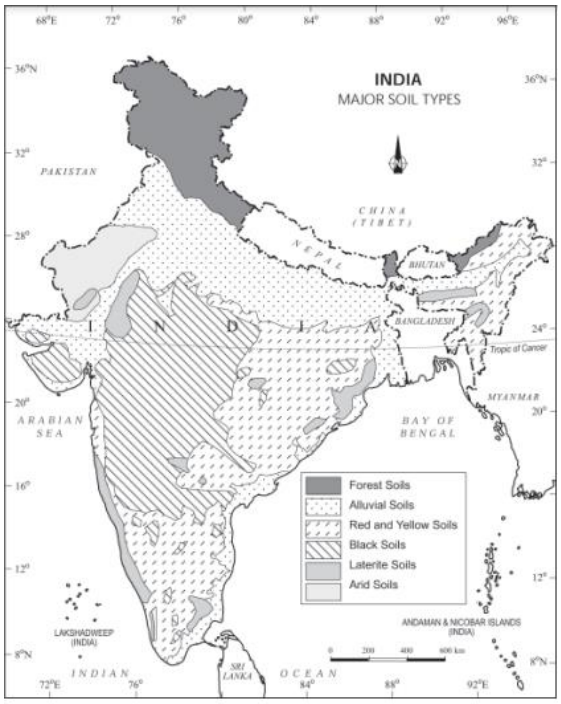

Figure 6.2 : Major Soil Types of India

Q83. Ans: D

Eight pollutants namely particulate matter (PM) 10, PM2.5, Ozone (O3), Sulphur dioxide (SO2), nitrogen dioxide (NO2), carbon monoxide (CO), lead (Pb) and ammonia (NH3) act as major parameters in deriving the AQI of an area.

Q84. - (c)

Context: Jammu and Kashmir's Bhaderwah Valley has emerged as the lavender capital of India and a prominent agri-startup destination.

Statement 1 is correct: Lavender requires well-drained light, sandy, or sandy loam, or gravelly soils in full sun. Low-fertility soils are still suitable. Soil pH should be between 5.8 and 8.3. Too moist soils will cause poor plant growth, diseases or kill the plant.

Statement 2 is correct: The CSIR-Aroma Mission is a flagship project under the Department of Science and Technology under which Lavender cultivation is being promoted in the temperate regions of Jammu and Kashmir (J&K). The aim of the project is to increase the income of small and marginal farmers and develop agriculture-based Startups. Jammu and Kashmir climatic conditions are conducive to lavender cultivation, since the aromatic plant can withstand both chilly winters and pleasant summers.

Statement 3 is correct: It is a low maintenance crop, which can be used from its second year of plantation and **blossoms for fifteen years.**

Statement 4 is not correct: The ideal time for sowing lavender seeds is during the monsoon season in India, from June to September. **The best time for harvesting lavender in India is from March to July, before the monsoon season begins.** Lavender flowers are harvested by hand and are typically cut early in the morning when the fragrance is at its peak.

The major producing areas of lavender oil are in Bulgaria, England, France, USSR, Yugoslavia, Australia, USA, Canada, South Africa, Tanzania, Italy and Spain. True lavender for perfume is mainly cultivated in Europe.

Q85. - (d)

Context: More than 70 laws were repealed by the government in 2023.

Statement 1 is not correct: Just as the Legislature has the power to enact laws, similarly it has the power to repeal laws under Article 245. Consequently the legislative power to repeal prior laws is not inhibited by any constitutional prohibitions, but exists as a necessary part and increment of the legislative power and function. All statutes (including the ones related to the Fundamental Rights) can be repealed by the Parliament.

Statement 2 is not correct: The Appropriation Acts are intended to operate for a limited period of time authorizing expenditures for the duration of one financial year, or less, for example in the case of Vote on Account Bills. **Though these Acts are not usually included in any list of Central Acts, either by the Ministry of Law and Justice, or elsewhere, these laws still technically remain on the books.** In the United Kingdom, all Appropriation Acts usually contain a repealing provision which specifically repeals older Appropriation Acts.

Q86. - (b)

Context:

Under Pradhan Mantri Jan Vikas Karyakram (PMJVK), a total of 19 community infrastructure projects with total projects cost Rs. 129.93 Crore have been approved during the year 2020-21 to 2022-23 in Kerala.

Statement 1 is correct: PMJVK aims at improving socio-economic conditions of the minorities and providing basic amenities to them for improving quality of life of the people and reducing imbalances in the identified Minority Concentrated Areas.

Statement 2 is correct: PMJVK is a **Centrally Sponsored Scheme**, which is being implemented by the **Ministry of Minority Affairs** with the objective to develop infrastructure projects, which are community assets, in the identified areas with development deficits for socio-economic development of the Minority Concentrated Areas.

Statement 3 is not correct: In 2022-23, the revised PMJVK was approved by the Government for continuation over the 15th Finance Commission Cycle i.e., during FY 2022-23 to 2025-26. **The Revised PMJVK Scheme is implemented in all districts of the country including all the Aspirational Districts.** Previously, the areas for implementation of PMJVK were identified on the basis of substantial population of minority communities i.e. 25% of minority population in the area and backwardness parameters in the area concerned which are below the national average. The parameters for identification of Minority Concentration Areas were based on the data of Census, 2011.

