Q.1) Solution (d)

Explanation:

The terms pindakara, hiranya, bhaga, and bhoga refer to various forms of taxes collected by the Mauryan state, particularly from the peasantry.
Bhaga was typically a share of the produce (usually one-sixth).
Hiranya was a tax paid in cash.
Pindakara was a general tax levied on groups of villages
So, Option (d) is correct.

Q.2) Solution (a)

Explanation:

The early Vedic Aryans were pastoralists. Cattle rearing was their main occupation. They reared cattle, sheep, goats, and horses for purposes of milk, meat and hides. However, this is not to suggest that the early Vedic people had no knowledge of agriculture. The evidence for agriculture in comparison with pastoral activities in the early portions is meager and mostly late insertions. A few references show that they had knowledge of agriculture and practiced it to supplement their food requirements. They produced yava (modern jau or barley), which was rather a generic word for cereals. **Hence, Statement 1 is incorrect**
The expansion of the Aryan culture during the later Vedic period was the beginning of the use of iron around 1000 BC. The Rigvedic people knew of a metal called ayas which was either copper or bronze. In the later Vedic literature ayas was qualified with shyama or krishna meaning black to denote iron. Archaeology has shown that iron began to be used around 1000 BC which is also the period of later Vedic literature. The northern and eastern parts of India to which the Aryans later migrated receive more rainfall than the north-western part of India. As a result this region is covered with thick rain forests which could not be cleared by copper or stone tools used by Rigvedic people. **Hence, Statement 2 is correct.**
During Rigvedic period, the family was the basic unit. It was patriarchal in nature Monogamy was the usual norm of marriage but the chiefs at times practiced polygamy. The family was part of a larger grouping called vis or clan. One or more than one clans made jana or tribe. The jana was the largest social unit. All the members of a clan were related to each other by blood relation. **Hence, Statement 3 is not correct.**

Q.3) Solution (d)

Explanation:

After the death of Buddha, the tenets and other aspects of Buddhism were decided upon in the councils of Buddhist monks. Over a period of time, four Buddhist councils were held.
The First Buddhist Council was held at Rajagriha after Buddha's death, under the patronage of Ajata Satru. It was headed by Upali. In this council, Upali recited the Vinaya Pitaka. Ananda recited Sutta Pitaka.

The Second Buddhist Council met at Vaishali a century after Buddha's death. The Buddhist Order split into two later. One was called the Sthaviravadins or 'Believers in the Teachings of the Elders' and the other known as Mahasanghikas or 'Members of the Great Community'. **Hence, Statement 1 is not correct.**
The Third Buddhist Council was held at Pataliputra. It was convened by Asoka. The Sthaviravadins established themselves strongly and expelled the heretics. The last section called "Kathavatthu" was added to Abhidhamma Pitaka. **Hence, Statement 2 is not correct.**

Q.4) Solution (c)

Explanation:

The middle palaeolithic industry of central and peninsular India is sometimes referred to as the Nevasan industry after the site of Nevasa, where the pioneering archaeologist H. D. Sankalia firstdiscovered middle palaeolithic artefacts in a stratified context.
The tools, which include a widevariety of scrapers, are made of smooth, fine-grained stone such as agate, jasper, and chalcedony. Nevasa is situated along the Pravara river in the Godavari river basin. **Hence, Pair 1 is correct**

Patne is located in Tapi valley. Patne, the pre-historic site in Jalgaon, has evidence of middle and upper Paleolithic settlements Mesolithic tools. Patne excavation revealed stone tools, bones and even ostrich eggshells, which showed the existence of ostriches in this area around 25,000 to 40,000 years ago. **Hence, Pair 2 is correct**

The transition from a hunting-gathering stage to the beginnings of settled agriculture can be traced to Chopani Mando in the Belan valley. This is based on the discovery of wild rice at Mesolithic levels of this site which was reported from similar levels at Damdama as well. Belan Valley is located in the Ganga river basin in the eastern part of Uttar Pradesh. **Hence, Pair 3 is correct**

Q.5) Solution (d)

Explanation:

In this respect, Ashoka's dhamma-vijaya was different from the dharma-vijaya of the Arthashastra. The entire discussion of statecraft in the Arthashastra is from the point of the 'vijigishu' – the would-be conqueror who desires to conquer the entire subcontinent. **Hence, Statement 1 is not correct.**
An important aspect of Ashoka's dhamma was the generation of mutual respect and concord among people belonging to different sects or religious communities. This clearly indicates that dhamma did not consist of the promotion of a particular sect, Buddhist or otherwise. **Hence, Statement 2 is correct.**

Q.6) Solution (a)

Explanation:

Mughal administration terms cover central ministries like the Wazir (Finance Minister) & Mir Bakhshi (Military Paymaster), the rank-based Mansabdari system (Zat/Sawar ranks), revenue terms like Zabt (land tax system) & Jagir (land grants), provincial/local divisions (Subah, Sarkar, Pargana), and key officials such as Subahdar (Governor) & Faujdar (Law & Order head). Key documents like Ain-i-Akbari and concepts like Sulh-i-Kul (universal peace) also define Mughal rule.

Central Administration
Vakil: Prime Minister in early Mughal rule, holding significant power.
Diwan (Wazir/Diwan-i-Kul): Finance Minister, controlling revenue and expenditure, second only to the Emperor. Hence, Pair 3 is correct
Mir Bakhshi: Military Minister, managing army, intelligence, and nobles.
Sadr-us-Sudur: Minister for religious endowments, charities, and chief justice. Hence, Pair 1 is incorrect
Mir-i-Saman (Khan Saman): In-charge of the royal household (karkhanas/factories). Hence, Pair 2 is incorrect
Qazi-ul-Quzat: Head of the judicial department (Qazis).

Q.7) Solution (d)

Explanation:

In terms of the Vijayanagara style of temple architecture, certain new features were in evidence. Certain distinctive features include mandapas or pavilions and long, pillared corridors that often ran around the shrines within the temple complex. Fine examples of Kalyana mandapa can be seen at Vellore and in the Varadharajaswami and Ekamparanatha temples at Kanchipuram. Hence, 1st option is correct
This evidence includes structures of immense scale that must have been a mark of imperial authority, best exemplified by the Raya gopurams or royal gateways that often dwarfed the towers on the central shrines and signaled the presence of the temple from a great distance. The Raya Gopurams at Thiruvannamalai and Chidambaram speak about the glorious epoch of Vijayanagar. Hence, 2nd option is correct
The important features of the Vijayanagara style of temple architecture are monolithic pillars, ornate bracelets and decoration on the exterior side of the walls. Hence, 3rd option is correct
So, Option (d) is correct.

