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PowerUp All India Mock Test – 02 - Answer Key									
1. (c)	11. (b)	21. (c)	31. (c)	41. (a)	51. (b)	61. (b)	71. (a)	81. (c)	91. (d)
2. (d)	12. (c)	22. (a)	32. (b)	42. (a)	52. (c)	62. (b)	72. (c)	82. (a)	92. (a)
3. (c)	13. (b)	23. (a)	33. (b)	43. (c)	53. (a)	63. (c)	73. (b)	83. (c)	93. (d)
4. (d)	14. (d)	24. (d)	34. (b)	44. (c)	54. (a)	64. (b)	74. (b)	84. (d)	94. (c)
5. (c)	15. (b)	25. (a)	35. (b)	45. (b)	55. (d)	65. (b)	75. (b)	85. (d)	95. (b)
6. (d)	16. (c)	26. (a)	36. (b)	46. (d)	56. (c)	66. (b)	76. (b)	86. (a)	96. (a)
7. (b)	17. (d)	27. (b)	37. (b)	47. (a)	57. (c)	67. (c)	77. (d)	87. (d)	97. (b)
8. (d)	18. (d)	28. (c)	38. (b)	48. (b)	58. (c)	68. (b)	78. (a)	88. (d)	98. (b)
9. (b)	19. (a)	29. (c)	39. (c)	49. (b)	59. (c)	69. (d)	79. (c)	89. (d)	99. (d)
10. (a)	20. (d)	30. (c)	40. (b)	50. (b)	60. (c)	70. (a)	80. (c)	90. (b)	100. (a)

Q1.

Answer: c

Explanation:

- **The Indian Independence Act of 1947** ended British rule in India and declared India as an independent and sovereign state from August 15, 1947. **Jawaharlal Nehru** was the **first Prime Minister of India and was appointed by the Governor General** Mountbatten. Jawaharlal Nehru was the Vice-President of the Interim Government formed in 1946. He headed the first Cabinet and held portfolios like External Affairs & Commonwealth Relations; Scientific Research.
- Jawaharlal Nehru was again re-elected as the Prime Minister after the first general election based on universal adult franchise that was held in 1951-52.

Therefore, option (c) is the correct answer.

Q2.

Answer: d

Explanation:

- The **Bar Council of India (BCI)** has framed rules named 'Bar Council of India Rules for Registration and Regulation of Foreign Lawyers and Foreign Law Firms in India, 2022'. The BCI was established by Parliament under the Advocates Act, 1961, on the recommendations of the All-India Bar Committee 1951.
- According to **Rule 8** of the above rules, **foreign lawyers or foreign law firms registered under these rules shall not be permitted to practise Indian law before any courts**, tribunals, or other statutory or regulatory authorities. They shall be allowed to practice transactional work/corporate work such as joint ventures, mergers and acquisitions, intellectual property matters, drafting of contracts, practice law in India in non-litigious matters and other related matters on a reciprocal basis. They **shall not be involved or permitted to** do any work pertaining to the conveyancing of property, title investigation or other similar works. **So, statement 1 is correct.**
 - As per **Rule 12**, the **BCI has the right to issue directions and regulations from time to time** which are necessary for the proper working of the foreign law firms in India. The BCI may hold deliberations and consultations with its counterparts i.e., statutory authorities in the regulation of the legal profession in different foreign countries in consultations with the Government of India. **So, statement 2 is correct.**
- An Advocate who is enrolled with any State Bar Council in India and is a partner or associate in any foreign law firm registered in India **can take up only non-litigious matters**. S/He can advise on issues relating to countries other than the Indian laws only. Such a lawyer shall have no advantage/right of his being an advocate enrolled in India. **So, statement 3 is correct.**

Therefore, option (d) is the correct answer.

Knowledge Box

- Non-litigation is a non-litigation or compromise attempt to find a mutually beneficial solution. The presence of a neutral third party is not to decide a dispute, but rather the parties themselves who make the final decision.

Relevance: The Bar Council of India (BCI) has framed rules named 'Bar Council of India Rules for Registration and Regulation of Foreign Lawyers and Foreign Law Firms in India, 2022'.

Q3.

Answer: c

Explanation:

- The **non-justiciable** nature of a provision means that it is **not enforceable by the courts** for their violation.
- **Fundamental Rights** are enshrined in **Part III of the Constitution from Articles 12 to 35. Article 32** declares that **these rights are justiciable**, allowing persons to move the courts for their enforcement, if and when they are violated. These are:
 - » Right to equality, including equality before law, prohibition of **discrimination** on grounds of religion, race, caste, sex or place of birth, and equality of opportunity in matters of employment. **So, point 1 is not correct.**
 - » Right to freedom of speech and expression, assembly, **association** or union, movement, residence, and right to practice any profession or occupation (some of these rights are subject to security of the State, friendly relations with foreign countries, public order, decency or morality). **So, point 2 is not correct.**
 - » Right against exploitation, prohibiting all forms of forced labour, child labour and traffic in human beings.
 - » Right to freedom of conscience and free profession, practice, and **propagation of religion. So, point 4 is not correct.**
 - » Right of any section of citizens to conserve their culture, language or script, and right of minorities to establish and administer educational institutions of their choice; and
 - » Right to constitutional remedies for enforcement of Fundamental Rights.
- **Article 37** of the Constitution of India declares that the provisions contained in Part IV (**Directive Principles of State Policy**) **shall not be legally enforceable** by the courts for their violation. Therefore, the government (Central, State and local) cannot be compelled to implement them. The **right to adequate means of livelihood** for all citizens is given in Directive Principles of State Policy under Article 39 of the Constitution. Thus, it is non-justiciable in nature. **So, point 3 is correct.**

Therefore, option (c) is the correct answer.

Relevance: The Supreme Court has recently ruled that Fundamental Right under Article 19 can be enforced even against private citizens, thus expanding its ambit.

Q4.

Answer: d

Explanation:

- **Original jurisdiction** means the power to hear the disputes in the first instance and not by way of appeal. In the following federal disputes, the Supreme Court has exclusive original jurisdiction under Article 131 of the Constitution of India. It means that it is the whole and sole authority to hear and determine the case and that no other court has the power.:
 - Between the **Centre and one or more States.**
 - Between the Centre and any State or States on one side and one or more other States on the other side.
 - Between two or more States.
- Further, this original jurisdiction of the Supreme Court does not extend to the following:
 - **Inter-state water disputes.**
 - A dispute arising out of any **pre-Constitution treaty**, agreement, covenant, engagement, sanad or other similar instrument.
 - **Matters referred to the Finance Commission**
- **Both the Supreme Court and High Courts have powers to interpret the Constitution.** So, it is not the exclusive original jurisdiction of the Supreme Court. Under **Article 132**, if there is a High Court judgment, decree, or order on any civil or criminal proceeding, that involves a substantial question regarding the interpretation of the Constitution, there shall be an appeal to the Supreme Court.
- Similarly, under **Article 228**, if the High Court is satisfied that a case pending in a court subordinate to it involves a substantial question of law as to the interpretation of the Constitution the determination of which is necessary for the disposal of the case, then it has the power to withdraw the case and dispose of the case

itself. Otherwise, it can determine the said question of law and return the case to the court from which the case has been so withdrawn together with a copy of its judgment

Therefore, option (d) is the correct answer.

Q5.

Answer: c

Explanation:

- **The Indian Penal Code, 1860 under Section 499** (and **not the Constitution of India**) defines the term defamation and its exceptions. According to it, defamation arises when a person makes or publishes any wrong or false statement or allegation or false imputation related to any person, by words or in oral or by signs or in any form it is said to defame that person. A defamation can be a civil or a criminal offence. **So, statement 1 is not correct.**
- **Defamation is an offence under both civil and criminal law.** In civil law, defamation is punishable under the Law of Torts by imposing punishment in the form of damages to be awarded to the claimant. Under the Criminal law, defamation is a bailable, non-cognizable offence and compoundable offence. Hence, a policeman may arrest only with an arrest warrant issued by a magistrate. The Indian Penal Code punishes the offence with a simple imprisonment up to two years, or with fine or both.
- In India, the time limit to file **civil defamation is 1 year from the date of the event** and in case of **criminal defamation, it is 3 years** from the date of the event. **So, statement 2 is not correct.**
- **Article 19 of the Constitution of India** has granted various freedoms to its citizens. However, Article 19(2) has imposed reasonable restrictions to Freedom of Speech and Expression granted under Article 19(1) (a). These are security and sovereignty of India, friendly relations with Foreign States, public order, decency or morality in the relation to contempt of court, **defamation** or incitement to an offence. **So, statement 3 is correct.**
- **Under Article 105**, no Member of Parliament (MP) shall be liable to any proceedings in any court in respect of any thing said or any vote given by him in Parliament or any Parliamentary committee. MPs are exempted from any legal action for any statement made or act done in the course of their duties. Thus, a **defamation suit cannot be filed for a statement made in the House.** **So, statement 4 is correct.**

Therefore, option (c) is the correct answer.

Relevance: Recently, a Member of Parliament was disqualified from the Parliament due to his conviction in a Defamation case.

Q6.

Answer: d

Explanation:

- The **Constitution of India, under Article 258, provides for inter-government delegation** of executive functions in order to mitigate rigidity and avoid a situation of deadlock. **Accordingly, the President may, with the consent of the State Government**, entrust to that Government any of the executive functions of the Centre. Conversely, the Governor of a State may, with the consent of the Central Government, entrust to that Government any of the executive functions of the State. This mutual delegation of administrative functions may be conditional or unconditional.
- The Constitution also makes a provision for the **entrustment of the executive functions of the Centre to a State without the consent of that State.** But, in this case, **the delegation is by the Parliament and not by the President.** Thus, a law made by the Parliament on a subject of the Union List can confer powers and impose duties on a State, or authorise the conferring of powers and imposition of duties by the Centre upon a State (irrespective of the consent of the State concerned). Notably, the same thing **cannot be done by the State Legislature.**

Therefore, option (d) is the correct answer.

Q7.

Answer: b

Explanation:

- In context of the Indian polity, the **whip is a directive issued by a political party to its members** in a legislative body to ensure their presence and voting in accordance with the party's instructions. The whip can be issued in the following cases:
 - During a **no-confidence motion against the government, during the passage of a Money Bill**

and during the passage of important legislation where the party's position is clear. **So, points 2 and 3 are correct.**

- During a Presidential election, the electoral college is composed of members of both Houses of Parliament and State Legislatures. Since the President is elected by an electoral college, **party whips cannot be issued as members vote as per their discretion. So, point 1 is not correct.**

Therefore, option (b) is the correct answer.

Q8.

Answer: d

Explanation:

- **In India, there are currently only six national parties**, - Bharatiya Janata Party, Indian National Congress, National People's Party, Communist Party of India (Marxist), Bahujan Samaj Party and Aam Aadmi Party. **So, statement 1 is correct.**
- According to the **Election Symbols (Reservation and Allotment) Order, 1968**, a political party can be recognised as a national party if it fulfils any of the three conditions. First, its candidates secure at least 6% of votes polled in four or more states in Lok Sabha or assembly elections, and, in addition, it has at least four members in the Lok Sabha. Second, it has at least 2% of the total Lok Sabha seats and its candidates come from not less than three states. Third, **it is recognised as a State party in at least four states. So, statement 2 is not correct.**
- The **Election Commission of India (ECI) reviews the status of political parties after every Lok Sabha polls** and State Legislative Assembly elections. It classifies political parties into two categories- recognized national parties and recognized state parties. The ECI assesses the performance of each recognised regional and national party based on their results in two consecutive elections. **So, statement 3 is correct.**

Therefore, option (d) is the correct answer.

Knowledge Box
<ul style="list-style-type: none"> • Being a national party entitles a party to a common and permanent symbol across States, and also space for a party office in the heart of Lutyens' Delhi and free airtime on public broadcasters during elections.

Relevance: Recently, the Election Commission of India revoked the national party status of several political parties.

Q9.

Answer: b

Explanation:

- **Assam** is situated in the North-East of India and is the largest northeastern State in terms of population while second in terms of area. It is bounded by two neighboring countries that is **Bangladesh and Bhutan**. It is bordered by the State of Arunachal Pradesh to the north; Nagaland, Arunachal Pradesh and Manipur to the east; Meghalaya, Tripura, Mizoram and Bangladesh to the south; and West Bengal to the west.
- **"O Mur Apunar Dekh" is the State song of Assam.** It was written by Lakshminath Bezbarua and attuned by Kamala Prasad Agarwala. It was officially adopted as the State song of Assam at the Assam Student Conference held in Tezpur in 1927.
- A significant geographical aspect of Assam is that it **contains three of the six physiographic divisions of India** – The Northern Himalayas (Eastern Hills), The Northern Plains (Brahmaputra plain) and Deccan Plateau (Karbi Anglong).

Therefore, option (b) is the correct answer.

Relevance: The Government of Assam celebrated the 400th birth anniversary of Ahom General Lachit Barphukan.

Q10.

Answer: a

Explanation:

- The **Doctrine of Ultra vires** interprets "beyond the legal power or authority of the person performing an action". Ultra vires is a Latin phrase that translates to '**beyond the powers**'.
- The doctrine implies that somebody is acting on the far side of the scope of the authority or power that's granted to him by law, contract, or agreement. Ultra vires is opposite from intra vires, that is Latin for within the powers.

- If the subordinate or delegated legislation goes beyond the scope of authority conferred on the delegate or it is in conflict with the parent or enabling act, it is called **substantive ultra vires**. The validity of the subordinate or delegated legislation may be challenged before the Courts on this ground.

Therefore, option (a) is the correct answer.

Q11.

Answer: b

Explanation:

- **Greenhouse Gases (GHG)** contribute to atmospheric warming when they absorb infrared radiation emitted by the solar-warmed Earth and transfer their extra energy to the surrounding atmospheric gases. These gases occur both naturally and from human activities including **water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and ozone (O₃)**. Other greenhouse gases have essentially no natural sources, but are side products of industrial processes or manufactured for human purposes such as cleaning agents, refrigerants and electrical insulators. These include the fluorinated gases: chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs), bromofluorocarbons (halons), perfluorocarbons, PFCs, nitrogen trifluoride, NF₃, and sulfur hexafluoride, SF₆.
- **Neither nitric oxide nor nitrogen dioxide are Greenhouse Gases**, although they are important in the process of creation of tropospheric ozone which is a greenhouse gas. On the other hand, **Nitrous oxide (N₂O) is a GHG**. There are several sources of nitrous oxide, both natural and anthropogenic (human), to the atmosphere with many of these sources difficult to measure.

Therefore, option (b) is the answer.

Relevance: According to the World Meteorological Organisation, atmospheric levels of all three greenhouse gases — carbon dioxide, methane and nitrous oxide — reached an all-time high in 2021.

Q12.

Answer: c

Explanation:

- The **National Disaster Management Authority (NDMA)** is the **apex body for Disaster Management in India**, created under the **Disaster Management Act, 2005**. It is **headed by the Prime Minister**, to spearhead and implement a holistic and integrated approach to Disaster Management in India. The creation of an enabling environment for institutional mechanisms at the State and District levels is also mandated by the above Act.
- According to present norms of the NDMA, the **cyclone**, droughts, earthquakes, fires, floods, tsunamis, **hailstorms**, landslides, avalanches, **cloudbursts**, **pest attacks**, frosts, and cold waves are considered natural disasters that are covered under the State Disaster Response Fund (SDRF), 75% of which is funded by the Centre. **So, points 1, 3, 4 and 5 are correct.**
- According to the norms of NDMA, **pandemics, solar storms and lightning are not considered natural disasters**. **So, points 2, 6 and 7 are not correct.**

Therefore, option (c) is the correct answer.

Relevance: A few States have demanded that lightning be declared as a natural disaster.

Q13.

Answer: b

Explanation:

- A **Carnivorous plant**, sometimes called **insectivorous plant**, is any plant especially adapted for **capturing and digesting insects** and other animals by means of ingenious **pitfalls and traps**. Even though they derive their nutrition from insects, they **still rely on photosynthesis** as their energy source. Examples include Pitcher Plant, Venus Flytrap, Yellow Pitcher Plant, Cobra Lily etc. **So, statement 1 is not correct.**
- Carnivorous plants **digest their prey through a process of chemical breakdown that is similar to digestion in animals**. The traps or sticky leaves secrete digestive enzymes that break down the captured prey into smaller, soluble molecules that can be absorbed by the plant. This process helps carnivorous plants obtain essential nutrients, such as nitrogen and phosphorus, that are not readily available in their nutrient-poor soil environments. **So, statement 2 is correct.**
- Carnivorous plants grow in **poor soils where nitrogen, phosphorus and potassium are lacking**. They obtain these nutrients, especially nitrogen and phosphorus, from their prey, and they are quickly absorbed through the leaf surface and transported throughout the plant. **So, statement 3 is correct.**

Therefore, option (b) is the correct answer.