Q87. A

Explanation:

Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I

Statement I is correct: Bioremediation, **a subset of biotechnology,** utilizes living organisms such as microbes and bacteria to eliminate contaminants, pollutants, and toxins from various environments, including soil and water. This approach is applied to address issues like oil spills or the remediation of polluted groundwater by harnessing the natural capabilities of living organisms.

Statement II is the correct explanation of statement I: Bioremediation is considered as a safe and sustainable technology as it relies on the action of microorganisms for the removal of contaminants from the waste which can be wastewater or soil. The process of bioremediation can be undertaken on-site without causing a major disturbance to human activities and environment. Bioremediation is known as a cost- effective process compared to conventional treatment methods. Bioremediation can take place anaerobically or aerobically with the assistance of microorganisms.

Q88. B ONLY 2 AND 3 ARE CORRECT

The Reserve Bank of India has the duty to stabilize the economy by managing excess liquidity in the market. RBI can absorb excess liquidity from the market in the following ways:

Following Restrictive Monetary Policy:

A contractionary or tight monetary policy reduces liquidity and increases interest rates which has a negative impact on both production and consumption and therefore, economic growth. However, it helps in managing liquidity and inflation. In contrast following an Accommodative monetary policy increases the liquidity in the market.

Increase in Currency Reserve Ratio:

CRR is the percentage of a bank's time and demand liabilities that needs to be kept as cash with RBI. CRR can be increased to absorb excess liquidity in the market.

Increase in the Reverse Repo rate:

The interest rate at which the RBI borrows money from banks for the short term is defined as Reverse Repo Rate. Under the Reverse Repo Rate, banks deposit excess funds with the RBI and earn interest for it. An increase in Reverse Repo rate incentivizes the banks to park the money in the Central bank which results in the decline of the liquidity in the market.

Open market operations (OMO):

This is another format used to buy or sell government securities to manage liquidity. **To absorb liquidity, Government securities would have to be sold (not purchase) to banks to take up the excess.**

Q89. D

On the protest by the farmers against the Central Farm Laws, the Supreme Court has held that the farmers have a constitutional right to continue with their "absolutely perfect" protest, as long as their dissent against the controversial agricultural laws did not slip into violence. The Court also said that the Fundamental Right to Protest cannot affect other Fundamental Rights and the Right to Life of others. The Right to Protest is part of the Fundamental Right and can, as a matter of fact, be exercised subject to public order. The protests can continue in a non-violent manner and the police cannot use violent means to end or disturb a non-violent protest. The Ministry of Home Affairs (MHA) has relaxed the norms for the farmer, student, religious and other groups who are not directly aligned to any political party to receive foreign funds, if the groups are not involved in "active politics". The MHA has amended the FCRA 2011 Rules, based on the recent Supreme Court judgment. The organizations of the farmers, workers, students any youth based on caste, community, religion, language or others will only be considered as a political group if they participate in "active politics or party politics." Such groups or organizations can receive foreign funds if not involved in active politics or party politics.

Q90. (c)

Statement 1 is correct: CRAR is a capital with respect to risk weighted assets.

Tier I capital consists of:

1. Paid-up capital (ordinary shares), statutory reserves, and other disclosed free reserves, if any;
2. **Perpetual Non-cumulative Preference Shares (PNCPS) eligible for inclusion as Tier I capital;**
3. Perpetual Debt Instruments (PDI) eligible for inclusion as Tier I capital; and
4. Capital reserves representing surplus arising out of sale proceeds of assets.

Statement 2 is correct: Tier II capital consists of undisclosed reserves, revaluation reserves, general provisions and loss reserves, hybrid debt capital instruments, subordinated debt and investment reserve account.

Q91. D

Land revenue was the chief source of income. Land was divided into four categories for purposes of assessment, wet land, dry land, orchards, and woods. Usually the share was one sixth of the produce. Land revenue could be paid in cash or kind. The rates varied according to the type of the crops, soil, method of irrigation, etc. Apart from land revenue, other taxes were: irrigation tax, grazing tax and import- export duties on merchandise goods.

Q92. A

The Tamil Siddhas are a religious order of mystics found in the southern part of India, whose origins can be traced back to the eighth century. Tamil Siddha cult shares with the orthodox Saiva sect a common text, Shaiv Siddhanta, which defines the philosophy of both groups. However, Siddhas rejected temple worship, reliance upon Brahminical authority, and opposed the injustice of caste. Lingayatism, also known as Veerashaivism, began as a reform movement in the twelfth century C.E. India by Basavanna. Lingayats rejected the authority of the Vedas, the doctrine of transmigration of souls; opposed child marriage, and ill treatment of widows etc.

Q93. A

Located in northeast Rajasthan, the Ganeshwar-Jodhpura complex was an early centre of agriculture and copper metallurgy in the subcontinent. More than eighty sites of this culture have been identified in the Sikar, Jaipur and Jhunjhunu districts, with the largest concentration being in Sikar.