Q.8) Solution (b)

Explanation:

Sugata: This is a prominent epithet used for Gautama Buddha, meaning "well-gone" or "happy". It is not an epithet typically used for Vardhamana Mahavira. **1st option is incorrect**

Arihant: Mahavira is referred to as Araha ("worthy") in early Buddhist texts, which corresponds to the term Arihant ("worthy one") in Jain and Buddhist contexts. This title signifies one who has attained liberation and is worthy of veneration. **2nd option is correct**

Niggantha Nataputta: This is the most common epithet for Mahavira in the Pali Canon (early Buddhist literature). Niggantha (Sanskrit: Nirgrantha) means "free from bonds" or "naked ascetic," referring to the Jain ascetics' practice of non-attachment and going without clothes. Nataputta (or Nayaputta) means "son of the Nata (or Naya) clan," referencing his lineage. **3rd option is correct**

Q.9) Solution (b)

Explanation:

The arrangement of the Early states (Mahajanapadas) from West to East is:

1 Kamboja: Located in the far northwest, in modern-day Afghanistan and northern Pakistan.
3 Avanti: Located in western India, corresponding to the Malwa region of present-day Madhya Pradesh, around Ujjain.
2 Panchala: Located in Northern India, in the Ganges-Yamuna Doab region of present-day western Uttar Pradesh.
4 Anga: Located in Eastern India, corresponding to modern-day Bhagalpur and Munger districts of Bihar.

Q.10) Solution (b)

Explanation:

The "Ain-i-Dahsala", a new land revenue system was introduced by Akbar in 1580. The average produce, of different crops and the average prices prevailing over the last ten years were calculated. One-third of the average produce was the state's minimum share. However, these were changed at irregular intervals and not updated every year.
In the beginning, it was implemented in the provinces of Agra, Allahabad, Awadh, Delhi, Lahore and Malwa. Later it was extended to some other regions. The problem of compiling fresh rates every year for different localities was overcome through the adoption of Ain-i-Dahsala or ten-year revenue rates. **Hence, Option (b) is correct.**

Q.11) Solution (b)

Explanation:

Before 1765, the East India Company had favoured missionary activities. But later on, it opposed all attempts at proselytisation as it wanted to consolidate its position as a political power. Towards the close of the eighteenth century, numerous missionary groups strongly urged the Company to introduce

Christianity and English Education in India. But their attempts were discouraged by the Company. In 1783, by an Act of Parliament the missionaries were banned from entering India without license. The differences between the East India Company and the missionaries continued to persist till 1813, when the Charter of the Company was renewed.
The 1813 Charter Act permitted Christian missionaries to come to India to preach their religion and carry on educational activities. Before this Act, the British parliament and the Company were against missionaries and their activities in India, as they thought religious neutrality was needed if the Indians were not to be alienated and British commercial ventures jeopardised. Hence, Option (b) is correct.

Q.12) Solution (d)

Explanation:

Mahadev Govind Ranade, popularly referred to as Justice Ranade, was born in Maharashtra on January 18, 1842. He was an Indian scholar, social reformer, judge, author and one of the founding members of the Indian National Congress. Ranade was a social reformer and thinker who advocated against child marriage and the caste system and promoted widow remarriage and education for women.
Mahavdev Govind Ranade (1842-1901) devoted his entire life to Prarthana Samaj. He was the founder of the Deccan Education Society. He established the Poona Sarvajanik Sabha as well. Vishnu Shastri Pandit and MG Ranade who formed the Widows Remarriage Association in 1850 and 1861. Hence, Option (d) is correct.

Q.13) Solution (d)

Explanation:

The Deoband movement was an Islamic revivalist movement organised by the orthodox section among the ulema to propagate pure teachings of the Quran and Hadis among Muslims and keep the spirit of Jihad alive against foreign rulers.
The Deoband Movement began at the Darul Uloom (or Islamic academic centre), Deoband, in Saharanpur district (United Provinces) in 1866 by Muhammad Qasim Nanautavi (1832–80) and Rashid Ahmad
Gangohi (1828–1905) to train religious leaders for the Muslim community. In contrast to the Aligarh Movement, which aimed at the welfare of Muslims through Western education and the support of the British government, the aim of the Deoband Movement was the moral and religious regeneration of the Muslim community. The instruction imparted at Deoband was in the original Islamic religion.
On the political front, the Deoband school welcomed the formation of the Indian National Congress. In 1888, it issued a Fatwa (religious decree) against Sir Syed Ahmed Khan's organisation, the United Patriotic Association and the Mohammedan Anglo-Oriental Association. So, Option (d) is the correct.

Q.14) Solution (a)

Explanation:

To ensure that there would not be another uprising like 1857 by the Indian forces and to quell the growing spirit of nationalism, the British introduced the Indian Arms Act of 1878. Many political associations such as the Bombay presidency associations, the Poona sarvajanik sabha, the Indian association of Calcutta etc., organised various campaigns before the Indian National Congress appeared on the scene. **Hence, Statement I is correct.**
The Act was discriminatory as it did not apply to the British, Anglo-Indians, Europeans, and certain government personnel. According to the Act, the manufacture and sale of guns in the country would be strictly regulated, and no Indian will be allowed to manufacture, sell, or even carry a weapon without a license from the government. An Indian carrying arms without a license would be declared a 'criminal offender. **Hence, Statement II is correct. Both Statement I and Statement II are correct, and Statement II is the correct explanation of Statement I**

Q.15) Solution (a)

Explanation:

During the first stage of non-mass struggle after the withdrawal of civil disobedience movement, the Nationalists with apprehension and British officials with hope expected a split in the Congress on Surat lines, but Gandhi conciliated the proponents of council entry by acceding to their basic demand of permission to enter the legislatures. Gandhi said, "Parliamentary politics cannot lead to freedom but those Congressmen who could not, for some reason, offer satyagraha or devote themselves to constructive work should not remain unoccupied and could express their patriotic energies through council work provided they are not sucked into constitutionalism or self-serving."
Assuring the leftists, Gandhi said that the withdrawal of the Civil Disobedience Movement did not mean bowing down before opportunists or compromising with imperialism. In May 1934, the All India Congress Committee (AICC) met at Patna to set up a Parliamentary Board to fight elections under the aegis of the Congress itself. Gandhi was aware that he was out of tune with powerful trends in the Congress. A large section of the intelligentsia favoured parliamentary politics with which he was in fundamental disagreement. Another section was estranged from the Congress because of Gandhi's emphasis on the spinning wheel as the "second lung of the nation". The socialists led by Nehru also had differences with Gandhi. In October 1934, Gandhi announced his resignation from the Congress to serve it better in thought, word, and deed.
So, Option (a) is correct.

Q.16) Solution (d)

Explanation:

The Quit India Movement was a political campaign launched at the Bombay session of the All India Congress Committee by Mahatma Gandhi on 8 August 1942, during World War II, demanding an end to British rule in India. After Britain failed to secure Indian support for the British war effort with the Cripps Mission, Gandhi made a call to Do or Die in his Quit India speech delivered in Bombay on 8 August 1942 at the Gowalia Tank Maidan. **Hence, Statement 1 is correct.**

The Communist Party of India opposed the Quit India movement and supported the British war effort after Soviet Union was under attack. **Hence, Statement 2 is correct.**

Parallel governments, also known as 'Prati Sarkar', were indeed established in several places like Ballia (UP), Satara (Maharashtra), and Tamluk (Bengal) during the movement, reflecting significant popular resistance. **Hence, Statement 3 is correct.**

Q.17) Solution (d)

Explanation:

The Simon Commission published a two-volume report in May 1930. Some of the important recommendations of the commissions are as follows:

➢ It proposed the abolition of dyarchy and the establishment of representative government in the provinces, which should be given autonomy. It said that the governor should have discretionary power in relation to internal security and administrative powers to protect the different communities.