Relevance: A very rare carnivorous plant species called *Utricularia Furcellata* has been found in the western Himalayan region for the first time.

Q14.

Answer: d

Explanation:

- **Munroe Thuruthu Island** is an inland island group located at the **confluence of Ashtamudi Lake and the Kallada River**, in Kollam district, Kerala. This island is also known as “**Sinking Island of Kerala**”. The place is named in honour of Resident Colonel John Munro of the former Princely State of Travancore.
- A study conducted by the National Centre for Earth Science Studies (NCESS) has revealed **anthropogenic interventions as the main reason for the plight of Munroe Thuruthu residents**, Kerala’s first set of climate refugees.
- According to the study, almost 39% of the land area has been lost with Peringalam and Cheriya Kadavu islands recording a land depletion of around 12% and 47% respectively. The islanders are facing steady land subsidence, tidal flooding and lower agricultural productivity, all of which have triggered a mass exodus from the region.

Therefore, option (d) is the correct answer.

Relevance: A Study conducted by the National Centre for Earth Science Studies (NCESS) has revealed anthropogenic interventions as the main reason for the plight of Munroe Thuruthu.

Q15.

Answer: b

Explanation:

- **High Seas** are a vast no man’s land area of ungoverned ocean. Every country has jurisdiction over these international waters **extending 200 nautical miles from the shore**. So, **statement 1 is not correct**.
- The **United Nations Convention on the Law of the Sea (UNCLOS)** is an international treaty that provides a **regulatory framework** for the use of the world’s seas and oceans. It lays down a comprehensive regime of law and order in the world’s oceans and seas establishing rules governing all uses of the oceans and their resources. So, **statement 2 is correct**.
- The **International Seabed Authority (ISA)** gives consent for the exploration and exploitation of **mineral resources on the High Seas**. The ISA is responsible for the management of mineral resources in the international seabed area beyond the limits of national jurisdiction. ISA is headquartered in Kingston, Jamaica. So, **statement 3 is correct**.
- The High Seas comprise 64 percent of the ocean surface and about 43 per cent of the Earth. These areas are home to about 2.2 million marine species and up to a trillion different kinds of microorganisms.

Therefore, option (b) is the correct answer.

Relevance: Recently, the United Nations (UN) Members agreed on “High Seas Treaty” for sustainable use of marine biodiversity in areas beyond national jurisdiction.



Q16.

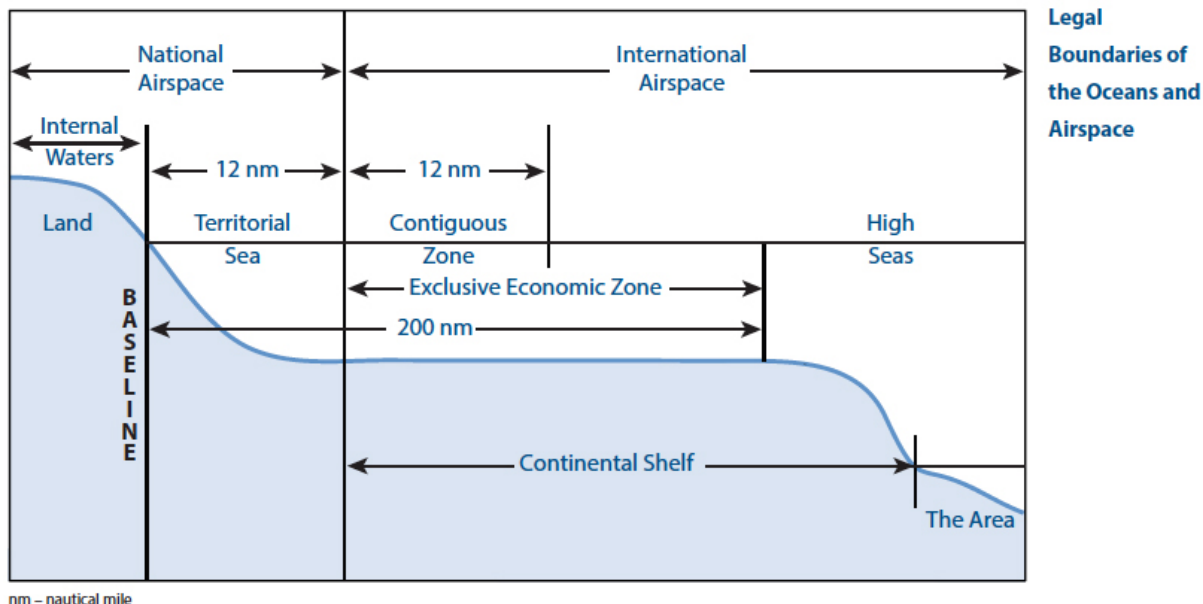
Answer: c

Explanation:

- The **Panna Biosphere Reserve** is a protected area in **Madhya Pradesh**. It encompasses Panna National Park, three sections of the Gangau Sanctuary (I, III and IV) and the Reserved and Protected Forests of the North Panna Forest Division.
- The **Chambal River** is a **tributary of the Yamuna River** and flows through the States of Madhya Pradesh, Uttar Pradesh and Rajasthan. The Chambal River and its surrounding area are known for their rich wildlife including the **Chambal Sanctuary**. It does not pass through Panna Biosphere Reserve. So, **point 1 is not correct**.

- The **Betwa** is a river in **Central and Northern India**, and a tributary of the Yamuna. It rises in the Vindhya Range in Madhya Pradesh and flows Northeast to enter Uttar Pradesh. It **does not pass through Panna Biosphere Reserve**. So, **point 2 is not correct**.
- **Panna Biosphere Reserve** is primarily fed by the **Ken River**. It originates in the Vindhya Range and flows through the reserve, providing essential water resources to the rich and diverse wildlife in the area. So, **point 3 is correct**.
- **Parvati River** rises in the Vindhya range in Madhya Pradesh and then enters Rajasthan and later falls into Chambal River. It **does not pass through Panna Biosphere Reserve**. So, **point 4 is not correct**.

Therefore, option (c) is the correct answer.



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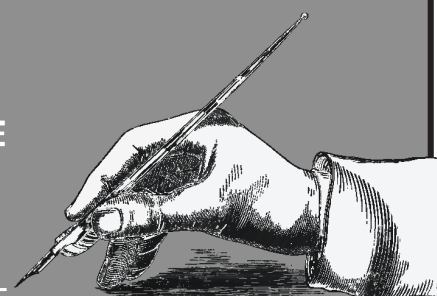


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Q17.

Answer: d

Explanation:

- The Bomas technique has been used for **translocation and rehabilitation of wildlife in new areas or for holding them temporarily for veterinary treatment or other management purposes**. The captured animals can be marked, collared, or fitted with tracking devices before being released back into the wild. The technique is an effective and humane way of capturing and handling wildlife and has been used successfully in various wildlife conservation and management programs.
- The technique, which is popular in Africa, **involves luring animals into an enclosure by chasing them through a funnel-like fencing**. The funnel tapers into an animal selection-cum-loading chute, supported with grass mats and green net to make it opaque for animals, which are then herded into a large vehicle for transport to another location. This old technique was earlier utilized to capture wild elephants for training and service.

Therefore, option (d) is the correct answer.

Relevance: Recently, Africa's Boma technique was undertaken at Keoladeo National Park in Rajasthan's Bharatpur district for capturing and translocating spotted deer.

Q18.

Answer: d

Explanation:

- A **zoo** is a place where animals live in captivity and are put on display for people to view. It is an example of **ex-situ conservation**.
- A **National Park** is a protected area notified by the State or Central Government under the Wildlife Protection Act, 1972 for the reason of its ecological, faunal, floral, geomorphological, or zoological association or importance. No human activity is permitted inside the National Park except for the ones permitted by the Chief Wildlife Warden of the State. Recently, the Supreme Court of India disapproved of building zoos inside the National Parks. **So, statement 1 is correct.**
- The **Central Zoo Authority** of India has been set up under the Wildlife Protection Act, 1972. **So, statement 2 is correct.**
- A provision has also been made by the Central Government in the Wildlife Protection Act, 1972 to the effect that no new zoo shall be established without prior approval of the Central Zoo Authority. Every zoo in the country is **required to obtain recognition from the Central Zoo Authority** for its operation. **So, statement 3 is correct.**

Therefore, option (d) is the correct answer.

Relevance: The Supreme Court disapproved the construction of zoos inside the Protected areas.

Q19.

Answer: a

Explanation:

Natural gas pipeline leaks can occur for a variety of reasons, including corrosion, equipment failure and human error. When leaks occur, natural gas can escape from the pipeline and enter the surrounding environment, potentially causing a variety of environmental and public health issues.

- Natural gas pipeline leaks can **release Particulate Matters like small particles of dust, dirt and other materials** into the air, which can contribute to respiratory problems and other health issues. **So, point 1 is correct.**
- One of the **primary pollutants released from natural gas pipeline leaks is methane**. Methane is a potent greenhouse gas, with a global warming potential that is many times higher than that of carbon dioxide. **So, point 2 is correct.**
- **Chlorofluorocarbons are not associated with natural gas pipeline leaks**. They are synthetic compounds that were once commonly used in refrigeration and air conditioning systems, but have been phased out due to their harmful impact on the ozone layer. **So, point 3 is not correct.**
- Hydrogen sulfide is **another pollutant that can be released from natural gas pipeline leaks**. It is a toxic gas that can cause headaches, nausea and other health issues in humans. **So, point 4 is correct.**
- **Ozone is not associated with natural gas pipeline leaks**. It is a naturally occurring gas that can be beneficial or harmful depending on its location. In the upper atmosphere, ozone helps protect the planet from harmful Ultraviolet radiation, but at ground level, it can be harmful to human health. **So, point 5 is**

not correct.

Therefore, option (a) is the correct answer.

Relevance: Recently, several leaks were reported in Nord Stream pipelines linking Russia and Europe.

Q20.

Answer: d

Explanation:

- **Biodiversity Heritage Sites (BHS)** are well-defined areas that are unique, ecologically fragile ecosystems - terrestrial, coastal and inland waters and marine having rich biodiversity comprising of any one or more of the following components: the richness of wild as well as domesticated species or intra-specific categories, **high endemism, presence of rare and threatened species, keystone species**, species of evolutionary significance, wild ancestors of domestic/cultivated species or their varieties, past pre-eminence of biological components represented by fossil beds and having significant cultural, ethical or aesthetic values and are important for the maintenance of cultural diversity, with or without a long history of human association with them. There are around 35 BHS in India. **So, statement 2 is not correct.**
- BHS are notified by the State Government under the **Biological Diversity Act, 2002** (and not under the Environment (Protection) Act, 1986), for implementation of the provisions of this Act. The National Biodiversity Authority facilitates and regulates the activities pertaining to access to biological resources, associated knowledge, sharing of benefits arising out of the use of biological resources, publication of Internationally Recognized Certificate of Compliance (IRCC) and provides technical support to States for notifying the Biodiversity Heritage Sites. **So, statement 1 is not correct.**
- These sites are **notified by the State Government upon recommendation of the State Biodiversity Board** from time to time in the Official gazette. The management structure and utilization of resources for BHS notified on Government forest areas and other government owned areas will be determined by the concerned departments of the State Government. Restriction in the form of regulating the use of the resources may be warranted in some cases and such restriction may be totally voluntary on the part of the community. **So, statement 3 is not correct.**

Therefore, option (d) is the answer.

Relevance: Recently, the Tamil Nadu Government issued a notification declaring Arittapatti and Meenakshipuram villages in Madurai district the first biodiversity heritage site in the State.

Q21.

Answer: c

Explanation:

- » **The Dearness Allowance (DA)** is a component of the salary of government employees and pensioners that is *aimed at compensating them for the increase in the cost of living as a result of inflation*. The DA is typically adjusted twice per annum, specifically in January and July, with the announcement of the increase made in March.
- » The DA granted to Central Government staff is computed based on the most recent **Consumer Price Index for Industrial Workers (CPI-IW)**. The CPI-IW data is **released on a monthly basis by the Labour Bureau**, which is a division of the Labour Ministry. There is a specified formula used to calculate the DA for Central Government personnel and retirees.

Therefore, option (c) is the correct answer.

Relevance: According to reports, the Union Government is likely to increase the dearness allowance (DA) for its employees and pensioners by four percentage points to 42% from existing 38% as per the agreed formula for the purpose.

Q22.

Answer: a

Explanation:

- A **Permanent Account Number (PAN)** is a ten-digit unique alphanumeric number issued by the Income Tax Department. PAN is issued in the form of a laminated plastic card (commonly known as a PAN card). It is **valid for the lifetime of the PAN-holder** throughout India. It is **not affected by the change of address** or change of Assessing Officer etc. However, any change in the PAN database should be intimated to the Income Tax Department by furnishing the required details. **So, statement 1 is correct.**
- A person **cannot hold more than one PAN**. If a PAN is allotted to a person, then he cannot apply for

obtaining another PAN. A penalty of Rs. 10,000/- is liable to be imposed under Section 272B of the Income-tax Act, 1961 for having more than one PAN. If a person has been allotted more than one PAN then he should immediately surrender the additional PAN card(s). **So, statement 2 is not correct.**

- It is **mandatory to quote PAN on the opening of a Demat account** with a depository, participant, custodian of securities or any other person with SEBI.
- Recently, the Central Board of Direct Taxes (CBDT) has asked all taxpayers to link their Permanent Account Number (PAN). There are a few categories of individuals for whom this linkage is **not compulsory**: any person of age 80 years and above; a non-resident as per the Income-tax Act; a person who is not a citizen of India. **So, statement 3 is not correct.**

Therefore, option (a) is the correct answer.

Relevance: The Central Board of Direct Taxes (CBDT) had asked all taxpayers to link their Permanent Account Number (PAN) with their Aadhaar by June 30, 2023.

Q23.

Answer: a

Explanation:

- The **Commercial Bank assets** consist mainly of various **kinds of loans and marketable securities** and of **reserves of base money**, which may be held either as actual Central Bank notes and coins or in the form of a credit (deposit) balance at the Central Bank.
- **Reserves kept with the Central Bank** by commercial banks are **considered as financial assets**. These balances are a **liability for the Central Bank** but an asset for the commercial bank. Commercial banks keep a portion of their deposits at the Central Bank as a reserve requirement and can use these balances to meet sudden demands for withdrawals or to settle interbank transactions. **So, point 1 is correct.**
- **Customer deposits** are **considered liabilities, not assets, for commercial banks**. This means that customer deposits represent an **obligation for the bank to repay** the depositors their funds on demand, making customer deposits a source of funds for the bank. Banks are required to maintain a certain level of reserves against these deposits, so they are not immediately available to be used for other purposes. **So, point 2 is not correct.**
- **Paid-up capital** refers to the portion of a company's authorized capital stock that has been fully paid for by its **shareholders**. It is considered a **liability of commercial banks**. In accounting terms, businesses and owners are separate entities. **So, point 3 is not correct.**
- **Cash at hand** refers to the physical currency and coins that a bank holds in its vault, as well as any deposits it has with the Central Bank. Cash at hand is considered an **asset** because it represents a source of funds that the bank can use to meet its obligations as they come due. **So, point 4 is correct.**
- **Borrowing** refers to the practice of a bank obtaining funds from **other financial institutions**, such as other banks or from the Central Bank. Funds raised through Borrowing are considered a liability because the **bank is obligated to repay** the funds it has borrowed, usually with interest. **So, point 5 is not correct.**

Therefore, option (a) is the correct answer.

Relevance: According to the Reserve Bank of India (RBI) data, in September 2022, the gross non-performing assets (GNPA) ratio of all Scheduled Commercial Banks (SCBs) was at a seven-year low.

Q24.

Answer: d

Explanation:

- **Core inflation** is a measure of inflation that **excludes volatile items such as food and energy prices**. It is calculated by removing these items from the basket of goods and services used to calculate headline inflation. The idea behind core inflation is that **volatile items like food and energy prices can have short-term spikes or dips** that don't necessarily reflect the underlying trend of inflation.
- Core inflation is widely used to measure inflation trends in an economy as it is **confined to non-energy and non-food articles**, which helps policymakers to focus on long-term price trends and make informed decisions about monetary policy. By excluding volatile items such as food and energy prices, core inflation provides a clearer picture of underlying inflationary pressures, making it a more reliable indicator of inflationary trends.

Therefore, option (d) is the correct answer.