- It is possible that the inhabitants of Khetri (GJs) region supplied copper to the Harappans. Among the earliest chalcolithic cultures in India, the Ahar or Banas culture was discovered in the Mewar region of southeast Rajasthan.
- Nearly one hundred sites of the culture have been located along its principal axis, i.e., the valleys of river Banas and its tributaries and subtributaries in Banswara, Udaipur etc.
- The technology at Ahar was based mainly on copper and very few microblades and microliths have been discovered.

Q94. D

The difference in time is created by longitude differences. Difference of 15 degrees creates a difference of 1 hour. Agra and Kanpur both are in UP, Chandigarh and Patiala both in Haryana; Ranchi and Kolkata situated not far by. These places are unlikely to have a time difference of one hour. Based on the longitudes of Dwarka (Gujarat) and Dibrugarh (Assam), there will be a difference of about 1 hour and 45 minutes in the local times of Dwarka and Dibrugarh.

Q95. D

Statement 1: It is a Chalcolithic archaeological culture of southeastern Rajasthan state in India, lasting from c. 3000 to 1500 BCE, contemporary and adjacent to the Indus Valley Civilization. Situated along the Banas and Berach Rivers, as well as the Ahar River, the Ahar-Banas people were exploiting the copper ores of the Aravalli Range to make axes and other artefacts.

Statement 2: The Ahar culture phase was followed by the Malwa culture. Navdatoli (west Nimar district), on the southern banks of the Narmada, is the largest settlement of this culture. Calibrated dates for the beginning of the settlement are in the range of 2000—1750 BCE. Malwa ware is exceptionally rich in forms and designs. A lot of stone artefacts, as compared to copper, were found at this culture's site indicating that there might have been a shortage of copper.

Q96. -(c)

The amara-nayaka system was a major political innovation of the Vijayanagara Empire.

The amara-nayakas were military commanders who were given territories to govern by the raya. They collected taxes and other dues from peasants, craftspersons and traders in the area. They retained part of the revenue for personal use and for maintaining a stipulated contingent of horses and elephants. These contingents provided the Vijayanagara kings with an effective fighting force with which they brought the entire southern peninsula under their control. Some of the revenue was also used for the maintenance of temples and irrigation works. The amara-nayakas sent tribute to the king annually and personally appeared in the royal court with gifts to express their loyalty. Kings occasionally asserted their control over them by transferring them from one place to another.

Q97. -(b)Context: According to the temple priests, this was the first time a Prime Minister in office visited the Srirangam Sri Ranganathaswamy Temple. Prime Minister Narendra Modi went to the temple during his visit to Tamil Nadu.

Statement 1 is correct: Situated in an ethereal setting on the island of Srirangam that is bounded by the two rivers of Cauvery and Kollidam (a tributary of Cauvery), this living temple and sacred centre of pilgrimage is counted as the first and foremost among the 108 Divya Desams. **Constructed in the Dravidian style of architecture, the Temple Complex is massive in scale and spread over 156 acres (63.131 hectares) and located in Tamil Nadu.** According to some scholars, this makes Sri Ranganathaswamy Temple the largest *Functioning Temple* in the World and is often found ranked amongst the largest religious complexes of the world.

Statement 2 is not correct: Sri Ranganathaswamy Temple, also known as Thiruvaranga Tirupati, is one of the most illustrious ***Vaishnav* temples in the country, dedicated to Ranganatha, a reclining form of Hindu deity, *Bhagwan* (God or Lord) Vishnu.**

Statement 3 is correct: It is not just a temple but a temple-town, unique in its *Sapta-Prakaram* formation, a temple centred settlement pattern that comprises of *Sapta* (seven) concentric rectangular enclosures or *prakarams* formed by thick and huge rampart walls that run round the sanctum sanctorum in which the deity presides. While the inner five enclosures of the complex constitute the temple, the outer two enclosures function as the settlement.

Q98. (c)

It is **a prospectus which is submitted with the regulator** for approval. It contains **red marked information.**

A preliminary prospectus that a business files with the Securities and Exchange Commission (SEC), typically in conjunction with its first public offering (IPO), is known as a **"red herring."** A red herring prospectus omits important information about the security offering, like price and quantity of shares offered, but includes the majority of information on the business's operations and future prospects.

Q99. A

Thiruvalluvar is renowned Tamil poet and philosopher-saint believed to have lived between 3rd Century BC and 1st Century BC. He is the author of the book 'Tirukkural (also known as the Kural), a work on ethics. It is one of the most revered ancient literally work in Tamil Language. Tirukkural

is a classic Tamil sangam literature consisting of thousands of couplets or Kurals. The book is also called as the fifth Veda or 'Bible of the Tamil Land'.

Q100. A

From Manali as you travel upto the Rohtang pass you will come across rhododendhrons, coniferous trees, short grass and snow. Rohtang is a high mountain pass on the eastern Pir Panjal Range of the Himalayas around 51 km from Manali. It connects the Kullu Valley with the Lahaul and Spiti Valleys of Himachal Pradesh The pass lies on the watershed between the Chenab and Beas basins. On the southern side of this pass, the Beas River emerges from underground and flows southward