The number of members of the provincial legislative council should be increased.

➢ The report rejected parliamentary responsibility at the Centre. **Hence, Statement 1 is correct.**

➢ The governor general was to have complete power to appoint the members of the cabinet. And the Government of India would have complete control over the high court.

➢ It also recommended that separate communal electorates be retained (and extended such electorates to other communities) but only until tensions between Hindus and Muslims had died down. **Hence, Statement 2 is correct.**

➢ There was to be no universal franchise.

➢ It accepted the idea of federalism but not in the near future; it suggested that a Consultative Council of Greater India should be established, which should include representatives of both the British provinces as well as princely states.

➢ It suggested that the North-West Frontier Province and Baluchistan should get local legislatures, and both NWFP and Baluchistan should have the right to be represented at the Centre.

➢ It was recommended that Sindh be separated from Bombay and Burma be separated from India because it was not a natural part of the Indian subcontinent.

➢ It also suggested that the Indian army should be Indianised, though British forces must be retained. India should get fully equipped. **Hence, Statement 3 is correct.**

Q.18) Solution (b)

Explanation:

In June 1945, Lord Wavell moved to negotiate and called for the Simla conference. The rest of the Congress leaders, including Jawaharlal Nehru, Sardar Patel and the Congress president, Maulana Abul Kalam Azad, were released from jail for this. Wavell had set out on this project in March 1945 and sailed to London.
There he convinced Churchill of the imperative for a Congress–Muslim League coalition government as a way to deal with the post-war political crisis. The main proposals of the Wavell Plan were as such:
With the exception of the governor-general and the commander-in-chief, all members of the Executive Council were to be Indians. **Hence, Statement 1 is correct.**
The Caste Hindus and Muslims would be represented in the Council in equal proportion. The reconstructed Council was to function as an interim government within the framework of the 1935 Act (i.e. not responsible to the Central Assembly). **Hence, Statement 2 is not correct.**
The governor-general was to exercise his veto on the advice of ministers. Representatives of different parties were to submit a joint list to the viceroy for nominations to the executive council. If a joint list was not possible, then separate lists were to be submitted. Possibilities were to be kept open for negotiations on a new constitution once the war was finally won. **Hence, Statement 3 is correct.**

Q.19) Solution (c)

Explanation:

During El Niño the trade winds were weaker because the warm water is pushed back to the east towards the west coast of the Americas.
La Niña means Little Girl in Spanish also called El Viejo, anti-El Niño, or simply "a cold event." La Niña has the opposite effect of El Niño. During La Niña events, trade winds are stronger than usual, pushing warmer water toward Asia. Upwelling increases off the west coast of the Americas, bringing cold, nutrient- rich water to the surface. Hence, trade winds are weaker during El Nino compared to La Nina. **Hence, Statement 1 is correct.**
During El Niño, upwelling weakens or stops altogether. Without the nutrients from the deep, there are fewer phytoplankton off the coast. During La Nina, waters off the Pacific coast are colder and contain more nutrients than usual.
This environment supports more marine life and attracts more cold-water species, like squid and salmon, to places like the California coast. Hence, the La Nino results in more nutrients for the species than the El Nina. **Hence, Statement 2 is not correct.**
EI-Nino is a complex weather system that appears once every three to seven years, bringing drought, floods and other weather extremes to different parts of the world.
EI-Nino is used in India for forecasting long range monsoon rainfall. In 1990-91, there was a wild EI-Nino event, and the onset of the southwest monsoon was delayed over most parts of the country, ranging from five to twelve days. **Hence, Statement 3 is correct.**

Q.20) Solution (b)

Explanation

The Cool Temperate Eastern Margin (Laurentian) Climate is an intermediate type of climate between the British and the Siberian type of climate. It has features of both the maritime and the continental climates.

➢ The Laurentian type of climate has cold, dry winters and warm, wet summers. Winter temperatures may be well below freezing point, and snow falls to quite a depth. Summers are as warm as the tropics (70° - 80°F.)

➢ It is found only in two parts of the world. One in eastern North America: eastern Canada, north-east U.S.A. (i.e., Maritime Provinces and the New England states), and Newfoundland. The other region is the eastern coastlands of Asia, including eastern Siberia, North China, Manchuria, Korea and northern Japan.

➢ Though rain falls throughout the year, there is a distinct summer maximum from the easterly winds from the oceans. Of the annual precipitation of 30 to 60 inches, two-thirds come in the summer.

➢ The predominant Vegetation of the Laurentian climate is cool temperate forests. The heavy rainfall, the warm summers and the damp air from fogs all favour the growth of trees. Lumbering and its associated timber, paper and pulp industries are the most important economic undertaking. Agriculture is less important in view of the severity of the winter and its long duration. This is one of the world's largest fishing grounds, particularly on Newfoundland's Grand Banks. So, Option (b) is correct.

Q.21) Solution (c)

Explanation:

The solar output received at the top of the atmosphere varies slightly in a year due to the variations in the distance between the earth and the sun. **Hence, Statement 1 is correct.**

During its revolution around the sun, the earth is farthest from the sun (152 million km) on 4th July. This position of the earth is called aphelion. On 3rd January, the earth is the nearest to the sun (147 million km). This position is called perihelion. Therefore, the annual insolation received by the earth on 3rd January is slightly more than the amount received on 4th July. **Hence, Statement 2 is correct and it explains statement 1. This variation in distance is the direct cause of the variation mentioned in Statement I.**

However, the effect of this variation in the solar output is masked by other factors like the distribution of land and sea and the atmospheric circulation. Hence, this variation in the solar output does not have great effect on daily weather changes on the surface of the earth. **Hence, Statement 3 is incorrect.**

Therefore, Only one of the statements is correct and it explains statement 1

Q.22) Solution (d)

Explanation:

The Wular Lake in Jammu and Kashmir is a tectonic lake. It is the largest freshwater lake in India. Located in the Bandipore district of Jammu and Kashmir. The lake basin was formed as a result of tectonic activity and is fed by the Jhelum River. The lake's size varies from 12 to 100 square miles (30 to 260 square kilometers), depending on the season. The lake is one of six Indian wetlands designated as a Ramsar site. **Hence, Statement 1 is correct.**
Kolleru Lake, which is formed from the coastal lagoon, is the largest freshwater lake in the country. It is located between the deltas of Krishna and Godavari rivers. Kolleru serves as a natural food-balancing reservoir between the two rivers. **Hence, Statement 2 is correct.**
The Gobind Sagar, a man-made lake on the Sutlej River, was created by the massive Bhakra Dam and is named in honour of Guru Gobind Singh, the tenth Sikh Guru. One of the tallest gravity dams in the world, the Bhakra Dam rises 225.5 meters above its lowest foundation. Today, it provides both electricity and water to a vast region. The Gobind Sagar reservoir stretches 90 kilometres in length and covers an area of about 170 square kilometres. **Hence, Statement 3 is correct.**