Knowledge Box

- **Headline inflation and core inflation** are two measures of inflation that reflect changes in the price level of a basket of goods and services. The main difference between the two is that **headline inflation includes all items**, while core inflation excludes volatile items such as food and energy prices.
- **Headline inflation** gives a **broad measure of inflation** by including overall changes in the prices of a basket of goods and services.
- Headline inflation tracks the **level of purchasing power of consumers** and provides a broad measure of the cost of living, including volatile items like food and energy prices.

Relevance: Recently, the Reserve Bank of India expressed its concern over Core Inflation in India.

Q25.

Answer: a

Explanation:

- In the event of a global slowdown, the aim of the Reserve Bank of India (RBI) will be to increase the supply of money in the market.
- **The purchase of bonds in the open market** is a step that the RBI may take during a global slowdown. Through open market operations, the **RBI buys government bonds from banks, thereby injecting liquidity into the banking system**. This increased liquidity can support economic growth by encouraging banks to lend more, which can help to boost borrowing and spending. By supporting the banking sector and increasing the availability of credit, open market operations can play a key role in mitigating the impact of a global slowdown and supporting economic growth. **So, point 1 is correct.**
- **By reducing the policy interest rate**, the RBI aims to **encourage borrowing and spending, thereby boosting economic activity** and mitigating the impact of the global slowdown. Lower interest rates make borrowing cheaper, encouraging individuals and businesses to take out loans and invest in projects, which can help to support economic growth. **So, point 2 is correct.**
- **Increasing Cash Reserve Ratio (CRR)** is not typically a step that RBI takes during a global slowdown. The CRR is the percentage of deposits that banks are required to keep with the RBI as a portion of their deposits. When the RBI **increases the CRR**, it reduces the amount of money available with the banks to lend, thereby **reducing the availability of credit and slowing down economic activity**. This is usually done by the RBI to control inflation and manage liquidity in the banking system. **So, point 3 is not correct.**
- The **Margin Requirement** refers to the difference between the current value of the security offered for the loan (called collateral) and the value of the loan granted. A **rise in Margin Requirement** leads to a fall in demand for credit which in turn leads to a fall in the supply of credit by commercial banks. This leads to a **fall in money supply**. **So, point 4 is not correct.**

Therefore, option (a) is the correct answer.

Q26.

Answer: a

Explanation:

- **e-Rupee (Central Bank Digital Currency)** is a **fungible** legal tender issued by the Reserve Bank of India (RBI) in digital form. It is the same as the fiat currency and is exchangeable one-to-one with the fiat currency. Only its form is different as it is not paper (or polymer) like physical cash. Holders **need not have a bank account to use it**. CBDC will appear as 'liability' (currency in circulation) on the RBI's balance sheet. **So, statement 1 is correct.**
- The digital rupee is similar to the physical rupee. The only difference between cash and e-Rupee is that one holds the latter **electronically in a digital wallet** overseen by the RBI. For example, for e-Rupee, one will draw the digital currency and keep it in a mobile wallet. When she/he makes a payment at a shop or to another individual, it will move from her/his wallet to their wallet. Thus, **there is no routing or intermediation of the bank in this case**. **So, statement 2 is not correct.**

Therefore, option (a) is the correct answer.

Relevance: Recently, RBI's retail pilot of the digital rupee went live in four metro cities.

Q27.

Answer: b

Explanation:

- **Operating profit of a company** is a measure of the company's financial performance, calculated as the **earnings from its core business operations** before **deducting interest expenses and taxes**.
- The operating profit is calculated by **subtracting the operating expenses from the revenue**. The operating profit represents the amount of money a company makes from its main operations, before taking into account non-operating expenses or income such as interest expenses, gains or losses from investments and taxes.

Therefore, option (b) is the correct answer.

Knowledge Box
<ul style="list-style-type: none"> • Revenue is the total income generated from the sale of goods or services provided by the company's core business operations. • Gross profit is the profit a company makes after deducting the costs associated with making and selling its products, or the costs associated with providing its services. Gross profit will appear on a company's income statement and can be calculated by subtracting the cost of goods sold (COGS) from revenue (sales). • Net profit is the measurement of a company's profit once operating costs, taxes, interest and depreciation have all been subtracted from its total revenues. <ul style="list-style-type: none"> » Operating costs are the direct costs incurred in producing the goods or services sold, such as raw materials, labour, and marketing expenses.

Q28.

Answer: c

Explanation:

- **'Round Tripping'** generally refers to a series of transactions that involve the **circulation of money across jurisdictions** culminating in its **return to the jurisdiction of origin**, usually as **foreign investment**.
- In the context of black money, it leaves the country through various channels such as inflated invoices, payments to shell companies overseas, the **Hawala route** and so on. After some time, this money returns in a freshly laundered form; thus, completing a round-trip.
- It could be invested in offshore funds that in turn invest in Indian assets. Global Depository Receipts (GDR) and Participatory Notes (P-Notes) are some of the other routes that have been used in the past.
- Round Tripping is done for manipulating the investors, converting black money to legally earned money and manipulating the stock prices.

Therefore, option (c) is the correct answer.

Knowledge Box
<ul style="list-style-type: none"> • Treaty shopping typically involves the attempt by a person to indirectly access the benefits of a tax treaty between two jurisdictions without being a resident of one of those jurisdictions. • Insider trading involves trading in a public company's stock or other securities by employees with non-public, material information about the company. • Profit shifting is a technique used by multinational corporations to pay less tax than they should that involves a multinational corporation moving the profit it makes in the country where it manufactures products or sells goods and services into a tax haven.

Relevance: Recent allegations of Hindenburg on Adani Group mention use of Round Tripping by the group for stock market manipulations.

Q29.

Answer: c

Explanation:

- **Forex reserves** are Foreign Currency Assets (FCA) held by the central banks of countries. These assets include foreign marketable securities, monetary gold, Special Drawing Rights (SDRs) and reserve position in the International Monetary Fund (IMF).
- **Movements in the FCA** (major component) occur mainly on account of the purchase and sale of foreign exchange by the Reserve Bank, income arising out of the deployment of the forex reserves, external aid receipts of the Central Government and changes on account of revaluation of the assets.
- If the United States of America (USA) Federal Reserve tightens monetary policy and hikes interest rates

then foreign investors pull back the capital from India seeking higher returns in the USA. This is the reason for the recent decline in India's forex reserves is **capital outflows** by Foreign Portfolio Investors (FPIs). **So, statement 1 is correct.**

- The **appreciation of the US dollar against the Indian rupee** reflects valuation loss of the rupee. As more rupees need to be paid for each additional unit of US Dollar, it will lead to **decrease in the foreign exchange reserves** of India. Foreign exchange reserves are maintained as a multi-currency portfolio comprising major currencies such as the US dollar, Euro, Pound sterling, and Japanese yen, among others, but are valued in terms of US dollars. When the dollar strengthens, the valuation of other currencies vis-à-vis the US currency declines, leading to notional fall in the overall reserves position. **So, statement 2 is correct.**

Therefore, option (c) is the correct answer.

Relevance: Foreign exchange reserves of India fell by \$8.06 billion to \$580.02 billion in July in the wake of the appreciation of the dollar.

Q30.

Answer: c

Explanation:

- **Capital expenditure** is the money spent by the government on the development of **machinery, equipment, building, health facilities, education**, etc. It also includes the expenditure incurred on acquiring **fixed assets** like land and investment by the government that gives profits or dividends in future.
- In an economy, capital expenditure has a **greater multiplier effect than revenue expenditure** because it contributes to the **long-term growth and productivity of the economy**. Capital expenditures by businesses can increase productivity, create jobs and drive economic growth by improving infrastructure, increasing output and reducing costs. This, in turn, can lead to increased spending and investment and further economic growth. In contrast, revenue expenditures are typically ongoing expenses that do not create long-term value or have as large of an impact on economic growth.

Therefore, option (c) is the correct answer.

Relevance: Recently, the Prime Minister of India urged Indians to increase investment in sync with the government's capital expenditure push.

Q31.

Answer: c

Explanation:

- The theme of India's **G20 Presidency** - "**Vasudhaiva Kutumbakam**" or "One Earth · One Family · One Future", is drawn from the ancient Sanskrit text of the **Maha Upanishad**. Essentially, the theme affirms the value of all life – human, animal, plant, and microorganisms – and their **interconnectedness on the planet Earth and in the wider universe**. The words come from the mantra in Maha Upanishad which belongs to the **Samaveda tradition**.

Therefore, option (c) is the correct answer.

Relevance: India holds the Presidency of the G20 from December 1, 2022 to November 30, 2023.

Q32.

Answer: b

Explanation:

- **Paramahansa Mandali** was a **secret socio-religious group, established** in 1849, in Bombay and is closely related to Manav Dharma Sabha which was founded in 1844 in Surat. It was started by **Durgaram Mehtaji, Dadoba Pandurang and a group of his friends**. Dadoba Pandurang assumed leadership of this organisation after he left Manav Dharma Sabha. He outlined his principles in Dharma Vivechan in 1848 for Manav Dharma Sabha and "Paramhansik Bramhyadharma" for Paramahansa Mandali. **So, pair 1 is not correctly matched.**
- **Sadharan Brahmo Samaj** was a division of Brahmoism formed as a result of schisms in the Brahmo Samaj in 1866 and 1878 respectively. It was formed in a public meeting of Brahmos held in the Town Hall of Calcutta in 1878. **Ananda Mohan Bose, Umesh Chandra Dutta** and Sivnath Sastri were the founders of this organisation. **So, pair 2 is correctly matched.**
- **Prarthana Samaj**, a leading society for socio-religious reform, was established in 1867 in Bombay by **Atmaram Panduranga**. The movement gained momentum and popularity after scholar and reformer **Mahadev Govind Ranade** joined it. **So, pair 3 is not correctly matched.**

- **Tattwabodhini Sabha** was a group founded in Calcutta in 1839 as a splinter group of the Brahmo Samaj, reformers of Hinduism and Indian Society. The founding member was **Debendranath Tagore**. The other Brahmins who swore the First Covenant of Brahmoism are **Shridhar Bhattacharya** and Shyamacharan Bhattacharya. So, pair 4 is correctly matched.

Therefore, option (b) is the correct answer.

Q33.

Answer: b

Explanation:

- Five **ecological regions mentioned in ancient Tamil Sangam literature** are Kurinji, Mullai, Marutham, Neithal and Paalai. The details of each ecological region are as follow:

SI. No.	Ecological Region	Relief Feature (Specific Area)
1.	Kurinji Thinal	Mountains and slopes (Nilgiris, Kodaikanal, Palani, Kolli and Jawadhu Hills).
2.	Mullai Thinal	Forests and grasslands (foothills of the Eastern and Western Ghats in Coimbatore, Salem, Tirunelveli, Krishnagiri, Theni and Kanyakumari districts).
3.	Marutham Thinal	Plains, valleys and agricultural lands (Area from Thanjavur, Tiruvarur, Coimbatore, Tiruchi, Salem, Tirunelveli and Krishnagiri).
4.	Neithal Thinal	Coastal or seashore (Nagapattinam, Thoothukudi and Kanyakumari districts).
5.	Paalai Thinal	Parched wasteland or desert (Ramanathapuram, Thoothukudi, Sivaganga and Virudhunagar districts).

Therefore, option (b) is the correct answer.

Relevance: Tamil Nadu sent soil samples for the new Parliament building from 5 ecological regions mentioned in ancient Tamil Sangam literature.

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Q34.

Answer: b

Explanation:

- **Diwan-i-Khas** or Hall of Private Audience in Agra fort was **built by Shah Jahan** in 1635 CE. It was used by the emperor **for holding cultural events** and meeting important guests such as Kings, ambassadors and nobles. **So, statement 1 is not correct.**
- **Buland Darwaza** or the “Door of Victory”, was built in 1575 by **Mughal emperor Akbar** to commemorate his victory over Gujarat. **So, statement 2 is correct.**
- **Tomb of Itmad-ud-daulah** was **commissioned by Nur Jahan**, the wife of Jahangir, for her father Mirza Ghiyas Beg. The tomb of Itmad-ud-daulah made significant use of white marble in its construction. It was during this time that **white marble became the chief building material**, replacing red sandstone which had been used till now. The tomb of Itmad-ud-daulah was the **first Mughal work made completely of white marble**. It also has some of the finest pietra-dura works. **So, statement 3 is not correct.**

Therefore, option (b) is the correct answer.

Relevance: Recently, the Archaeological Survey of India told the Delhi High Court that Agra Fort is a protected national monument and they can’t allow a private body to organise the Shivaji Jayanti function.

Q35.

Answer: b

Explanation:

- In the Medieval period, the middle-class masses largely consisted of merchants. Among the **merchant classes, the most prominent communities were Chettiars, Bohras and Oswals.**
- During the medieval period of Indian history, the **Bohras were mainly traders and merchants who were involved in international trade and commerce.** They were known for their business acumen and their ability to establish trade networks across different regions and cultures.
- The Bohras were also known for their **contributions to the arts, literature, and culture of India.** They patronized poets, musicians, and artists, and they were active participants in the vibrant cultural scene of medieval India.

Therefore, option (b) is the correct answer.

Relevance: Recently, the Bombay High Court reserved its order in succession row for Dawoodi Bohra’s leadership.

Q36.

Answer: b

Explanation:

- The **Vedic Age** was a period in ancient Indian history, characterized by the composition and **evolution of the Vedas, ancient Sanskrit texts** that are considered the oldest sacred texts of Hinduism. The Vedic Age is considered to have **begun around 1500 BCE and to have lasted until the rise of Buddhism in India around 500 BCE.**
- The Balisadhakas were the **officials appointed to collect Bali**. Bali was a **voluntary payment** or a gift given by the tribal people to a chief called Rajan in the Vedic period. Bali became obligatory during the Buddha period and was collected by Balisadhakas. **So, pair 1 is not correctly matched.**
- The **village headman was known as the Grama Bhojaka**. He dealt with providing employment and recruiting workers as he owned a very large piece of land and got it cultivated by his slaves and hired workers. He had the authority to collect taxes from the village, by the order of the king. Apart from revenue collection they also functioned as a judge and sometimes as a policeman. **So, pair 2 is correctly matched.**
- **Shaulkika** refers to the “superintendents of tolls” and represents an official title used in the political management of townships in the Vedic Age. They used to collect land revenues, tolls, and taxes. He collected customs from traders. **So, pair 3 is correctly matched.**

So, only two pairs are correctly matched.

Therefore, option (b) is the correct answer.

Q37.

Answer: b

Explanation:

- The **Parrot Lady** also known as a **Naayika (Heroine)** is a 900-year-old sandstone sculpture, one of many

erotic stone sculptures that were created to adorn the **Khajuraho temples, Madhya Pradesh**. This three-ft-long exquisitely carved sculpture depicts a woman who is voluptuous, scantily clad, has a parrot on her back, and is immersed in conversation with her pet parrot.

- **Khajuraho** (Chhatarpur district, Madhya Pradesh) is an ancient city known for its 85 magnificent temples and intricate sculptures, **built between 950-1050 CE by the Chandela Dynasty**. It is famous for its **Nagara-Style architecture** and graceful **sculptures of Nayikas (Hindu Mythological female protagonists) and deities**. These temples represent various forms of meditation, spiritual teachings, and relationships through stimulating art. Their fine sculptures and exceptional architectural skills make them one of the most stunning **UNESCO World Heritage Sites** in India.

Therefore, option (b) is the correct answer.

Relevance: 900-year-old Parrot Lady sandstone sculpture is going to return to Khajuraho from Canada.

Q38.

Answer: b

Explanation:

- In Jainism, '**Tirthankara**' (Jina/Victor) is a saviour who has succeeded in crossing over life's stream of rebirths and has made a path for others to follow. Jains believe that their tradition does not have a historical founder. **Jaina's tradition has a chronology of 24 Tirthankaras**. The 24th Tirthankara was 'Mahavira' (Vardhamana) (599-527 CE).
- '**Prashvanatha**' was the 23rd **Tirthankara of Jaina's tradition**, born in Varanasi, into a royal family in the Ikshvaku dynasty in the **7th century BCE**. He renounced the world to become an ascetic at age thirty, meditated under a Dhaataki tree and attained enlightenment (Kevalajnana) after 84 days. He was the first Tirthankara for whom historical evidence is available. **So, statement 1 is correct.**
- There are **five Mahavrats in the Jainas tradition**. Out of five, **Lord Parshvanatha gave four Mahavrat which are Non-violence, Truth, Renunciation, Asteya**, and the last Tirthankara, Mahavira gave one Mahavrat which is Brahmacharya. **So, statement 2 is correct.**
- '**Nagarjuna**' (150-250 CE) was a Buddhist philosopher from South India who adorned the court of Kanishka (78 - 120 CE), ruler of Kushanas in the 1st Century CE. Parshvanatha lived during the 7th century BCE. **So, statement 3 is not correct.**
- **Nagarjuna** was the most important Buddhist philosopher after the historical Buddha himself and is traditionally regarded as the **founder of the Madhyamika (Middle Way) school**, an important tradition of Mahayana Buddhist philosophy. This philosophy is based on the central notion of 'emptiness' (sunyata). **So, statement 4 is correct.**

Therefore, option (b) is the correct answer.