Q.23) Solution (d)

Explanation:

Laterite has been derived from the Latin word 'later' which means brick. Lateritic soils are mostly deep to very deep, acidic (pH<6.0), generally deficient in plant nutrients, nitrogen, phosphate and calcium, while rich in iron oxide and potash.
➢ The laterite soil develops under tropical and subtropical climate with alternate wet and dry season. The formation processes of laterite soil, involving intense weathering and oxidation, contribute to its poor humus and nutrient content. As a result, laterite soil is often considered unsuitable for certain crops or requires amendments to support plant growth.
➢ Laterite soils are widely cut as bricks for use in house construction. These soils have mainly developed in the higher areas of the Peninsular plateau.
The laterite soils are commonly found in Karnataka, Kerala, Tamil Nadu, Madhya Pradesh and the hilly areas of Odisha and Assam. **Hence, Statement 1 is not correct**.

Black soils are also known as regur soils. Black soil is ideal for growing cotton and is also known as black cotton soil. It is believed that climatic conditions, along with the parent rock material, are the important factors for the formation of black soil. This type of soil is typical of the Deccan trap (Basalt) region spread over the northwest Deccan plateau and is made up of lava flows.
➢ They cover the plateaus of Maharashtra, Saurashtra, Malwa, Madhya Pradesh and Chhattisgarh and extend in the southeast direction along the Godavari and the Krishna valleys.
➢ The black soils are made up of extremely fine i.e. clayey material. They are well-known for their capacity to hold moisture.
➢ They develop deep cracks during hot weather, which helps in the proper aeration of the soil. These soils are sticky when wet and difficult to work on unless tilled immediately after the first shower or during the pre-monsoon period.

In addition, they are rich in soil nutrients, such as calcium carbonate, magnesium, potash and lime. These soils are generally poor in phosphoric contents. **Hence, Statement 2 is not correct.**

Red soil develops on crystalline igneous rocks in areas of low rainfall in the eastern and southern parts of the Deccan Plateau. Along the piedmont zone of the Western Ghat, a Long stretch of area is occupied by red loamy soil. Yellow and red soils are also found in parts of Odisha and Chhattisgarh and in the southern parts of the middle Ganga plain.

➢ The soil develops a reddish colour due to a wide diffusion of iron in crystalline and metamorphic rocks. It looks yellow when it occurs in a hydrated (Not dehydrated) form.

➢ The fine-grained red and yellow soils are normally fertile, whereas coarse-grained soils found in dry upland areas are poor in fertility.

They are generally poor in nitrogen, phosphorous and humus. **Hence, Statement 3 is not correct.**

Q.24) Solution (c)

Explanation:

The atmosphere is a mixture of different types of gases, including water vapour and dust particles. The primary gases in Earth's dry atmosphere, listed in decreasing order of percentage by volume, are:
Nitrogen: Approximately 78%.
Oxygen: Approximately 21%.
Argon: Approximately 0.93%.
Carbon dioxide: Approximately 0.04%.. So, Option (c) is correct.

Q.25) Solution (d)

Explanation:

Water vapour present in the air is known as humidity. It is expressed quantitatively in different ways. The actual amount of water vapour present in the atmosphere is known as the absolute humidity. The ability of the air to hold water vapour depends entirely on its temperature.
The absolute humidity differs from place to place on the surface of the earth. The percentage of moisture present in the atmosphere as compared to its full capacity at a given temperature is known as the relative humidity. With the change in air temperature, the capacity to retain moisture increases or decreases and the relative humidity is also affected. It is greater over the oceans and least over the continents.
Warm air can possess more water vapour (moisture) than cold air, so with the same amount of absolute/specific humidity, air will have a higher relative humidity if the air is cooler, and a lower relative humidity if the air is warmer. What we "feel" outside is the actual amount of moisture (absolute humidity) in the air. Therefore, the relative humidity increases when the temperature of the air goes down or when more moist air is added to it. The relative humidity

decreases when the temperature of the air increases or when less moist air is added to it. **Statement I is incorrect, but Statement II is correct.**

Q.26) Solution (b)

Explanation:

The Prime Meridian (0° longitude) passes through eight countries: the United Kingdom, France, Spain, Algeria, Mali, Burkina Faso, Ghana, and Togo, starting in Europe and moving south through Africa, also extending through Antarctica. It originates at the Royal Observatory in Greenwich, England, forming the baseline for global time zones (GMT/UTC) and longitude measurement.

Q.27) Solution (d)

Explanation:

Soybean called as golden beans belongs to the legume family. It is native to East Asia. It is a rich source of Protein and also an excellent source of fibre. Soyabean possesses a very high nutritional value. Soyabean being the richest, cheapest and easiest source of best quality proteins and fats and having a vast multiplicity of uses as food and industrial products is sometimes called a wonder crop.

➢ Madhya Pradesh has a unique identity as the soya-producing state of India. It produces 54% of the total production of soya in the country.

➢ Soybean grows well in warm and moist climates. A temperature of 26.5 to 30°C appears to be the optimum for most of the varieties. Soil temperatures of 15.5°C or above favour rapid

germination and vigorous seedling growth. A lower temperature tends to delay the flowering. Day length is the key factor in most soybean varieties as they are short-day plants.

➢ Soybeans yield well when grown in well-drained, fertile loamy soils. A pH range of 6 to 7.5 is ideal for optimal soybean production.

➢ Water-logged, saline/alkaline soils are not suitable for its cultivation. Low temperatures affect crop severely. So, Option (d) is correct.

Q.28) Solution (a)

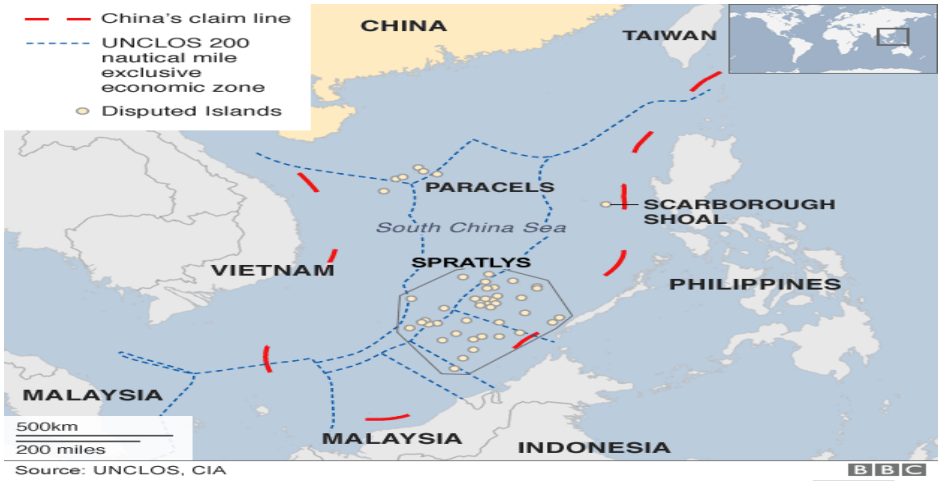
Explanation:

Option 5 is incorrect. Georgia has a boundary with Black Sea but falls in Asian continent.
Black Sea
The Black Sea lies in the Atlantic Ocean between Europe and Asia and is surrounded by Turkey, Bulgaria, Romania, Ukraine, Russia, and Georgia.
The Black Sea covers 436,400 km [2] (168,500 sq mi) (not including the Sea of Azov), [3] a maximum depth of 2,212 m (7,257 ft), [4] and a volume of 547,000 km3 (131,000 cu mi), [5] making it the world's largest inland body of water.

Q.29) Solution (a)

Explanation:

Option (a) is the correct: Spratly Islands Paracel Islands-Pratas Islands-Senkaku Islands.



Q.30) Solution (d)

Explanation:

Zeugen - a table-shaped area of rock found in arid and semi-arid areas formed when more resistant rock is reduced at a slower rate than softer rocks around it under the effects of wind erosion. The Sculpting effects of wind abrasion wear them into a weird-looking 'ridge and furrow' landscape. Zeugen landforms are the result of Wind erosion not with wind deposition. **Hence, Statement 1 is not correct.**

Yardang, large area of soft, poorly consolidated rock and bedrock surfaces that have been extensively grooved, fluted, and pitted by wind erosion. The rock is eroded into alternating ridges and furrows essentially parallel to the dominant wind direction. The relief may range from one to several metres, and there may be unconnected hollows and other irregular shapes. Yardangs can be found in the Thar Desert, Rajasthan. Yardangs are the landforms of wind erosion in deserts. **Hence, Statement 2 is not correct**

Ventifacts or dreikanter: These are pebbles faceted by sand-blasting. They are shaped and thoroughly polished by wind abrasion to shapes resembling Brazil nuts. Rock fragments, mechanically weathered from mountains and upstanding rocks are moved by wind and smoothed on the wind ward side. Vertifacts are the landforms emerge from the wind erosion in deserts. **Hence, Statement 3 is not correct.**

Barchan are crescentic or moon-shaped dunes which occur individually or in groups. They are live dunes which advance steadily before winds that come from a particular prevailing direction. They are most prevalent in the deserts of Turkestan and in the Sahara. Barchans are initiated probably by a chance accumulation of sand at an obstacle, such as patch of grass or a heap of rocks. It is one of the landforms of wind deposition in deserts. **Hence, Statement 4 is correct.**

Q.31) Solution (b)

Explanation:

The factors which affect the distribution of temperature of ocean water are:

➢ Latitude: The temperature of surface water decreases from the equator towards the poles because the amount of insolation decreases poleward. **Hence, Statement 1 is correct.**

➢ Unequal distribution of land and water: The oceans in the northern hemisphere receive more heat due to their contact with a larger extent of land than the oceans in the southern hemisphere.
➢ Prevailing wind: The winds blowing from the land towards the oceans drive warm surface water away from the coast, resulting in the upwelling of cold water from below.
➢ Ocean Currents: Warm ocean currents raise the temperature in cold areas, while cold currents decrease the temperature in warm ocean areas. The enclosed seas in the low latitudes record relatively higher temperatures than the open seas, whereas the enclosed seas in the high latitudes have lower temperatures than the open seas. **Hence, Statement 2 is not correct.**
The study of the ocean's temperature is important for determining the movement and characteristics of large volumes of water, the type and distribution of marine organisms at various ocean depths, the climate of coastal lands, etc. Ocean waters get heated up by solar energy just as land. The process of heating and cooling of oceanic water is slower than land. **Hence, Statement 3 is correct.**

Q.32) Solution (d)

Explanation:

When light travels from an optically denser medium to a rarer medium at the interface, it is partly reflected back into the same medium and partly refracted to the second medium. This reflection is called the internal reflection.
Total internal reflection, is a complete reflection of a ray of light within a medium such as water or glass from the surrounding surfaces back into the medium. The phenomenon occurs if the angle of incidence is greater than a certain limiting angle, called the critical angle.
When a ray of light enters from a denser medium to a rarer medium, it bends away from the normal. If the angle of incidence is greater than the critical angle, the incident ray will be reflected back in the same medium.
Here in refractive index of Denser to rarer medium is Diamond (2.42) > Glass (1.52) > Water (1.33) > Air (1.0003).
From Rarer medium to Denser medium Like, Air to Glass and Air to Water. Total Internal Reflection is does not occur. **Hence, Statement 1 and Statement 3 is not correct.**
From Denser medium to Rarer medium Like, Glass to Water and Diamond to Glass. Total Internal Reflection can take place. **Hence, Statement 2 and Statement 4 is correct.**

Q.33) Solution (b)

Explanation:

Aditya L1 is the first space-based Indian mission to study the Sun. The Indian Space Research Organisation (ISRO) has placed the Aditya-L1 spacecraft in a halo orbit around the Lagrangian point (L1), about 1.5 million km from the Earth. A satellite in the halo orbit around the L1 point has the major advantage of continuously viewing the Sun without occultation/eclipses.

This will provide a greater advantage in observing solar activities and their effect on space weather in real-time.
The spacecraft carries seven payloads to observe the photosphere, chromosphere and the outermost layers of the Sun (the corona) using the following detectors.

➢ Electromagnetic detector
➢ Particle detector
➢ Magnetic field detectors.

An Acoustic Doppler Current Profile detector, or ADCP, is a device that uses sound waves to measure the speed and direction of currents throughout the water column. Doppler Current Profile detector is not used by the Aditya-L1 spacecraft to study the Sun. **Hence, Option (b) is correct.**

Q.34) Solution (a)

Explanation:

Nilgiri Class These ships are actually stealth frigates (Project 17A), not destroyers. **1st option is incorrect.**

Vishakhapatnam Class These vessels are stealth guided-missile destroyers (Project 15B), not frigates.**2nd option is incorrect.**

Kalvari Class This class consists of diesel-electric attack submarines (Project 75), which is correctly matched. **3rd option is correct.**

Q.35) Solution (b)

Explanation:

A Multiple Independently Targetable Re-entry Vehicle (MIRV) is a ballistic missile payload designed for exo-atmospheric deployment, housing multiple warheads, each capable of targeting distinct objectives. While primarily associated with intercontinental ballistic missiles equipped with thermonuclear warheads, the concept extends beyond strict limitations. An intermediate variant, the Multiple Re-entry Vehicle (MRV) missile, disperses multiple warheads without individual targeting. These warheads can be designated for various targets spaced hundreds of kilometres apart. **Hence, Statement 1 is correct.**
The Agni-V is an Indian intercontinental ballistic missile (ICBM). It is an evolution of the Agni-III IRBM, featuring similar first- and second-stage motors with an added third stage. This was India's longest-range ballistic missile with a range of over 5,000 kilometres, tested with multiple independently targetable re- entry vehicle (MIRV) technologies under 'Mission Divyastra' by the Defence Research and Development Organisation (DRDO). **Hence, Statement 2 is correct.**
MIRV-equipped missiles can be launched from land or sea from a submarine. While India is now a part of the elite club, the countries which boast to possess MIRV, including: the USA, UK and France- have MIRV technology on their Submarine-Launched Ballistic Missile (SLBM). China- has MIRVed on Intercontinental Ballistic Missile (ICBM). Russia- has both MIRVed