Relevance: Jaina community is protesting against the declaration of Parasnath hill, a holy place as a tourist spot.

Q39.

Answer: c

Explanation:

- **Votive Stupas** are forms of the stupas, **with their distinctive domelike drum**. It originated in eight cylindrical structures where the Buddha's relics were placed after his death.
- The larger Votive stupa at Bodhgaya was probably given by visiting kings. The smaller stupa is offered by monks and lay pilgrims to **serve as a place of worship**.
- Beginning in the 7th century CE in India, small miniature terracotta stupas became popular as votive offerings.
- With respect to Buddhism, the stupas erected over relics are called Sariraka Stupas. Other stupas called Paribhogika were erected over objects used by the Buddha, such as his bowl, girdle, clothes etc. and others called **Uddesika(votive)** were raised over places which **were made famous by the presence of Buddha**. These are commemorative stupas. Beside all these, there are also the sculpted, engraved painted stupas intended to procure merit for the donors. Most stupas contain relics that must have been considered from ancient times as a substitute for the Buddha. In Buddhist history, the Buddha was considered to be a Chakravartin, a universal monarch.

Therefore, option (c) is the correct answer.

Relevance: Archeological Survey of India (ASI) has discovered two 1200-year-old miniature votive stupas near Sarai Tila mound on the premises of 'Nalanda Mahavihara'.

Q40.

Answer: b

Explanation:

- **The Indus Valley Civilisation (IVC)**, also known as the Harappan Civilisation, was a Bronze Age civilisation in the northwestern regions of South Asia, lasting from 3300 BCE to 1300 BCE, and in its mature form 2600 BCE to 1900 BCE.
- Items such as **copper, tin**, gold, silver and precious stones **had to be brought from distant places and were not available easily to the Harappans**. The Harappans probably got copper from present-day Rajasthan and even from Oman in West Asia. Tin, which was mixed with copper to produce bronze, has been brought from present-day Afghanistan and Iran. **So, statement 1 is not correct.**
- The Harappans **domesticated animals on a large scale**. **Oxen**, buffaloes, **goats**, humped bulls, sheep, pigs, asses, **camels** were also domesticated. Horses weren't regularly used but the Harappans were well acquainted with elephants and the rhinoceros. **So, statement 2 is correct.**
- Ploughed fields, with the help of wooden ploughs, have been discovered at Kalibangan. Terracotta models of plough have been found at Banawali and Bahawalpur. But **iron ploughs were not used in the Indus valley civilization**. IVC cities were part of an age when iron was unknown. Iron came in use in the beginning of the second millennium BCE. **So, statement 3 is not correct.**
- In the Harappan settlements, both **sun-dried and baked bricks were used at a standardized ratio**, where the length and breadth were four times and twice the height respectively. Though the use of burnt brick was rare, mud brick structures are plenty. The use of bricks also allowed the Harappans to build structures that were resistant to earthquakes, as the brick walls were able to flex and absorb shock. **So, statement 4 is correct.**

Therefore, option (b) is the correct answer.

Relevance: The new archaeological finds from the Tel Tsaf site in Israel have shown the presence of cotton fibres originating in the Indus Valley and dating 5200 BCE, or 7,200 years ago.

Q41.

Answer: a

Explanation:

- **Salt** is effective as a preservative because it **reduces the water activity of foods**. The water activity of a food is the amount of **unbound water available for microbial growth** and chemical reactions. Salt's ability to **decrease water activity** is thought to be due to the ability of sodium and chloride ions to associate with water molecules.
- Adding salt to foods can also cause microbial cells to undergo **osmotic shock**, resulting in the loss of water from the cell and thereby causing cell death or retarded growth. It has also been suggested that for some microorganisms, salt may limit oxygen solubility, interfere with cellular enzymes, or force cells to expend energy to exclude sodium ions from the cell, all of which can reduce the rate of growth.

Therefore, option (a) is the correct answer.

Relevance: The World Health Organisation (WHO) has released a report stating that the Earth is well behind its goal of cutting down sodium intake by 30%, by the year 2025.

Q42.

Answer: a

Explanation:

- **'Polygraph Test'** is a **procedure that detects several physiological indicators**, including pulse, **blood pressure**, respiration, skin conductivity, heart rate, sweating, **breathing rate**, Limb movement, etc, which indicate if a person is being untruthful when asked a series of questions. The term polygraph literally means recording many physiological activities simultaneously. These responses are monitored by electrodes and Blood Pressure and pulse measuring devices fitted onto the person. A numerical value is assigned to each response to conclude whether the person is telling the truth, is deceiving, or is uncertain. **So, points 1 and 2 are correct.**
- Polygraph test **does not track changes in eye movements and brain activities**. A functional magnetic resonance imaging (fMRI) measures brain activity. Also, recently a company has invented a new tech that can detect lies by deciphering involuntary eye movements. **So, points 3 and 4 are not correct.**
- The principle behind the polygraph test is that any **untruthful responses produce different physiological responses** than those associated with non-deceptive answers. The Supreme Court ruled that **no lie detector**

tests should be administered except on the basis of the consent of the accused and 'Guidelines for the Administration of Polygraph Test on an Accused' published by the National Human Rights Commission in 2000, must be strictly followed.

Therefore, option (a) is the correct answer.

Relevance: Recently, a polygraph test was conducted for an accused in a murder case.

Q43.

Answer: c

Explanation:

- **Generative AI refers to a class of Artificial Intelligence (AI)** systems that are designed to **create new and original content**. Unlike other types of AI, such as machine learning or expert systems, which are designed to learn from existing data or rules, generative AI systems are trained to generate new content based on a set of rules or patterns.
- **Designing proteins for medicines** is one of the areas where Generative AI is being increasingly used. Generative AI can accelerate the process of protein design by generating new protein sequences that are optimized for a particular target or function. It works by training a deep learning algorithm on a large dataset of protein structures and their properties, allowing it to learn the rules that govern protein folding and function. **So, point 1 is correct.**
- **Replicating human emotions and empathy** is **not an activity** that Generative AI can perform with the same level of complexity and nuance as humans. While AI can be trained to recognize and respond to certain emotional cues, it does not truly understand the feelings behind those cues or experience empathy in the same way that humans do. **So, point 2 is not correct.**
- Accurately **searching and identifying habitable planetary systems** is a complex task that is **not at present** performed by Generative AI. While AI can be used to process large amounts of data and identify patterns, it is not yet advanced enough to accurately search for and identify habitable planets.
- Currently, the search for habitable planets is primarily done through astronomical observations, using telescopes and other instruments to detect changes in a star's brightness or gravitational pull caused by a planet orbiting it. This data is then analyzed by astronomers and planetary scientists using a combination of statistical methods and computer simulations to determine if a planet is potentially habitable. **So, point 3 is not correct.**
- **Creating pictures based on text descriptions** is an activity that can be performed by Generative AI. This is known as text-to-image synthesis, and it is a growing area of research in the field of AI. Generative AI can be trained on a large dataset of paired text and image data, allowing it to learn the relationship between the two modalities. Using this knowledge, it can generate new images based on textual descriptions, such as "a red car driving down a winding road" or "a peaceful beach scene at sunset." **So, point 4 is correct.**

Therefore, option (c) is the correct answer.

Relevance: Recently, a new version of ChatGPT was released by OpenAI.

Q44.

Answer: c

Explanation:

- **Biotransformation Technology** is a novel approach to ensure plastics that **escape refuse streams** are **processed efficiently** and broken down. The technology produces plastics that have a predetermined lifespan in which they maintain the appearance and quality of traditional plastics.
- Once this lifespan expires and they are exposed to the surrounding environment, they undergo a self-destructive process and biotransform into wax that is bioavailable. The bioavailable wax is **biologically transformed through mineralization by naturally occurring bacteria and fungi** in the natural environment and under mesophilic/ambient temperature conditions.
- The tech was co-developed by the Imperial College in London and a Britain-based startup, Polymateria.

Therefore, option (c) is the correct answer.

Relevance: A UK-based startup claims to have developed Biotransformation technology that can alter the state of plastics and make them biodegradable without leaving behind any microplastics.

Q45.

Answer: b

Explanation:

- The **Roche Limit** is the distance within which the gravitational field of a large body is strong enough to prevent any smaller body from being held together by gravity. It is the **minimum distance at which a celestial body**, such as a moon, can approach a planet or other massive object **without being destroyed by tidal forces**.
- It is determined by the balance between the gravitational forces holding the moon together and the tidal forces pulling it apart. If a moon gets too close to the planet, the gravitational forces of the planet will be stronger than the moon's self-gravity, causing it to **break apart and form a ring system**. Therefore, the Roche Limit is an important concept in the study of planetary rings, moon formation, and the potential hazards of close approaches between celestial bodies

Therefore, option (b) is the correct answer.

Knowledge Box

- **Habitable zone or Goldilocks zone** is the distance from a star where conditions may be just right for the existence of liquid water on the surface of a planet.
- **Event Horizon** is the boundary around a black hole beyond which nothing, not even light, can escape. Once something crosses the event horizon, it is pulled inexorably towards the singularity at the centre of the black hole.
- **Magnetopause** is the boundary between a planet's magnetic field and the stream of charged particles that flows from the Sun. The magnetopause acts as a shield, deflecting most of the solar wind particles around the planet and protecting the planet's atmosphere and surface from the harmful effects of the solar wind.

Relevance: Astronomers have found a ring around a dwarf planet, located in the Kuiper Belt at the solar system's edge, called Quaoar.

Q46.

Answer: d

Explanation:

- **Aviation fuels** consist primarily of hydrocarbon compounds (paraffins, cycloparaffins or naphthenes, aromatics, and olefins) and contain additives that are determined by the specific uses of the fuel.
- **Paraffins and cycloparaffins** are the major components of Aviation turbine fuel.
 - » Paraffins have a high hydrogen-to-carbon ratio, with a high heat release per unit of weight and a cleaner burn than other hydrocarbons.
 - » Cycloparaffins have a lower hydrogen-to-carbon ratio, which results in less heat released per unit of weight but increases the fuel's density. **So, points 1 and 2 are correct.**
- **Olefins** are similar to paraffins but are unsaturated with lower hydrogen-carbon ratios. They are the most reactive of the hydrocarbons and are permitted at only a restricted percentage. **So, point 3 is correct.**
- Both types of jet fuels, be it Jet A and Jet A-1, are made up of **kerosene**, a product of extremely refined oil. **So, point 4 is correct.**

Therefore, option (d) is the correct answer.

Relevance: India turned from a net importer into a net exporter of Aviation fuel.

Q47.

Answer: a

Explanation:

- **Broadcasting method of sowing rice** is one of the most widely used methods for seeding on the ground. It is a simple and effective method that can be implemented in a wide range of agricultural practices. Broadcasting seed on the ground is done by broadcasting seed in a thin layer across an area and then covering it with soil. The seeds are broadcasted at a distance from each other so that **they do not touch each other**. This ensures that there **won't be any competition for resources**, such as water or nutrients, between the different plants. This method of sowing helps to maximize yields and ensure high germination rates while minimizing weed growths. **So, point 1 is correct.**
- **Drilling method of sowing rice** is the practice of **dropping seeds in rows and furrows**. Rows and furrows of predetermined dimensions are made, seeds are dropped at a definite depth and distance, covered with soil, and compacted. Sowing implements such as the seed drill or seed-cum-fertilizer drill are used. After seeding the field may be levelled or ridged. During seeding, other operations such as the drilling of

manures and fertilizers, pesticides, and soil amendments are also done simultaneously. Seed drilling is a planting method that uses a seed drill to place seeds in the ground. **So, point 2 is correct.**

- **Ratoon cropping** is defined as the cultivation of **sugarcane** in India. Ratoon cane is very important in sugarcane production. After the harvest of sugarcane, the **underground portion of the strikes gives rise to a succeeding crop**, which is known as ratoon crop. Sugarcane ratooning is a planting system that is generally adopted by most of the farmers in India. **So, point 3 is not correct.**
- **Sett method** is also used for **sugarcane** plantation. In this method, new canes are usually planted by taking **cuttings from the old plants**. These cuttings, known as setts, quickly become established and after a few days buds sprout to form new stalks. **So, point 4 is not correct.**

Therefore, option (a) is the correct answer.

Relevance: The Punjab government has decided to bring an area of 1.2 million hectare (mha) under the Direct Seeding of Rice (DSR) method.

Q48.

Answer: b

Explanation:

- **Proof of stake** is a consensus mechanism used to verify **new cryptocurrency transactions**. Since **blockchains** lack any centralized governing authorities, proof of stake is a method to guarantee that data saved on the network is valid. Proof of stake is the **consensus mechanism** that helps choose which participants get to handle this lucrative task.
- With proof of stake, participants referred to as “**validators**” lock up set amounts of cryptocurrency or crypto tokens—their stake, as it were—in a smart contract on the blockchain. In exchange, they get a chance to validate new transactions and earn a reward. But if they improperly validate bad or fraudulent data, they may lose some or all of their stake as a penalty.

Therefore, option (b) is the correct answer.

Relevance: Ethereum has recently transitioned from Proof of Work (PoW) to Proof of Stake (PoS).

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Q49.

Answer: b

Explanation:

- **Foodborne botulism is a serious, potentially fatal disease.** However, it is relatively rare. It is an intoxication usually caused by **ingestion of potent neurotoxins**, the botulinum toxins, formed in contaminated foods. Person-to-person transmission of botulism does not occur. Clostridium botulinum is a bacterium that produces dangerous toxins (botulinum toxins) under low-oxygen conditions. Botulinum toxins are one of the most lethal substances known. **So, point 1 is correct.**
- **Hepatitis A** is an inflammation of the liver caused by the **hepatitis A virus (HAV)**. The virus is primarily spread when an **uninfected (and unvaccinated) person ingests food or water** that is contaminated with the faeces of an infected person. The disease is closely associated with unsafe water or food, inadequate sanitation, poor personal hygiene, and oral-anal sex. Unlike hepatitis B and C, hepatitis A does not cause chronic liver disease but it can cause debilitating symptoms and rarely fulminant hepatitis (acute liver failure), which is often fatal. **So, point 2 is correct.**
- **Escherichia coli (E. coli)** is a bacterium that is commonly found in the gut of humans and warm-blooded animals. Most strains of E. coli are harmless. Some strains however, such as Shiga toxin-producing E. coli (STEC), **can cause severe foodborne disease.** It is transmitted to humans primarily through the **consumption of contaminated foods**, such as raw or undercooked ground meat products, raw milk, and contaminated raw vegetables and sprouts. **So, point 3 is correct.**
- **Measles is a fatal disease**, particularly in crowded regions. It can be transmitted from person to person. It is an **air-borne disease and not foodborne.** It can transmit to others up to 4 days before and four days after the measles rash appears. Measles is the biggest cause of death among children globally and was responsible for 140,000 deaths. Symptoms include cough, runny nose, inflamed eyes, sore throat, fever, and a red, blotchy skin rash. **So, point 4 is not correct.**

Therefore, option (b) is the correct answer.

Relevance: The Central Asia Regional Economic Cooperation (CAREC) region faces severe food safety challenges due to fractured safety control systems, according to the Asian Development Bank (ADB) 's working paper.

Q50.

Answer: b

Explanation:

- **Birds and mammals have a bona fide four-chambered heart.** This configuration ensures the separation of low-pressure circulation to the lungs and high-pressure pumping into the rest of the body. As warm-blooded animals, a lot of energy is needed by them and therefore need a great supply of oxygen for activities.
- **Reptiles** are mostly terrestrial animals and their body is covered by dry and cornified skin, epidermal scales or scutes. The heart is usually three-chambered.
- **Amphibians** can live in aquatic as well as terrestrial habitats. The heart is three-chambered (two auricles and one ventricle). These are cold-blooded animals.
- **Fish** hearts have just two chambers.

Therefore, option (b) is the correct answer.

Q51.

Answer: b

Explanation:

- **Constitutional Morality** means adherence to or being faithful to **core principles of constitutional values.** It includes **a commitment to an inclusive and democratic political process** in which both individual and collective interests are satisfied. In the context of the Constitution of India, the constitutional values are Democracy, Socialism, Equality and Integrity etc. briefly it is the **Preamble** which clarify the constitutional values.
- According to **Dr. B.R Ambedkar**, Constitutional Morality would mean effective coordination between conflicting interests of different people and administrative cooperation to resolve them amicably without any confrontation amongst the various groups working for the realization of their ends at any cost.