ICBMs and SLBMs. Pakistan is also believed to be experimenting with MIRV technology. **Hence, Statement 3 is not correct.**

Q.36) Solution (a)

Explanation:

Amoeba is a term that describes a simple eukaryotic organism that moves in a characteristic crawling fashion. Free-living amoebae are protozoa that normally live in the environment and only occasionally infect human or animal hosts. It's considered a free-living organism because it doesn't need a host to live.
Free-living amoeba belonging to the genera Acanthamoeba, Balamuthia, Naegleria and Sappinia are rare causes of disease in humans and animals. Naegleria fowleri is an amoeba (type of one-celled organism) that thrives in warm freshwater lakes, rivers, and hot springs. **Hence, Statement 1 is correct.**
Naegleriafowleri is the most commonly seen species, causing central nervous system infection and disease. Naegleriafowleri is often called the "brain-eating amoeba" because it can infect the brain and destroy brain tissue. People who become infected by this amoeba develop a condition called primary amoebic meningoencephalitis (PAM).
PAM is a very serious infection of the central nervous system that's almost always fatal. Where trophozoites infect nasal tissues and sinuses of immune-competent hosts and travel up the olfactory nerve into the brain. Symptoms appear within 3-6 days and include headache, stiff neck, seizures, coma and death. Death occurs within 1-2 weeks of infection without treatment.
We cannot get a Naegleria fowleri infection from swallowing water containing the amoeba. We also can't get an infection from someone else or pass it on to others. Hence, It can cause rare brain infections but is not contagious. **Hence, Statement 2 is not correct.**

Q.37) Solution (c)

Explanation:

Web 5.0 is intended to be a decentralised web platform allowing developers to build decentralised web applications with verifiable credentials and nodes. This platform aims to reclaim proprietorship and control over user data.
Web 5.0 will be a combination of Web 2.0 and Web 3.0, emphasizing the creation of a web that is not only intelligent but also emotional. This entails the ability to communicate directly with its users, just as individuals do.
Web 5.0 adds emotional intelligence to the internet with the help of blockchain, AI, and deep learning so that Web 5.0 can interpret data itself with logic and give much more efficient output.

Web 5.0 allows users to own their identity on the internet and control their data. It will focus on delivering a better user experience while maintaining privacy. **Hence, Statements 1 and 2 are correct.**
Web 3.0 is also known as the Semantic Web. The Semantic Web improves web technologies' abilities to generate, share and connect content through search and analysis by understanding the meaning of words rather than by keywords or numbers.
Web 5.0 combines the best of Web 2.0 (characterised by greater user interactivity and collaboration) and Web 3.0 while taking the semantic Web to the next level and supporting global media connection. **Hence, Statement 3 is correct.**

Q.38) Solution (a)

Explanation:

Positronium (Ps) is a fundamental atom that comprises an electron (e^-) and a positron (e^+). Electrons and positrons are leptons. They interact through electromagnetic and weak forces. A usual atom is made up of a mixture of baryons and leptons. Since Positronium is only made up of electrons and positrons and is not usually nuclear matter, it has the unique distinction of being a purely leptonic atom.
Matter is made up of electrons, protons and neutrons. Antimatter is made up of positrons, antiprotons and antineutrons. But Positronium comprises an electron (Matter) and a positron (Antimatter).
For the first time, an international collaboration of researchers has successfully demonstrated the laser cooling of Positronium. This short-lived hydrogen-like atom provides an ideal testing ground for bound- state quantum electrodynamics.
The Antihydrogen Experiment: Gravity, Interferometry, Spectroscopy (AEgIS) collaboration has performed complex experiments at the European Organization for Nuclear Research (CERN) to obtain this breakthrough.
A Professor from Raman Research Institute (RRI), an autonomous institute of the Department of Science and Technology (DST) of the Government of India, is part of the AEgIS collaboration that comprises physicists from 19 European groups and one Indian group.
The results could pave the way for advanced studies leading to an improved understanding of the physical nature, comprising matter and antimatter facilitated through the interactions between light and charged matter. **Hence, Statement 1 is not correct, and Statement 2 is correct.**

Q.39) Solution (b)

Explanation:

The Cubic Kilometre Neutrino Telescope or KM3NeT is deployed under the Mediterranean Sea to detect high-energy neutrinos, also known as ghost particles. The KM3NeT consists of two telescopes deployed as a part of the Cubic Kilometre Neutrino Telescope or KM3NeT. While one of the telescopes will study high- energy neutrinos from space, the other will examine neutrinos from the atmosphere.

These telescopes are much like the IceCube Neutrino Observatory, which can detect high-energy neutrinos from deep space but is under the frozen ice in the Antarctic rather than being in the water. KM3NeT is not the first neutrino telescope to detect high-energy neutrinos, while the IceCube Neutrino Observatory, which has been operational since 2011 and was the first telescope to detect high-energy neutrinos, has been able to only spot a handful of these messengers.
Therefore, KM3NeT is not the first neutrino telescope to detect high-energy neutrinos and the telescope consists of two telescopes deployed under the Mediterranean Sea. **Hence, Statement 1 is not correct, and Statement 2 is correct.**
The Cubic Kilometer Neutrino Telescope (KM3NeT) uses seawater as an interaction medium for neutrinos. When a neutrino particle moves through the water, it can 'collide' with water molecules. Under the right circumstances, these collisions can create so-called ultra-relativistic particles. These particles then spread Cherenkov light, a bluish glow that is detected by the high-tech optical modules in KM3NeT. **Hence, Statement 3 is correct.**

Q.40) Solution (a)

Explanation:

Immunity is the ability of the human body to tolerate the presence of material indigenous to the body and to eliminate foreign substances. This discriminatory ability to eliminate foreign substances is performed by a complex system of interacting cells called the immune system. Since most organisms (e.g., bacteria, viruses, and fungi) are identified as foreign, the ability to identify and eliminate these substances provides protection from infectious diseases. Immunity is generally specific to a single organism or group of closely related organisms.
➢ The principle of immunisation or vaccination is based on the property of 'memory' of the immune system. In vaccination, a preparation of antigenic proteins of pathogen or inactivated/weakened pathogen (vaccine) are introduced into the body. **Hence, Statement 1 is correct.**
➢ The antibodies produced in the body against these antigens would neutralise the pathogenic agents during actual infection. **Hence, Statement 2 is correct.**
➢ The vaccines also generate memory – B and T-cells that recognise the pathogen quickly on subsequent exposure and overwhelm the invaders with a massive production of antibodies. If a person is infected with some deadly microbes to which a quick immune response is required, as in tetanus, we need to directly inject the preformed antibodies, or antitoxin (a preparation containing antibodies to the toxin). **Both Statement I and Statement II are correct, and Statement II is the correct explanation of Statement I**

Q.41) Solution (c)

Explanation:

MicroRNAs (miRNAs) are a group of small non-coding RNAs that are involved in regulating a range of developmental and physiological processes; their dysregulation has been associated with the development of diseases, including cancer.