Therefore, option (b) is the correct answer.

Knowledge Box

- The word **constitutionalism** is used to describe the belief that a government's authority is dictated by a Constitution. It is a term used to describe **limited government.**



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- The Constitution of India is **supreme**, but the term Constitutional Morality **does not imply** that the **Constitution is static or should be interpreted in a literal sense**. It also does not mean that the principle of separation in the political and administrative spheres should be preserved.

Q52.

Answer: c

Explanation:

- A **Joint Parliamentary Committee (JPC)** is set up by the **Parliament** to **examine a particular bill** presented before it, or for the purpose of investigating cases of financial irregularities in any government activity. The JPC, an **ad-hoc body**, is set up for a given period of time and is aimed at addressing a **specific issue**. In order to set up a JPC, a motion is passed in one House and supported by the other House. The **committee's members are decided by Parliament**. The number of members can vary. **So, statements 1 and 2 are not correct.**
- To fulfill its mandate, a JPC can scrutinize documents and **summon people for questioning**. It then submits a report and makes recommendations to the government. **So, statement 3 is correct.**
- According to the Lok Sabha website, there have been six JPCs set up so far. These are "JPC to examine matters relating to Allocation and Pricing of Telecom Licences and Spectrum (2013); JPC on Pesticide Residues in and Safety Standard for Soft Drinks, Fruit Juice and other Beverages; JPC on Stock Market Scam and Matters Relating thereto; JPC to enquire into irregularities in Securities and Banking Transactions; JPC to enquire into Bofors Contract; Joint Committee to Examine the Constitutional and Legal Position Relating to Office of Profit."

Therefore, option (c) is the correct answer.

Relevance: Recently, the opposition parties have demanded a JPC probe in the Adani case.

Q53.

Answer: a

Explanation:

- The **Constituent Assembly** was constituted in November 1946 under the scheme formulated by the Cabinet Mission Plan. Of the 389 members of the Indian Constituent Assembly, **15 were women**. They were Ammu Swaminathan, Annie Mascarene, Dakshayani Velayudhan, Begum Aizaz Rasul, Durgabai Deshmukh, Hansa Mehta, Kamla Chaudhry, Leela Roy, Malati Choudhury, Purnima Banerjee, Rajkumari Amrit Kaur, Renuka Ray, Sarojini Naidu, Sucheta Kriplani, Vijayalakshmi Pandit.
- **Rajkumari Amrit Kaur** was elected to the Constituent Assembly from the United Provinces. Her most significant contribution was in ensuring extensive political participation of women. She became the **first woman to hold a cabinet position** in India as Health Minister. She was associated with the establishment of the All India Women's Conference Center, the Lady Irwin College in Delhi and the All India Institute of Medical Sciences (AIIMS). **So, point 1 is correct.**
- **Sucheta Kripalani** is remembered for her role in the Quit India Movement of 1942. She established the women's wing of the Congress party in 1940. She was also India's first woman Chief Minister. **So, point 2 is correct.**
- **Hansa Mehta** served on the Constituent Assembly and was a member of the fundamental rights sub-committee, the advisory committee and the provincial constitutional committee. On 15 August 1947, a few minutes after midnight, Mehta, on behalf of the "women of India", **presented the national flag to the assembly** which became the first flag to fly over independent India. **So, point 3 is correct.**
- **Annie Besant** passed away in 1933. **Kasturba Gandhi and Aruna Asaf Ali** were not part of the Constituent Assembly. Aruna's sister Purnima Banerjee was a member of the Constituent Assembly of India. **So, points 4, 5 and 6 are not correct.**

Therefore, option (a) is the correct answer.

Relevance: Rare images of India's first Republic Day celebrations and Constituent Assembly meetings were on display at the World Book Fair in New Delhi.

Q54.

Answer: a

Explanation:

- The **Constitution Amendment Bill does not require prior recommendation** of the **President** of India.

- The following Bills require the prior recommendation of the President before their introduction in the parliament:
 - » A Bill that seeks to **alter the boundaries of the States** and names of the States
 - » **Money Bill**. (A Bill to regulate the borrowing of money by the Union Government is a Money Bill)
 - » Finance Bill
 - » State Legislature Bill imposing **restrictions on freedom of trade**
 - » Any Bill which affects the **taxation in which the States are interested**

Therefore, option (a) is the answer.

Relevance: The Constitution (Amendment) Bill, 2022 (insertion of new article 3A) was introduced recently to provide state legislatures with explicit legislative competence to establish one or more capitals within their territory.

Q55.

Answer: d

Explanation:

- **Nyaya Panchayats** were established under the **Nyaya Panchayats Act, 2009** by the Union Ministry of **Panchayati Raj** with the **aim to revitalize the concept of participatory grassroots-level dispute resolution** by mediation, conciliation and compromise outside the formal judicial system. It will further improve access to and administration of justice to all citizens of the country which is a constitutional ideal and mandate by the Government of India.
- **Section 13 (1)** of the above Act declares that, notwithstanding anything contained in the Code of Criminal Procedure, 1973, the Code of Civil Procedures, 1908, the Provincial Small Cause Courts Act, 1887, or any other law for the time being in force, the Nyaya Panchayat shall have exclusive jurisdiction to hear and deal with cases, claims, issues, offences and proceedings arising within their geographical territory and **shall have exclusive jurisdiction over the civil and criminal matters. So, statement 1 is correct.**
- The procedure laid down for the trial of cases has been designed to avoid delays and technical difficulties. Therefore, the procedure followed in Nyaya Panchayats is very simple and informal. The procedure codes like the Code of Civil Procedure, Criminal Procedure Code and Indian Evidence Act apply to the Nyaya Panchayats. But, they have the power to call witnesses and the parties for recording their evidence or producing any relevant document or fact. **Unlike courts, they have the power to investigate the facts** to find out the truth and at the same time, they have the power to punish for its contempt. **Lawyers cannot appear** before a Nyaya Panchayat in any of its proceedings. **So, statements 2 and 3 are correct.**
- Nyaya Panchayats constitute a Sarpanch as its head and few panchai (generally it varies between 10 to 30). Each member of Nyaya panchayat must be literate and must be of minimum 30 years of age. The appointment is based on nomination and election.

Therefore, option (d) is the correct answer.

Q56.

Answer: c

Explanation:

- **House arrest**, also known as home confinement or home detention, is the act of confining a person to specified premises that are not a regular jail. These premises can be the person's own home or someone else's, subject to approval by the authorities. House arrest is seen as an alternative to confinement in jail either during trial or after sentencing, which can be used in the case of certain categories of prisoners with specific medical or other needs, or those who are not deemed dangerous.
- Section 167 of the **Code of Criminal Procedure (CrPC), 1973 does not mention house arrest**. However, it declares that the Magistrate to whom an accused person is forwarded under this section may authorise the detention of the accused in such custody as such Magistrate thinks fit. The Supreme Court held that a Judicial Magistrate can remand the accused to house arrest under Section 167 of the CrPC. **So, statement 1 is correct.**
- In India, **prisoners do not have voting rights under the Representation of People Act, 1950**. Thus, a convicted person under House Arrest is **not eligible to vote**. But this restriction does not apply to a person subjected to any kind of preventive detention. **So, statement 2 is correct.**

Therefore, option (c) is the correct answer.

Relevance: The Supreme Court of India had ordered placing a human rights activist under house arrest.

Q57.

Answer: c

Explanation:

- The **Emergency provisions** are contained in Part XVIII of the Constitution, from Articles 352 to 360. These provisions enable the Central Government to meet any abnormal situation effectively. The rationality behind the incorporation of these provisions in the Constitution is to safeguard the sovereignty, unity, integrity and security of the country, the democratic political system, and the Constitution.

National Emergency (Article 352)	President's Rule (Article 356)
It can be proclaimed only when the security of India or a part of it is threatened by war, external aggression or armed rebellion.	It can be proclaimed when the government of a state cannot be carried on in accordance with the provisions of the Constitution due to reasons which may not have any connection with war, external aggression or armed rebellion
During its operation, the State Executive and the legislature continue to function and exercise the powers assigned to them under the Constitution. Its effect is that the Centre gets concurrent powers of administration and legislation in the State.	During its operation, the State Executive is dismissed and the State Legislature is either suspended or dissolved. The President administers. The State through the Governor and the Parliament make laws for the State. In brief, the executive and legislative powers of the State are assumed by the Centre. So, point 1 is not correct and point 4 is correct.
Under this, the Parliament can make laws on the subjects enumerated in the State List only by itself, that is, it cannot delegate the same to any other body or authority.	Under this, the Parliament can delegate the power to make laws for the State to the President or to any other authority specified by him. So far, the practice has been for the president to make laws for the state in consultation with the members of Parliament from that state. Such laws are known as the President's Acts.
There is no maximum period prescribed for its operation. It can be continued indefinitely with the approval of Parliament every six months.	There is a maximum period prescribed for its operation, that is, three years. Thereafter, it must come to an end and the normal constitutional machinery must be restored in the state. So, point 2 is not correct.
Under this, the relationship of the Centre with all the states undergoes a modification.	Under this, the relationship of only the state under emergency with the Centre undergoes a modification
Every resolution of Parliament approving its proclamation or its continuance must be passed by a special majority.	Every resolution of Parliament approving its proclamation or its continuance can be passed only by a simple majority.
It affects the Fundamental Rights of the citizens.	It has no effect on the Fundamental Rights of the citizens. So, point 3 is not correct.
Lok Sabha can pass a resolution for its revocation	There is no such provision. It can be revoked by the President only on his own.

Therefore, option (c) is the correct answer.

Relevance: The Ex-Jharkhand Chief Minister had raised the demand for President's rule in the state.

Q58.

Answer: c

Explanation:

- The **United Nations Security Council** has primary responsibility for the maintenance of international peace and security. It has **15 Members**, and each Member has one vote. **India's two-year term** as a non-

permanent member of the Security Council **ended in 2022. So, point 1 is not correct.**

- The **United Nations Human Rights Council** is an inter-governmental body made up of **47 States** responsible for the promotion and protection of all human rights around the globe. India is a **member. So, point 2 is correct.**
- The **United Nations Statistical Commission**, established in **1947**, is the highest body of the **global statistical system** bringing together the Chief Statisticians from member states from around the world. **India has been elected recently** to the UN Statistical Commission for a four-year term. **So, point 3 is correct.**
- The **United Nations Industrial Development Organization** is a **specialized agency** of the United Nations with a unique mandate to promote, dynamize and accelerate industrial development. India is a **member. So, point 4 is correct.**

Therefore, option (c) is the correct answer.

Relevance: India has been elected to the UN Statistical Commission for a four-year term.

Q59.

Answer: c

Explanation:

- **Urals, Sokol and Varandey** are the **grades of crude oil from Russia**. India purchased a record 51.15 million barrels, or 1.65 million barrels per day (mbd), of crude oil from Russia making it the largest buyer of seaborne crude from Russia surpassing China for the fourth consecutive month in April 2023.
- Recent data show that 70 per cent of the imports from Russia were the medium sour grade Urals blend, followed by lighter blends such as Sokol (10 per cent), Varandey (6 per cent each), Arco (2 percent) and Novy Port Light & Siberian Light (2 per cent each).

Therefore, option (c) is the correct answer.

Relevance: India has emerged as one of the largest buyers of crude oil from Russia in recent times.

Q60.

Answer: c

Explanation:

- The **British East India Company** was a **private corporation** formed in 1600 CE to establish a British presence in the lucrative Indian spice trade, which until then had been monopolized by Spain and Portugal.
- The company eventually became an immensely powerful agent of British imperialism in South Asia and the de facto colonial ruler of large parts of India.
- Following several years of misrule and a **massive famine (1770) in Bengal**, where the Company had installed a **puppet regime in 1757**, the Company's land revenues fell steeply, **forcing it to appeal (1772) for an emergency loan of £1 million** to avoid bankruptcy. Although the East India Company was **bailed out by the British Government**, harsh criticism and investigations by Parliamentary Committees led to Government oversight of its management (the Regulating Act of 1773) and later to Government control of political policy in India (the India Act of 1784).
- Partly because of endemic corruption, the **Company** was gradually deprived of its commercial monopoly and political control, and its Indian possessions were nationalized by the British crown in 1858. It was formally **dissolved in 1874 by the East India Stock Dividend Redemption Act (1873)**. The Act also provided for the Redemption or Commutation of the Dividend on the Capital Stock of the East India Company, and for the transfer of the Security Fund of the India Company to the Secretary of State in Council of India.

Therefore, option (c) is the correct answer.

Q61.

Answer: b

Explanation:

- **Jet streams** are narrow bands of high-speed winds that generally blow from west to east across the globe. They are like rivers of wind flowing through the upper layers of the troposphere. They have a huge influence on climate, as they can push air masses around and affect weather patterns.
- **Subtropical Westerly Jet stream dominates in winter time** in the upper troposphere circulation of the Northern latitudes and can be located over the Indian subcontinent at a height of about 12 km. The Western cyclonic disturbances which enter the Indian subcontinent from the West and the Northwest during the winter months, originate over the Mediterranean Sea and are brought into India by the westerly jet stream.

The jet stream withdraws from the subcontinent during summertime **when the Sun falls vertically over the Tropic of Cancer. So, statement 1 is not correct.**

- The **Easterly Jet stream** steers the tropical depressions into India. These depressions play a significant role in the distribution of monsoon rainfall over the Indian subcontinent. The tracks of these depressions are the areas of the highest rainfall in India. The frequency at which these depressions visit India, their direction and intensity, all go a long way in determining the rainfall pattern during the Southwest monsoon period. The Easterly Jet stream sets in along 15°N latitude **only after the Subtropical Western jet stream has withdrawn** itself from the region. This easterly jet stream is held responsible for the burst of the monsoon in India. **So, statement 2 is correct.**

Therefore, option (b) is the correct answer.

Q62.

Answer: b

Explanation:

- Milankovitch cycles are **periodic changes in the orbital characteristics of a planet that control how much sunlight it receives**, thus affecting its climate and habitability over hundreds of thousands of years.
- The **tilt of the Earth's axis toward the plane in which the planet orbits** affects the angle at which sunlight strikes different parts of the planet, influencing the amount and intensity of solar radiation that reaches the surface.
- The shape and elevation of the **Earth's topography** can affect local weather patterns and climate, but they **do not affect the amount of sunlight that reaches the outer atmosphere.**
- The **composition of the Earth's atmosphere** affects how much solar radiation is absorbed, reflected, and scattered by the atmosphere. Greenhouse gases, such as carbon dioxide, methane, and water vapor, trap some of the Sun's energy, warming the Earth's surface and lower atmosphere.
- The **shape of Earth's orbit around the Sun** affects the distance between the Earth and the Sun, which in turn affects the amount of solar radiation that reaches the planet's surface. The shape of Earth's orbit around the Sun is not a perfect circle but rather an ellipse, which means that the distance between the Earth and the Sun varies throughout the year. When the Earth is closer to the Sun (at perihelion), it receives more solar radiation, while when it is farther away (at aphelion), it receives less solar radiation. This variation in distance due to the elliptical shape of the orbit is one of the factors that contributes to the Earth's seasonal cycle.

Therefore, option (b) is the answer.

Relevance: NASA scientists have revealed that the Moon is slowly drifting away from the Earth possibly due to Milankovitch cycles.

Q63.

Answer: c

Explanation:

- An '**Ocean Gyre**' is a large system of circular ocean currents formed by global wind patterns and forces created by Earth's rotation. The movement of the world's major ocean gyres helps drive the "**ocean conveyor belt.**" The ocean conveyor belt circulates ocean water around the entire planet. Also known as thermohaline circulation, the ocean conveyor belt is essential for regulating temperature, salinity and nutrient flow throughout the ocean.
- Ocean gyres are **large systems of rotating ocean currents**, particularly those found in the five major ocean basins: the North Atlantic, South Atlantic, Indian, North Pacific and South Pacific. **So, statement 1 is correct.**
- Ocean gyres are formed by a **combination of wind patterns, temperature, and the rotation of the Earth (and not due to magma heat).** The rotation of the Earth causes the Coriolis effect, which deflects ocean currents to the right in the Northern Hemisphere and to the left in the Southern Hemisphere. Wind patterns can also drive surface currents in a circular pattern, contributing to the formation of gyres. Temperature differences between the equator and the poles can create a thermohaline circulation that also influences the formation of gyres. The combination of these factors can create the large, circular ocean currents known as gyres. **So, statement 2 is not correct.**
- Ocean gyres help to regulate the **Earth's climate by redistributing heat and balancing temperatures.** The circulation of ocean currents is responsible for moving warm and cold water around the globe, which helps to distribute heat more evenly. For example, **warm water from the equator is transported towards**

the poles, where it releases heat to the atmosphere and cools down. This redistribution of heat helps to regulate global temperatures and prevent extreme climate conditions. Ocean gyres also play a role in transporting nutrients, carbon dioxide, and oxygen around the globe, which also has implications for the Earth's climate and ecosystems. **So, statement 3 is correct.**

Therefore, option (c) is the correct answer.

Relevance: Lowest sea ice on record has powered ocean gyres as a heat source that would affect West Antarctica.

Q64.

Answer: b

Explanation:

- **Brahmaputra** river **originates near Mansarovar** in the **Chemayungdung glacier of the Kailash range** in China. It traverses eastward longitudinally in Southern Tibet, where it is known as the **Tsangpo**. It emerges at the foothill of the Himalayas under the name **Siang or Dihang** which enters India west of Sadiya town in Arunachal Pradesh.
- The **Teesta** is the largest river in North Bengal. It rises in the Himalayas in North Sikkim. Running through narrow gorges, it debouches into the plains of the Jalpaiguri district. It flows in a steady course up to Jalpaiguri town beyond which it records frequent changes. **It joins the Brahmaputra near Rangpur town in Bangladesh.**
- The **Siang** is the principal constituent river of the Brahmaputra known as Yarlung Zangbo in China. It originates from the glacier mass of the Kailash Range of the Himalayas and flows through China. **Lohit and the Dibang join the Siang at about 30 km downstream of Pasighat to form the mighty Brahmaputra River.**
- The **Subansiri** rises in the mountains of Tibet. Near its source, a big "Chu" family of streams drain into the main valley. The principal stream belonging to this "Chu" group is the "Sikung chu" which may be considered as the main source of the Subansiri. **It joins the Brahmaputra in Assam.**
- **Manas** river basin is bounded by the Bhutan range of hills on the North, the Pohumara River basin on the East, the Champamati River basin on the West and the Brahmaputra River on the South. At Mathanguri, this river bifurcates into two branches, the eastern branch is known as Beki and the western branch is known as

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Manas. **The river Manas meets the river Brahmaputra near Jogighopa in Assam.**

- Thus, amongst the rivers mentioned, River Teesta joins the Brahmaputra the last.

Therefore, option (b) is the correct answer.

Relevance: The Bengal irrigation department took possession of around 1,000 acres to dig two more canals under the Teesta Barrage Project to channelise water for agricultural purposes.

Q65.

Answer: b

Explanation:

- Soil formation is a very long process and actually begins with the weathering of rocks into small fragments. The origin of soil is from rocks (parent material), usually formed when rocks are exposed to the atmosphere in the process of physical and chemical decomposition.
- Alluvial soils are **rich in nutrients like phosphoric acid and organic matter** (humus). They are found across most parts of the delta regions of Northern India. However, they are poor in nitrogen and potash. Alluvial soils are a mixture of clay and sand (loam). These soils tend to be sandier and can have quick-draining properties than many other soils. **So, statement 1 is correct.**
- **Black soils** contain a large amount of clay but are sandy as well in hillier regions of the country. **Black soils become sticky when wet and develop wide cracks during the dry season.** Laterite soil is acidic in nature and is poor in humus (organic matter), phosphate, nitrogen, and calcium. Laterite soils are very rich in iron. **So, statement 2 is not correct.**
- **Red soils** are red in colour due to the presence of iron oxide. These are **formed due to weathering of metamorphic rocks.** These soils are sandy and somewhat acidic and rich in potash. However, they are very poor in lime, nitrogen, phosphorus, magnesium and organic matter (humus). **So, statement 3 is correct.**
- Arid soils are sandy and have low clay content. These soils are deficient in humus and moisture due to the fact that high evaporation in arid regions. Arid soils are **saline in nature due to the high salt content and poor nitrogen.** However, they are rich in plant food. The colour of arid soils ranges from red to brown. **So, statement 4 is correct.**

Therefore, option (b) is the correct answer.

Q66.

Answer: b

Explanation:

- The precise location of any point on the earth's surface can be specified by giving its **latitude, longitude and elevation above mean sea level.**
- **Latitude** is the angular distance of a point north or south of the equator, which is defined as 0 degrees latitude. **Longitude** is the angular distance of a point east or west of the prime meridian, which is an imaginary line that runs from the North Pole to the South Pole and passes through Greenwich, England. **Elevation** is the vertical distance between the point and mean sea level, which is an average level of the surface of the sea.
- **Together, latitude, longitude and elevation** provide a complete set of geographic coordinates that can precisely locate any point on the Earth's surface. These coordinates are used in a wide range of applications, such as surveying, mapping, navigation and geospatial analysis. **So, points 2, 3 and 5 are correct.**
- **Wind direction of the location and distance of the location from Equator** are **not** sufficient to determine the precise location of a place on the earth's surface. **So, points 1 and 4 are not correct.**

Therefore, option (b) is the correct answer.

Q67.

Answer: c

Explanation:

- **Radiation fog** is a type of fog that **forms on clear and calm nights** when the ground radiates heat away and cools. **So, pair 1 is correctly matched.**
- **Advection fog** is formed when **warm and moist air moves over a colder surface.** **So, pair 2 is not correctly matched.**
- **Valley fog** is a type of radiation fog that forms in the early morning hours in valleys and other low-lying areas. It is **caused by cool and dense air settling into the valley** and the ground radiating heat away during the night. **So, pair 3 is correctly matched.**

Therefore, option (c) is the correct answer.

Q68.

Answer: b

Explanation:

- In India, three cropping seasons are followed in agriculture — **rabi, kharif and zaid**.
- In **between the rabi and the kharif seasons**, there is a short season during the summer months known as the **zaid season**. It requires **warm and dry weather** for vital growth period and longer day length for flowering.
- Some of the crops produced during zaid are **Pumpkin, watermelon**, muskmelon, **cucumber**, Bitter gourd, vegetables and fodder crops. **So, points 2, 3 and 4 are correct.**
- **Barley and mustard** are **Rabi** crops. **So, points 1 and 5 are not correct.**

Therefore, option (b) is the correct answer.

Relevance: National Conference on Agriculture for Zaid (Summer) Campaign-2023 was held in New Delhi.

Q69.

Answer: d

Explanation:

- The **Dvorak technique** is a **cloud pattern recognition technique** based on a concept model of the **development and decay of the tropical cyclone**.
- From the satellite images obtained, the Dvorak technique helps forecasters to do a pattern recognition from the observed structure of the storm, locate its eye and estimate the intensity of the storm.
- Through this statistical technique, scientists are able to measure the cyclone's convective cloud pattern — curved bands, eye and central dense or cold region and shear.
- It was first developed by **Vernon Dvorak in 1969** and tested for **observing storms in the northwest Pacific Ocean**. Forecasters used the available satellite images obtained from polar orbiting satellites to examine the features of the developing tropical storms (hurricanes, cyclones and typhoons).

Therefore, option (d) is the correct answer.

Relevance: The American meteorologist, Vernon Dvorak recently passed away at the age of 100.

Q70.

Answer: a

Explanation:

- The activities that push mass towards the center of the earth will **increase the speed of its rotation**. On the other hand, anything that pushes mass outwards will slow down the spin. Earth's rotational speed is measured using the precise atomic clocks.
- Among the many processes that affect the speed of the Earth are movements in the planet's inner molten core, seismic activity, wind speed and shifting atmospheric gases.

Therefore, option (a) is the correct answer.

Relevance: On 29th June 2022, the Earth completed one full spin in 1.59 milliseconds less than its routine 24 hours. It was the shortest day recorded since the 1960s.

Q71.

Answer: a

Explanation:

- **Rice** is the **largest exported agricultural product** from India in the **last five years** and contributed to more than 19% of the total agricultural export during the year 2021-22.

Sl. No.	Commodity (Values in USD Million)	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023 (Apr.-Sept.)
1.	Rice (Basmati)	2,247.34	2,032.10	2,123.58	1,659.60	2,279.66
2.	Rice (other than Basmati)	1,577.02	1,021.77	1,964.87	2,968.77	3,207.29
3.	Wheat	20.84	33.14	108.77	630.15	1,487.47
4.	Pulses	155.13	120.09	154.76	135.25	329.55
5.	Groundnut	209.77	190.32	236.51	246.42	245.57

Therefore, option (a) is the correct answer.

Relevance: India's rice exports in 2022 jumped to a record high despite the government's curbs on overseas sale.

Q72.

Answer: c

Explanation:

Rubber industry:

- India is the world's second-biggest consumer of natural rubber and the fourth-largest producer of rubber in the world after Thailand, Indonesia and Vietnam. Based on agro-climatic conditions, the rubber growing areas in India are classified into two regions:
 - Traditional region (69.60 per cent)
 - Non-Traditional region (30.40 per cent).
- States like **Kerala and Tamil Nadu** are traditionally rubber-growing regions in India. **So, points 1 and 4 are correct.**
- However, **Tripura, Assam, Manipur, Meghalaya, Karnataka, Andaman and Nicobar Islands, Goa, Maharashtra, Odisha, West Bengal and Andhra Pradesh** also have **non-traditional** rubber plantation areas as well. **So, points 2 and 3 are correct.**
- Rajasthan and Punjab** are not generally known as rubber producing states. **So, points 5 and 6 are not correct.**

Therefore, option (c) is the correct answer.

Knowledge Box
<ul style="list-style-type: none"> Comprehensive Rubber Information System Platform (CRISP) has been developed by the Rubber Research Institute of India (RRII) in collaboration with the Digital University of Kerala. With the help of CRISP, the farmers will now be able to receive recommendations of RRII on production and productivity enhancement, reduction of cultivation cost, maintenance of soil fertility, disease control measures, etc.

Relevance: Rubber Board has launched a mobile app-CRISP-to inform growers about rubber cultivation.

Q73.

Answer: b

Explanation:

- Pangolins are known as the guardians of the forest because they protect forests from termite destruction and maintain a balanced ecosystem.** Of the eight pangolins, four are found in Asia and four in Africa. Pangolins are the world's only scaly mammals, and small as they appear, an adult pangolin weighing 6.6 pounds can consume more than 0.66 pounds of termites in one meal.
- They are also very good tenders of soil. Their large and elongated claws enable them to burrow underground for shelter and to excavate ant and termite nests for food. In doing so, the soil is mixed and aerated—much like what happens when we till gardens or plow crop fields. This improves the nutrient quality of the soil and aids the decomposition cycle.

Therefore, option (b) is the correct answer.

Relevance: A new report by TRAFFIC and World Wide Fund for Nature-India revealed that 1,203 pangolins were poached for illegal wildlife trade in India from 2018-2022.

Q74.

Answer: b

Explanation:

- Tiger Reserves are notified by State Governments** as per provisions of **Section 38V of the Wildlife (Protection) Act, 1972** on the advice of the National Tiger Conservation Authority.
- The following steps are involved in the notification:
 - » Proposal is obtained from the State
 - » In-principle approval is communicated from the National Tiger Conservation Authority, soliciting detailed proposals under section 38V of the Wildlife (Protection) Act, 1972
 - » National Tiger Conservation Authority recommends the proposal to the State after due diligence
 - » The State Government notifies the area as a Tiger Reserve

Therefore, option (b) is the correct answer.

Relevance: Guru Ghasidas National Park and Tamor Pingla Wildlife Sanctuary were declared as Tiger Reserves in 2023.

Q75.

Answer: b

Explanation:

- **Feedback in the climate system** is a process that can work as part of a loop to either lessen or add to the effects of a change in one part of the system. Such feedback loops can be positive or negative.
- A natural process that helps in keeping components of the climate system in balance by setting up a negative or counterbalancing feedback loop is called **Negative Climate Feedback Loop**. E.g.-
 - » The ability of the **ozone layer** to absorb harmful Ultraviolet Radiation protects life on the Earth. Solar ultraviolet (UV) radiation interacts with molecular oxygen (O₂) in the Stratosphere resulting in the **formation of an Ozone (O₃) layer**, which further prevents the incoming ultraviolet (UV) radiation from reaching the earth's surface. **So, point 2 is correct.**
 - » **Ocean's ability to store heat** through horizontal intermixing of waters in oceans helps to keep temperatures in a livable range across the planet. Various ocean currents such as the **Global Conveyor Belt** carry heat from hot mid-latitudinal regions toward cold regions of high latitudes and keep some of the coastal areas ice-free throughout the year. **So, point 3 is correct.**
 - » The **ability of plants to absorb Carbon Dioxide (CO₂)** helps in reducing global warming. Increased CO₂ in the atmosphere causes a warming effect because it acts like a blanket, trapping some of the heat that Earth might have otherwise radiated out into space. But in response to such a warming effect of CO₂, plants always absorb CO₂ which helps in **reducing global warming**. **So, point 4 is correct.**
- In contrast, when a natural process that helps in amplifying the components of the climate system by setting up a feedback loop reinforcing that system in the same direction in other parts of the system is called **Positive Climate Feedback Loop**. E.g.-
 - » Ice caps reflect the incoming solar radiation back into space but the **melting of sea ice** due to the warming of the ocean reduces ice cover from the sea. It exposes **seawater to solar radiation** resulting in the warming up of the water which further **speeds up the melting process of the glaciers/ice caps** resulting in more exposure of seawater to incoming solar radiation. **So, point 1 is not correct.**
 - » The **ability of the ocean to absorb CO₂ from the atmosphere** decreases with the increasing temperature of the ocean water. It results in increasing CO₂ in the atmosphere, further increasing the warming potential of the atmosphere and the temperature of the oceans. **So, point 5 is not correct.**

Therefore, option (b) is the correct answer.

Relevance: Scientists have identified 27 global warming accelerators known as amplifying feedback loops recently.

Climate Feedback Loops can be Positive or Negative



Q76.

Answer: b

Explanation:

- **Blue Duke is a butterfly** found in **Sikkim and Eastern Himalayas**. It is also known as Bassarona durga. It is a protected species in the Himalayas.
- The **Swallowtail butterfly** is a large and colorful butterfly found in various parts of the world, including Europe, Asia, Africa, and the Americas. There are over 550 species of swallowtail butterflies, with variations in size, shape and color patterns.

- The **Common Brimstone** is a **species of butterfly** that is found in Europe and parts of Asia. Their scientific name is *Gonepteryx Rhamni*. They are the **indicator species** that indicate the coming of summer.

Therefore, option (b) is the correct answer.

Relevance: Recently, Blue Duke was declared as State Butterfly of Sikkim.

Q77.

Answer: d

Explanation:

- The government borrows through the issue of government securities called G-secs and Treasury Bills. Borrowing by the government falls under **capital receipts in the Budget document**.
- If the government decides to borrow from private citizens by issuing bonds to finance its deficits, these bonds will compete with corporate bonds and other financial instruments for the available supply of funds. If some private savers decide to buy bonds, the funds remaining to be invested in private hands will be smaller. Thus, **some private borrowers will get 'crowded out' of the financial markets** as the government claims an increasing share of the economy's total savings. There will be a **decrease in private investment** due to a reduction in the amount of savings available to the private sector. **So, point 1 is correct.**
- By borrowing, the **government transfers the burden of reduced consumption to future generations**. This is because it borrows by issuing bonds to the people living at present but may decide to pay off the bonds some twenty years **later by raising taxes**. These may be levied on the young population that has just entered the workforce, whose **disposable income will go down and hence consumption**. Thus, national savings would fall. Also, government borrowing from the people reduces the savings available to the private sector. To the extent that **this reduces capital formation and growth, debt acts as a 'burden' on future generations**. **So, point 2 is correct.**
- Bulk of the government's fiscal deficit comes from its **interest obligation on past debt**. If the government resorts to larger borrowings, more than what it has projected, then its interest costs also go up risking a higher fiscal deficit. **So, point 3 is correct.**

Therefore, option (d) is the correct answer.

Q78.