➢ Recent developments have supported the potential of MicroRNAs as sensitive and specific biomarkers for early cancer detection as well as having demonstrated remarkable potential as diagnostic tools for imperceptible cancers, such as those with elusive symptoms or challenging diagnostic criteria. **Hence, Statement 1 is correct.**

➢ In 2024, MicroRNAs could serve as biomarkers for the early detection of pancreatic cancer in patients presenting with chronic pancreatitis. The study successfully implemented a robust rank aggregation (RRA) machine-learning algorithm to aid in early pancreatic diagnosis via screening the expression profile of candidate miRNA biomarkers. **Hence, Statement 2 is correct.**

In 2024, Nobel Prize honors two scientists for their discovery of a fundamental principle governing how gene activity is regulated.

➢ The two scientists were interested in how different cell types develop. They discovered microRNA, a new class of tiny RNA molecules that play a crucial role in gene regulation. Their groundbreaking discovery revealed a completely new principle of gene regulation that turned out to be essential for multicellular organisms, including humans.

➢ It is now known that the human genome codes for over one thousand microRNAs. Their surprising discovery revealed an entirely new dimension to gene regulation. MicroRNAs are proving to be fundamentally important for how organisms develop and function. **Hence, Statement 3 is correct.**

Q.42) Solution (d)

Explanation:

Facial Recognition Systems are serving as robust systems of surveillance. Recognition Systems match the human face and compare it with the digital images. They are used in offices for selective entries.

The systems thus authenticate a human face and match it up with the list of IDs that are present in its database. Convolutional Neural Networks (CNN) are used for facial recognition and image processing. A large number of pictures are fed into the database to train a neural network. The collected images are further processed for training. Sampling layers in CNN are used for proper evaluations.

Models are optimized for accurate recognition results. **Hence, Statement 1 is correct.**

Multilayer Perceptron (MLP), Convolutional Neural Network (CNN) and Recurrent Neural Networks (RNN) are used for weather forecasting. Traditional ANN multilayer models can also be used to predict climatic conditions 15 days in advance. A combination of different types of neural network architecture can be used to predict air temperatures. **Hence, Statement 2 is correct.**

E-commerce sites like Amazon and Flipkart, they will recommend products to buy based on our previous browsing history. Similarly, Zomato, Swiggy, etc., will show restaurant recommendations based on our tastes and previous order history. This is true across all new-age marketing segments like Book sites, Movie services, Hospitality sites, etc. and it is done by implementing personalized marketing. This uses artificial neural networks to identify the customer's likes, dislikes, previous shopping history, etc., and then tailor the marketing campaigns accordingly. **Hence, Statement 3 is correct.**

The neural networks used in study developed a genuine intuition of the bizarre behaviour of quantum particles. For example, after artificial intelligence is trained on the elementary rules of quantum mechanics, it can precisely predict the probability of the atoms being in a certain quantum state. Thus, solving quantum physics problems is an application of Artificial Neural Networks. **Hence, Statement 4 is correct.**

Q.43) Solution (b)

Explanation:

Small Satellite Launch Vehicle (SSLV) is the new launch vehicle of ISRO capable of launching Mini, Micro or Nanosatellites (10 to 500 kg mass) to 500 km planar orbit.

➢ It is a three-stage Launch Vehicle (Not two-stage) configured with three Solid Propulsion Stages. It also has a liquid propulsion-based Velocity Trimming Module (VTM) as a terminal stage, which can help adjust the velocity as it prepares to place the satellite. **Hence, Statement 1 is incorrect**

➢ Essentially, the aim behind SSLVs is to produce low-cost launch vehicles with short turnaround times and minimal infrastructural requirements.

➢ Before SSLVs, smaller payloads had to be sent into Space using other launch vehicles carrying multiple, bigger satellites. They depended upon the launch schedules of those satellites. **Hence, Statement 2 is correct.**

The Small Satellite Launch Vehicle (SSLV) can be used to launch Earth observation satellites, such as EOS-08. The primary objectives of the EOS-08 mission include designing and developing a microsatellite, creating payload instruments compatible with the microsatellite bus, and incorporating new technologies required for future operational satellites.

The SSLV represents a major leap forward in India's space capabilities, providing a cost-effective and flexible solution for launching small satellites into low Earth orbit (LEO). With a payload capacity of up to 500 kg to LEO, it caters to the growing global demand for small satellite launches. The SSLV's compact size and quick turnaround time make it ideal for deploying smaller satellites, which are increasingly sought after for Earth observation, communications, and scientific research. **Hence, Statement 3 is correct.**

Q.44) Solution (a)

Explanation:

American ecologist R.H. Whittaker (1969) proposed a Five Kingdom Classification. The kingdoms defined by him were named Monera, Protista, Fungi, Plantae and Animalia.The nuclear membrane serves to separate the chromosomes from the cell's cytoplasm and other contents.

Among the five kingdom of classification of living things, only Monera lacks nuclear membrane. So, Option (a) is correct.

Q.45) Solution (d)

Explanation:

Natural uranium consists of two primary isotopes with mass numbers of 235 and 238. Of the two, only uranium-235 is capable of the sustained fission chain-reaction necessary for an atomic bomb. Uranium-235, however, comprises less than one percent of natural uranium, and the use of uranium to build an atomic bomb depended on separating the two isotopes and collecting enough uranium-235 to make a critical mass.
The separation of isotopes of uranium, such as uranium-235 and uranium-238, does not require a special chemical method because isotopes of the same element have identical chemical properties. Instead, their separation relies on physical methods like gaseous diffusion or centrifugation, which exploit their slight differences in mass. **Hence, Statement-I is incorrect, but Statement-II is correct.**

Q.46) Solution (c)

Explanation:

Atomic structure refers to the organization of subatomic particles within an atom, which includes protons, neutrons, and electrons.
The electrons are negatively charged whereas the protons are positively charged. The neutrons on the other hand are uncharged in nature.
These subatomic particles are crucial in determining an element's chemical properties. An atom's core hosts the nucleus, which contains protons and neutrons. Meanwhile, electrons orbit around this nucleus in shells (energy levels).
The chemical properties of an element are determined primarily by the protons and electrons in its atoms; neutrons do not take part in chemical changes under normal conditions. So, Option (c) is correct.

Q.47) Solution (b)

Explanation:

The term 3TG refers to a group of conflict minerals linked to armed conflicts and human rights abuses. These conflict minerals, such as tin, tungsten, tantalum and gold, also referred to as 3TG can be used in everyday products such as mobile phones and cars or in jewellery.
➢ Tin is malleable, lightweight, durable, and resistant to corrosion; it is often used to coat other metals to prevent corrosion.
➢ Tantalum has high ductility and density. It is also great at conducting heat and electricity and has a high melting point of 3,017 degrees Celsius.
➢ Tungsten is often used in tools as it has the highest melting point of all metals at 3,420 degrees Celsius, has a high density, and has a high tensile strength.
➢ Gold is malleable, not highly corrosive, and conductive to electricity and heat. It is also resistant to corrosion, oxidation, and acids.