Answer: a

Explanation:

- **Real Gross Domestic Product (GDP)** is calculated in a way such that **the goods and services are evaluated at some constant set of prices (or constant prices)**. Since these prices remain fixed, if the Real GDP changes, we can be sure that it is the volume of production which is undergoing changes. **Nominal GDP, on the other hand, is simply the value of GDP at the current prevailing prices.**
- Real GDP is an **inflation-adjusted measure** that reflects the **value of all goods and services produced by an economy in a given year**. Real GDP is expressed in base-year prices and is often referred to as constant price, inflation-corrected, or constant dollar GDP. **Nominal GDP is the value of goods and services in current prices, without adjustment for inflation.** Current price estimates of GDP are obtained by expressing values of all goods and services produced in the current reporting period. **An increase in GDP does not necessarily mean a nation has produced more output;** it must be specified whether the GDP in question is nominal or real. **An increase in nominal GDP may just mean prices have increased, while an increase in real GDP definitely means output increased. So, statement 1 is correct.**
- The nominal GDP is much higher in value since the current market price is considered. Conversely, the **real GDP is much lower in value since the base market price is considered**. If the current prices of goods and services is higher than the base year prices, as usually the case is, the Real GDP will not be higher in value than the Nominal GDP. **So, statement 2 is not correct.**

Therefore, option (a) is the correct answer.

Q79.

Answer: c

Explanation:

International trade settlement i.e., export and import in Rupees will benefit India in the following ways:

- It will **promote Indian exports in countries facing forex reserve shortages**. The US dollar's strong performance has essentially made imports expensive for most countries. Sri Lanka, going through one of its worst economic crisis in decades, is a glaring example of a country in which the economy has come

to a halt due to a drastic fall in forex reserves. While the Sri Lankan Rupee has declined over 83 percent against the US Dollar, its fall against the Indian Rupee has been lower at 70 percent. So instead of paying 83 percent more to make purchases in USD, Sri Lanka can pay in Indian Rupees and save some money. **So, statement 1 is correct.**

- Trade settlements in rupee will make it much easier for Indian exporters and importers **to trade with countries facing difficulties in invoicing trade in the US dollar**. These include countries like Russia and Iran. Due to prevailing economic sanctions, traders from these countries find it tough to mobilize the US dollar for invoicing exports and imports, especially after Russia was cut off from the SWIFT payment gateway. With this arrangement, the payment issues with Russia would ease. **So, statement 2 is correct.**
- Indian Rupee (INR) in international trade settlements is expected to gradually **contribute to the global acceptance of rupees for international trade transactions**. Thus, it will lead to an increase in demand for Rupee as a globally acceptable currency for trade by letting settlements happen in Indian currency, instead of US dollars.
- RBI's move would reduce the outflow of US dollars and shore up demand for the rupee. This would **allow the central bank leeway to conserve its forex reserves** and deploy them to keep the rupee stable. **So, statement 3 is not correct.**

Therefore, option (c) is the correct answer.

Relevance: Recently, the Reserve Bank of India (RBI) initiated measures to allow rupee settlement of cross-border trade deals.

Q80.

Answer: c

Explanation:

- Non-debt receipts are those receipts which **don't incur any future repayment burden for the Government**. On the other hand, the debt receipts are those which are to be repaid by the Government. Borrowings are the debt receipts. Other receipts in the budget are non-debt receipts.
- The Government sells its stake in various Public Sector Undertakings (PSUs) through disinvestment. The **proceeds from disinvestment are considered non-debt-creating receipts** as the Government is not

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obliged to make any future payments on the amount received. **So, point 1 is correct.**

- The Government owns a significant portion of the stake in many PSUs and receives dividends from the same. These **dividends are considered as non-debt-creating receipts**. **So, point 2 is correct.**
- The government can borrow from international institutions such as the World Bank, International Monetary Fund (IMF), and other financial institutions and countries. These loans are considered **debt-creating receipts** as it will **have to pay the principal amount along with interest in due time**. **So, point 3 is not correct.**
- The Government provides loans to various entities, including State Governments and PSUs. When these loans are repaid, the amount received is considered non-debt-creating receipts. **So, point 4 is correct.**
- The Government raises money through small savings schemes such as National Savings Certificates, Public Provident Funds, and other similar schemes. The money raised through these schemes is considered debt-creating receipts as the **amount will have to be paid to the subscribers** of the scheme in due time **along with interests**. **So, point 5 is not correct.**

Therefore, option (c) is the correct answer.

Q81.

Answer: c

Explanation:

- After a bond is issued, it can be traded in the secondary market, causing the bond's price to fluctuate depending on supply and demand, changes in interest rates, and any news about the financial health of the issuer that could impact its ability to honor the obligations of the bond.
- **When interest rates rise, existing bonds paying lower interest rates** become less attractive, causing their price to drop below their initial par value in the secondary market. **So, statement 1 is correct.**
- Interest rates and bond yield show a direct relationship. When **interest rates rise**, it will lead to a **fall in the prices of bonds**. A decline in prices of bonds will lead to an **increase in the bond yield**. It means interest rates and bond yield have a direct relationship. **So, statement 2 is not correct.**
- **Bond price and bond yield show an inverse relationship.** As the price of a bond goes up, the yield decreases. As the price of a bond goes down, the yield increases. This is because the coupon rate of the bond remains fixed, so the price in secondary markets often fluctuates to align with prevailing market rates. **So, statement 3 is correct.**

Therefore, option (c) is the correct answer.

Q82.

Answer: a

Explanation:

Least Developing Country (LDC):

- According to the United Nations, an LDC is defined as "a country that exhibits the lowest indicators of socioeconomic development, with low levels of income, human capital and economic diversification, high levels of economic vulnerability, and a population that is disproportionately reliant on agriculture, natural resources, and primary commodities."
- **Criteria:** The UN identifies three criteria for a country to be classified as an LDC:
 1. It must have a **Gross National Income (GNI) per capita** below the threshold of USD 1,230 over a three-year average. **So, point 1 is correct.**
 2. It must perform poorly on a composite **human assets** index based on indicators including nutrition, health and education.

Health sub-index: It has the following indicators: the under-five mortality rate; **the maternal mortality ratio**; and the prevalence of stunting. **So, point 2 is correct.**

Education sub-index: It has the following indicators: the gross secondary school enrolment ratio; the **adult literacy rate**; and the gender parity index for gross secondary school enrolment. **So, point 3 is correct.**
 3. The country must demonstrate **economic and environmental vulnerability** such as being prone to natural disasters and possessing structural economic constraints.

Economic vulnerability sub-index has four indicators: share of agriculture, hunting, forestry and fishing in GDP; remoteness and landlockedness; merchandise export concentration; and instability of exports of goods and services.

Environmental vulnerability sub-index has four indicators: share of population in low - elevated coastal zones; share of the population living in drylands; instability of agricultural production; and victims of disasters.

- **Political stability of a country is not a criteria** used by the United Nations to classify a country as a Least Developed Country. **So, point 4 is not correct.**

Therefore, option (a) is the correct answer.

Knowledge Box

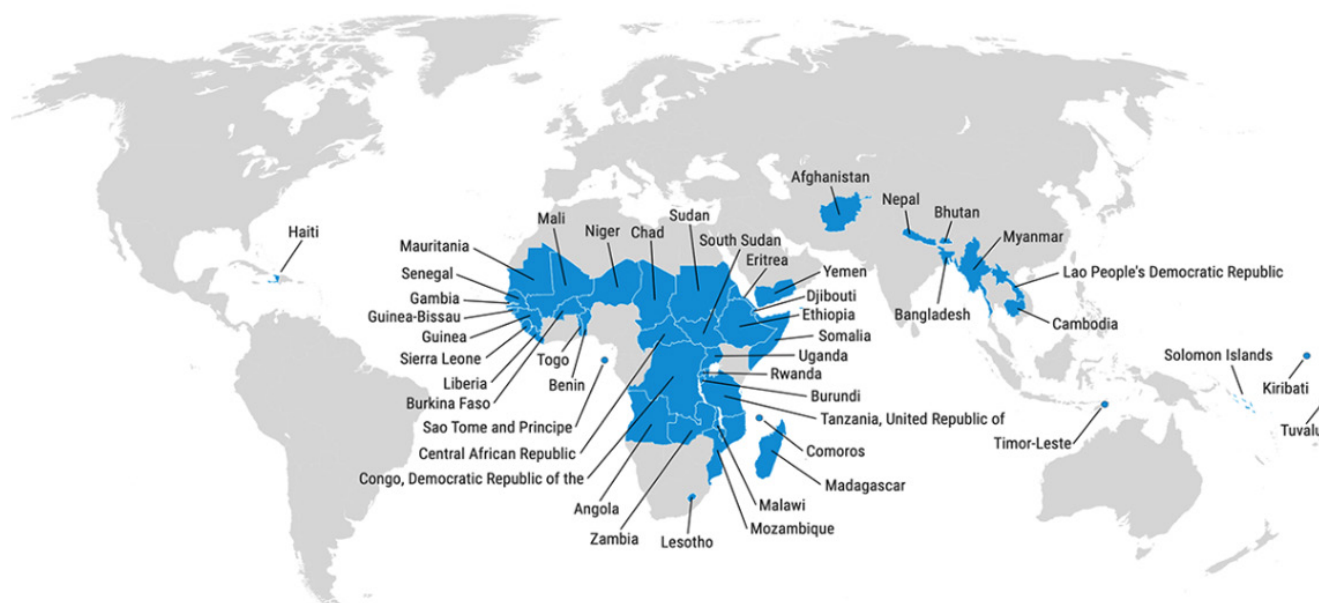
- **Number of LDCs:** Currently, there are 46 LDCs that comprise around 880 million people, 12 percent of the world population.
- **Countries graduated from LDCs:** Seven countries have so far graduated from LDC status: Botswana in 1994, Cape Verde in 2007, Maldives in 2011, Samoa in 2014, Equatorial Guinea in 2017, and Vanuatu in 2020 and the the seventh nation to graduate from the United Nations' (UN) list of Least Developed Countries (LDC) is Bhutan in 2023.

Relevance: Bhutan became the seventh nation to graduate from the United Nations' (UN) list of Least Developed Countries (LDC).

Least Developed Countries (LDCs)

(46 countries)

Africa 33, Asia 9, Caribbean 1, Pacific 3



Q83.

Answer: c

Explanation:

- The **Current Account Deficit (CAD)** is a measure of a country's trade balance, representing the difference between its exports and imports of goods and services, and income received from abroad versus income paid to foreigners. India had recorded a CAD of 2.7 percent of GDP during April-December 2022 period as compared to a deficit of 1.1 per cent during April-December 2021 period. If a country's current account deficit decreases, it can have several effects on the market and the economy, including:
- When a country's CAD decreases, it means that it is exporting more than it is importing, which can lead to an increase in demand for its currency. As a result, the value of the **domestic currency may appreciate against other currencies**, making imports cheaper and exports more expensive. **So, point 1 is not correct.**
- A lower CAD can also lead to an **increase in domestic production**, as it indicates that the country is producing more of its own goods and services instead of relying on imports. This can **create employment opportunities and stimulate economic growth**. **So, point 2 is correct.**
- A country with a lower CAD may be **less dependent on foreign loans**, as it is importing less and exporting

more. This can lead to greater financial stability, as the country is not as vulnerable to external economic shocks. A lower current account deficit can also make a country more **attractive to foreign investors**, as it indicates that the country is more financially stable and less reliant on external financing. **So, points 3 and 4 are correct.**

Therefore, option (c) is the correct answer.

Relevance: Recently, India's current account deficit narrowed to 2.2% of GDP in the third quarter.

Q84.

Answer: d

Explanation:

- **Subhash Chandra Bose formed 'Forward Bloc' in 1939** as a radical faction within the framework of the Congress. The objective behind the formation of the new party was to rally all radical and anti-imperialist progressive elements in the country.
- In 1940, Subhash Chandra Bose convened an '**Anti-Compromise Conference**' at Ramgarh in Bihar under the **joint auspices of the Forward Bloc and Kisan Sabha**.
- In the Anti-Compromise Conference, a resolution was made to stubbornly **oppose the exploitation of Indian resources** for preserving the interests of the British Empire. It was decided in the conference that a worldwide struggle should be initiated in April 1940 to urge the people **not to cooperate with the British during the Second World War** either with men, money or materials.

Therefore, option (d) is the correct answer.

Q85.

Answer: d

Explanation:

- **Chetika, Pubbaseliya, and Avaraseliya** were three of the early **Buddhist schools** or sects that emerged in ancient India. The early Buddhist schools of Chetika, Pubbaseliya, and Avaraseliya emerged during the Satavahana period in the eastern Deccan region.
- The Satavahanas were known for their support of Buddhism and other religions, and they built many stupas, viharas (monasteries), and other Buddhist monuments throughout their empire. Some of the most famous Buddhist sites in India, such as the Ajanta and Ellora caves, were built during the Satavahana period.

Therefore, option (d) is the correct answer.

Q86.

Answer: a

Explanation:

- On the basis of **David Ricardo's Theory of Rent** (rent is surplus from land, i.e., its income minus the cost of production in agriculture), the **State had a legitimate claim to a share of this surplus** at the expense of the unproductive intermediaries like zamindars, etc. whose only claim was by virtue of their ownership right. The **theory provided an argument to eliminate the zamindars and to increase income** (revenue) from the new acquisitions of land.
- The perennial financial crisis of the Madras Presidency by the rising expenses of war resulted in the genesis of the Ryotwari settlement in Madras. Ryotwari experiment was started by Alexander Reed in Baramahal in 1792 and was continued by Thomas Munro from 1801. **Instead of zamindars, they began to collect revenue directly from the villages**, fixing the amount each village had to pay. Later they improved the Ryotwari System by **assessing each cultivator or ryot separately**. It **created individual proprietary rights** in the land which were vested in the peasants rather than in the zamindars.
- In many Ryotwari areas of British India, **no surveys were carried out and the tax of a ryot was assessed on an arbitrary basis, based on village accounts**, called **Putcut settlement**. In this settlement, the revenue to be paid by a ryot was fixed on his entire farm, not on each field, which might have varying irrigation facilities and therefore different levels of productivity. Also, where the survey was actually undertaken, it was often ill-conceived and hastily executed, resulting in over-assessment.

Therefore, option (a) is the correct answer.

Q87.

Answer: d

Explanation:

- The **Vijayanagara Kingdom** was an empire based in South India that existed from 14th to the 17th century. According to tradition and epigraphic evidence, two brothers, **Harihara and Bukka**, founded the Vijayanagara Empire in 1336.
- **Al-Biruni** was born in 973, in Khwarizm in present-day Uzbekistan. He was born in the city of Khwarazm (modern-day Uzbekistan) and is best known for his works in India. His book was **Kitab-ul-Hind**. It is likely that he visited India during the reign of Mahmud of Ghazni and travelled widely in **Punjab** and parts of northern India. He is **not known for visiting the Vijayanagara kingdom** or providing an account of its socio-economic conditions. **So, point 1 is not correct.**
- **Abdur Razzak** was a Persian traveller and ambassador who **visited Vijayanagara in 1442** during the reign of Deva Raya II. He gave details about the ceremonies of the rulers, and the processions of the Mahanavami festival. **So, point 2 is correct.**
- **Niccolo de Conti** was an Italian traveller and merchant who visited **Vijayanagara in the early 15th century**. He commented on Vijayanagara and Deva Raya I that "In this city, there are 90,000 men fit to bear arms... their king is more powerful than all the kings of India". **So, point 3 is correct.**
- **Duarte Barbosa** was a Portuguese traveller and merchant who visited Vijayanagara in the early 16th century. He described the houses of ordinary people, which have not survived. **So, point 4 is correct.**
- **Fernao Nuniz** visited India during the reign of **Achyut Raya of the Tuluva dynasty** during the sixteenth century. He provides valuable information related to the **nayaka system** prevailing during the Vijayanagara empire. **So, point 5 is correct.**

Therefore, option (d) is the correct answer.

Q88.

Answer: d

Explanation:

- Lord Linlithgow announced the August Offer (August 1940) to get the cooperation of India in the Second World War effort of the British government. It proposed:
 - » **Dominion status** as the objective for India.
 - » **Expansion of the Viceroy's executive council** which would have a majority of Indians (who would be drawn from major political parties).
 - » **Setting up of a Constituent Assembly after the war where mainly Indians would decide the constitution** according to their social, economic and political conceptions, to fulfill the obligation of the government regarding defence, minority rights, treaties with States, all India services.
- This was, for the first time, the **inherent right of Indians to frame their Constitution was recognised** and the Congress demand for a Constituent Assembly was conceded. Dominion status was also explicitly offered.

Therefore, option (d) is the correct answer.

Q89.

Answer: d

Explanation:

- The **Vaikom Satyagraha** was launched in 1924 by **K. P. Kesava**, who demanded the **throwing open of Hindu temples and roads to the untouchables**. It was launched because high caste traditionalists challenged in the High Court the **decision of the Travancore government in 1865** which had permitted individuals from all castes and religions to utilize public roads.
- The **Court's judgment** amended the government's order by segregating public roads into royal and village roads. Royal roads remained restricted for lower castes. Roads in the vicinity of the Vaikom temple were declared village roads and were opened to the lower caste. Although the temple was government-owned, upper caste authorities, led by the Nambudiri Brahmin, prohibited untouchables from passing through the temple's surrounding pathways. The Vaikom Satyagraha **aimed to oppose upper caste practices defying government orders** and to challenge the government to **abolish caste-based restrictions**, with Vaikom serving as the epicentre of the movement.
- Vaikom Satyagraha was **organised under Congress's leadership, entirely under Gandhi's control**. Kerala Pradesh Congress Committee (KPCC) played a crucial role in forming the Congress Untouchability Committee (1924) and Vaikom Satyagraha Success Committee in 1921, propelling the iconic movement forward. Gandhi maintained that temple entry and civil liberties were fundamental human rights that ought to be granted to all Hindus. Gandhi undertook a tour of Kerala in support of the movement. **So, point 1 is**

correct.

- Along with Mahatma Gandhi, **C. Rajagopalachari (Rajaji) provided guidance** to the movement. On the arrival of **Periyar E.V. Ramasamy** (Tamil Nadu Pradesh Congress Committee President) in Vaikom on April 13, 1924, he temporarily handed over party responsibilities to C. Rajagopalachari. **So, points 2 and 4 are correct.**
- Dr B. R. Ambedkar** was **not directly associated** with Vaikom Satyagraha. He said that “it was one of the most important movements for the country’s untouchables.” **So, point 3 is not correct.**

Therefore, option (d) is the correct answer.

Relevance: Recently, the Kerala Chief Minister and Tamil Nadu Chief Minister MK Stalin inaugurated the centenary celebrations of the historic Vaikom Satyagraha movement.

Q90.

Answer: b

Explanation:

- The Home Rule Movement was the Indian **response to the First World War** with the objective to **demand self-government or home rule for all of India** within the British commonwealth. This alliance was to be the All India Home Rule League along the lines of the Irish Home Rule League.
- The aim was to be achieved by promoting political education and discussion through public meetings, organising libraries and reading rooms containing books on national politics, holding conferences, organising classes for students on politics, carrying out propaganda through newspapers, pamphlets, posters, illustrated postcards, plays, religious songs, etc., collecting funds, organising social work, and participating in local government activities.
- The government **came down with severe repression**, especially in Madras where the students were prohibited from attending political meetings. A **case was instituted against Tilak** which was, however, rescinded by the High Court. **Tilak was barred from entering Punjab and Delhi.**
- In June 1917, **Annie Besant and her associates, B.P. Wadia and George Arundale, were arrested.** This invited nationwide protests. In response to these policies, **Sir S. Subramaniya Aiyar renounced his knighthood** while Tilak advocated a programme of passive resistance. Annie Besant was released in September 1917.

Therefore, option (b) is the correct answer.

Q91.

Answer: d

Explanation:

Govind Guru:

- He was born in a nomadic community in the Dungarpur-Banswara region of Rajasthan. He was influenced by the teachings of Swami Dayanand Saraswati to work for the **socio-religious upliftment of people from the Bhil community.**
- At the age of 25, he founded the **Samp Sabha** for this purpose in 1883. From 1903 onwards, Mangarh Hill became famous for an annual congregation of the Bhils and other tribal groups in the region. **So, statement 1 is correct.**

Sri Nadaprabhu Kempegowda:

- He was from the dominant agricultural **Vokkaliga community** in south Karnataka. He lived as a 16th-century chieftain of the Vijayanagara Empire.
- He is credited as the **founder of Bengaluru**. It is said that he conceived the idea of a new city while hunting with his minister, and later marked its territory by erecting towers in four corners of the proposed city.
- Kempegowda is also known to have developed around 1,000 lakes in the city to cater to drinking and agricultural needs. **So, statement 2 is correct.**

Maharaja Suheldev:

- He was the 11th century ruler of the erstwhile Shravasti in Uttar Pradesh’s (UP) Bahraich district. He finds mention in ‘Mirat-i-Masudi’, a 17th century Persian-language historical account.
- He is remarkable for waging **guerrilla warfare against Mahmud Ghazni’s large army**. He was so moved by the loot and destruction of the magnificent Somnath temple by invader Mahmud Ghazni that he decided to gather heads of different communities like Tharu and Banjara as well as small kings to block the invasion.
- His army defeated and killed Ghazi Salar Masud, the nephew of Mahmud Ghazni, at Bahraich. **So, statement 3 is correct.**

Komram Bheem:

- He was born in the **Gond tribal community**. He fought against colonial rule. Although illiterate, he learned to read and write and later became aware of movements by the likes of Birsa Munda. Around that time, the Nizam government used to collect tax in the name of 'Bambram' and 'Dupapetti' from people grazing cattle and collecting firewood for cooking.
- In opposition, Bheem spread the message of "**Jal, Jangal, Zameen**" (water, forest, land) among tribal people. This has become a popular call for indigenous people's rights to natural resources, used in many parts of India to date. **So, statement 4 is correct.**

Therefore, option (d) is the correct answer.

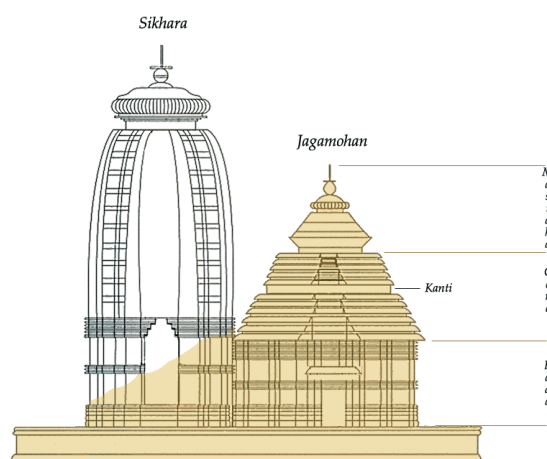
Relevance: Recently, the Prime Minister paid tribute to Bhil freedom fighter Shri Govind Guru and attended 'Man-garh Dham ki Gaurav Gatha'. Recently, a movie named RRR inspired by the life of Komram Bheem and Alluri Sitaram Raju won the Oscar Prize.

Q92.

Answer: a

Explanation:

- **Kalinga/Odisha style of temple architecture:** In different parts of the Kalinga empire, this distinct style of temple architecture developed. Some of its features were:
- The exterior walls were lavishly decorated with intricate carvings, but the interior walls were plain.
- There was no use of pillars on the porch. Iron girders were used instead to support the roof.
- The shikhara in the Odisha school was known as rekha deul. They were almost vertical roofs that suddenly curved inwards sharply.
- **The mandap was known as jagamohan in this region.**
- The ground plan of the main temple was square.
- Temples were surrounded by a boundary wall as in the Dravidian style of temple architecture.



Therefore, option (a) is the correct answer.

Relevance: Odisha temples representing Kalinga architecture have recently made headlines due to a number of incidents.

Q93.

Answer: d

Explanation:

Invasive species is an organism that causes ecological or economic harm in a new environment where it is not native.

- **Lantana Camara** of the Verbenaceae family has more than 600 varieties and is a native terrestrial weed of South and Central American origin, which is considered among the top 10 worst invasive species by IUCN. It severely affects the native composition of terrestrial ecosystems. It was introduced in India in 1809 and later invaded most of the disturbed forest, pasture, and fallow landscapes. **So, point 1 is correct.**
- **Golden bamboo**, like many invasive plants, becomes established rapidly and forms thick monocultures preventing native plants from growing in the same area. Wildlife that utilizes plant habitats prevented by golden bamboo are also at risk because of habitat reduction. **So, point 2 is correct.**
- **Water hyacinth** (Eichhornia crassipes) is a large aquatic plant native to the Amazon basin. Its thick, waxy, oval-shaped leaves are 4-8 inches across and branch out from the center of the plant on modified stems that may rise as much as 1 meter above the water surface. It is considered invasive throughout the world because it grows rapidly and can form thick layers over the water. **So, point 3 is correct.**
- **Prosopis juliflora** is one of the most invasive species in arid and semi-arid areas. It is a medium-sized tree that has been introduced around the world. It is a noxious invasive species in Africa, Asia, and the Arabian Peninsula and a source of highly allergenic pollen. **So, point 4 is correct.**

Therefore, option (d) is the correct answer.

Relevance: The Wildlife Institute of India has sought permission for a pilot project to check the expansion of the

invasive plants threatening the rhino habitat more than anything else.

Q94.

Answer: c

Explanation:

- If a ship from the west coast of India is travelling to Europe via the Suez Canal, then it has to necessarily pass through the **Strait of Bab-el-Mandeb**. The Bab el-Mandeb Strait is a sea route choke point between the Horn of Africa and the Middle East, connecting the Red Sea to the Gulf of Aden and Arabian Sea. Most exports of petroleum and natural gas from the Persian Gulf that transit the Suez Canal pass through both the Bab el-Mandeb.

Therefore, option (c) is the correct answer.



Knowledge Box

- The **Strait of Hormuz** is a narrow channel, approximately 30 miles wide at the narrowest point, between the Oman Musandam Peninsula and Iran. It connects the Persian Gulf to the Gulf of Oman.
- The **Persian Gulf** is an arm of the Arabian Sea between the mountainous coast of southwestern Iran and the rather flat coast of Arabian Peninsula.
- The **Strait of Gibraltar** connects the Mediterranean Sea with the Atlantic Ocean and separates southernmost Spain from northernmost Africa.

Q95.

Answer: b

Explanation:

- Green goods** are also called “environmentally friendly goods”. It refers to products that are designed to **use fewer resources or emit less pollution** than their traditional counterparts. They have a positive impact on the environment throughout their lifecycle, from production to disposal, and are certified by an independent third party.

Therefore, option (b) is the correct answer.

Relevance: According to the United Nations Conference on Trade and Development, Green Goods combined value hit a record \$1.9 trillion in 2022, adding more than \$100 billion compared to 2021.

Q96.

Answer: a

Explanation:

- IndiaStack** is a set of APIs (Application Programming Interface) that allows governments, businesses, startups and developers to utilize a unique digital Infrastructure to solve India’s problems towards presence-less, paperless and cashless service delivery. The Open API team at iSPIRT has been a pro-bono partner in the development, evolution, and evangelisation of these APIs and systems.

- The following APIs are a core part of the India Stack.
 - » Aadhaar Authentication
 - » Aadhaar e-KYC
 - » eSign
 - » Digital Locker
 - » Unified Payment Interface (UPI)
 - » Digital User Consent - still work in progress
- The GSTN - The Goods and Services Tax Network, BBPS - The Bharat Bill Payment System, ETC - Electronic Toll Collection (known under the brand FASTag) are also considered to be societal platforms built on similar principles but they are not part of IndiaStack.

Therefore, option (a) is the correct answer.

Knowledge Box
<p>The four distinct technology layers provided are</p> <ul style="list-style-type: none"> • Presenceless layer: Where a universal biometric digital identity allows people to participate in any service from anywhere in the country. • Paperless layer: Where digital records move with an individual's digital identity, eliminating the need for a massive amount of paper collection and storage. • Cashless layer: Where a single interface to all the country's bank accounts and wallets to democratize payments. • Consent layer: Which allows data to move freely and securely to democratize the market for data.

Relevance: The first ever IndiaStack conference took place in Delhi.

Q97.

Answer: b

Explanation:

- The **United Nations (UN)** is an international organization founded in 1945. Currently made up of 193 Member States, the UN and its work are guided by the purposes and principles contained in its founding Charter.
- The recognition of a new State or Government is an act that only other States and Governments may grant or withhold. It generally implies readiness to assume diplomatic relations. The United Nations is *neither a State nor a Government*, and therefore **does not possess any authority to recognize either a State or a Government**. As an organization of independent States, it may admit a new State to its membership or accept the credentials of the representatives of a new Government. **So, statement 1 is not correct.**
- States are admitted to membership in the UN by a **decision of the General Assembly** upon the recommendation of the UN Security Council. If the Council recommends admission, the recommendation is presented to the General Assembly for consideration. **A two-thirds majority vote is necessary** in the Assembly for admission of a new State. **So, statement 2 is correct.**
- Article 6 of the Charter of the United Nations reads as follows: "A Member of the United Nations which has persistently violated the Principles contained in the present Charter **may be expelled from the Organization** by the General Assembly upon the recommendation of the Security Council." **So, statement 3 is not correct.**
- There are currently 193 Member States of the United Nations. **The latest State to join the United Nations was South Sudan in 2011.** Membership in the Organization, in accordance with the Charter of the United Nations, "is open to all peace-loving States that accept the obligations contained in the United Nations Charter and, in the judgment of the Organization, are able to carry out these obligations". **So, statement 4 is correct.**

Therefore, option (b) is the correct answer.

Relevance: Recently, the United Nations General Assembly (UNGA) President visited India.

Q98.

Answer: b

Explanation:

- A **Cruise Missile** is a guided missile that has a terrain-following radar system and that flies at moderate speed and low altitude.

- **Prithvi-II:** It is an Indian short-range **ballistic missile** with a range of 350 km. It is an upgraded variant of the Prithvi-I. In service with the Indian Air Force since 2003, the Prithvi-II serves as a nuclear delivery vehicle in India's Strategic Force Command. **So, point 1 is not correct.**
- **BrahMos-II:** It is a **hypersonic cruise missile** currently under joint development by India's Defence Research and Development Organisation (DRDO) and Russia's NPO Mashinostroyeniya, which have together formed BrahMos Aerospace Private Limited. It is the second of the BrahMos series of cruise missiles. The BrahMos-II is expected to have a range of 290 km and a speed of Mach 7. During the cruise stage of flight the missile will be propelled by a scramjet airbreathing jet engine. **So, point 2 is correct.**
- **Nirbhay:** It is a **subsonic cruise missile**, flying at a speed of 0.7 to 0.9 Mach, with sea-skimming and terrain-hugging capability that helps the missile stay under enemy radar to avoid detection. It carries a convention warhead of 300 kg weight and can hit targets upto 1500 km range. **So, point 3 is correct.**
- **K-15 Sagarika:** It is a nuclear-capable **submarine-launched ballistic missile** with a range of 700 km. It belongs to the K Missile family and forms a part of India's nuclear triad and will provide retaliatory nuclear strike capability. **So, point 4 is not correct.**

Therefore, option (b) is the correct answer.

Knowledge Box
<ul style="list-style-type: none"> • Strategic missiles are either of the cruise or ballistic type. Cruise missiles are jet-propelled at subsonic speeds throughout their flights, while ballistic missiles are rocket-powered only in the initial (boost) phase of flight, after which they follow an arcing trajectory to the target.

Relevance: India recently carried out a successful test launch of Prithvi-II.

Q99.

Answer: d

Explanation:

- **RNA interference (RNAi) technology** involves the use of small RNA (Ribonucleic acid) molecules that are complementary to a specific target RNA molecule. These small RNA molecules, known as small interfering

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RNAs (siRNAs), bind to the target RNA molecule and trigger its degradation, **preventing it from being translated into a protein.**

- RNAi technology can be used in various fields including **gene therapy, pharmaceutical drug development and agriculture.** In gene therapy, RNAi technology can be used to target and silence disease-causing genes. It is a powerful and versatile alternative for **pest and disease control in crops.** Its use in the agricultural field extends to viruses, bacteria, fungi, insects, nematodes and plants. In addition to gene therapy, RNAi technology can be used in **drug development to identify and validate new drug targets.** So, statements **1, 2 and 3 are correct.**

Therefore, option (d) is the correct answer.

Relevance: Switch Therapeutics announced \$52M in early funding to develop conditionally activated small interfering (CASI) RNA therapeutics.

Q100.

Answer: a

Explanation:

- **Constellations** are any of certain groupings of stars that were imagined to form conspicuous configurations of objects or creatures in the sky. Constellations are useful in assisting astronomers and navigators to locate certain stars.
- Stars and constellations stay in approximately the same spot for many years. They only appear to move in the sky during the year because perceivers are on a moving planet. Because the constellations are in a fixed location, they are often used as landmarks in the sky.
- **Cassiopeia**, Cepheus, Draco, **Ursa Major** and Ursa Minor are some of the constellations that can be seen all year long in the northern hemisphere. **So, points 1 and 2 are correct.**
- **Sagittarius** is usually depicted as a centaur holding a **bow and arrow.** It is one of the largest **southern constellations.** It is easy to find because it lies on the **Milky Way.** It is visible only in **summer.** **So, point 3 is not correct.**
- **Orion** can be seen during **winter** in the late evening time. It has seven or eight bright stars. Orion is also called the Hunter and the three middle stars represent the belt of the hunter. **So, point 4 is not correct.**

Therefore, option (a) is the correct answer.

Relevance: Ladakh is all set to have India's first Dark Night Sky Reserve at Hanle village in Changthang region.



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