These minerals are designated as conflict minerals due to their frequent extraction from regions characterized by political instability, where their trade often fuels violence and human rights violations.
While the Democratic Republic of Congo has historically been the focal point for illustrating how mineral sourcing can exacerbate conflict, these minerals also originate from other regions. So, Option (b) is correct.

Q.48) Solution (b)

Explanation:

The Indian Space Research Organisation (ISRO) has built India's fastest supercomputer in terms of theoretical peak performance. "SAGA-220" (Supercomputer for Aerospace with GPU Architecture-220 TeraFLOPS) 220 trillion floating point operations per second (FLOPS), for solving complex aerospace problems.
The supercomputer was fully designed and built by the space centre using commercially available hardware and open-source software components. The system was environmentally green and consumed only 150 kW of power. Floating-point operations per second (FLOPS) is a measure of a computer's performance based on the number of floating-point arithmetic calculations that the processor can perform within a second. So, Option (b) is correct.

Q.49) Solution (a)

Explanation:

Ocean currents are streams of water flowing constantly on the ocean surface in definite directions. The pattern of circulation of currents in the Indian Ocean differs from the general pattern of circulation in the Atlantic Ocean and the Pacific Ocean.
This is because Indian Ocean is blocked by the continental masses in the north. The general pattern of circulation in the southern section of the Indian Ocean is anti-clockwise as that of other oceans. But in the northern section there is a clear reversal of currents in winter and summer. These are completely under the influence of the seasonal changes of the monsoon winds. So, there is a clear reversal of currents in the winter and summer season i.e/south-westwards during the north-east Monsoon, north-eastwards during the southwest Monsoon and variable during transition season. **Hence, Statement I is correct.**
The monsoon currents are the seasonally reversing, open-ocean currents that flow between the Arabian Sea and the Bay of Bengal, the two wings of the north Indian Ocean.
The Northern Indian Ocean's circulation is primarily driven by the changing monsoonal winds, which causes the ocean currents to reverse direction with the seasons. The Summer Monsoon Current (SMC) flows eastward during the summer monsoon (May-September) and the Winter Monsoon Current (WMC) flows westward during the winter monsoon (November-February). **Hence, Both Statement I and Statement II are correct, and Statement II is the correct explanation of Statement I.**

Q.50) Solution (d)

Explanation:

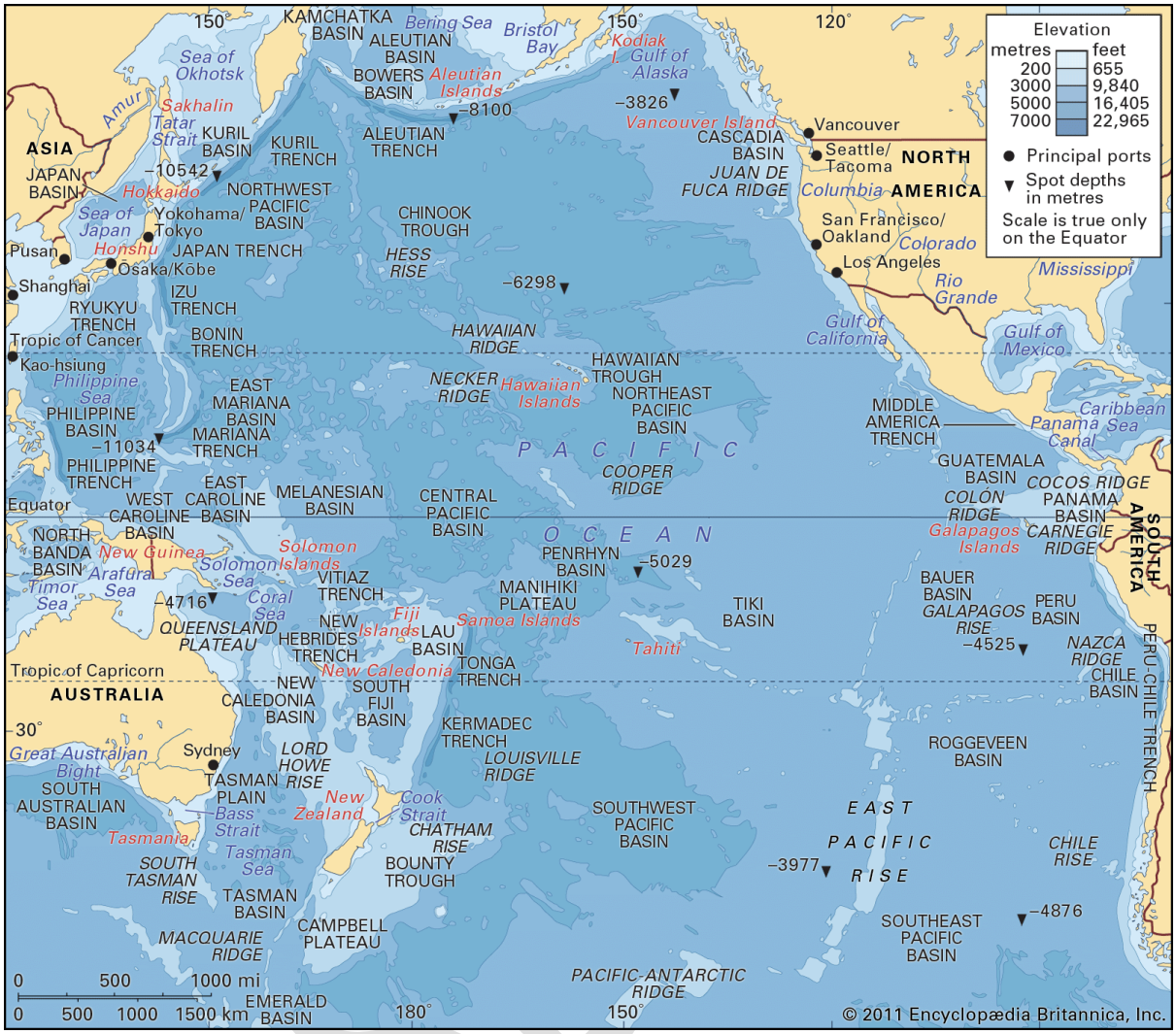
The Bering Sea is a part of the northern Pacific Ocean, separating North America and Asia through the Bering Strait. It is bordered by Alaska to the east, Russia's Kamchatka Peninsula to the west, and the Aleutian Islands to the south. It connects to the Arctic Ocean's Chukchi Sea in the north. Major rivers flowing into it include the Anadyr and Yukon Rivers.

➢ The Sea of Okhotsk is located west of the Bering Sea, surrounded by Russia's Kamchatka Peninsula, the Kuril Islands, Japan's Hokkaido Island, Sakhalin Island, and Russia's east coast. It connects to the Sea of Japan through various straits. The Amur River and other rivers bring freshwater, reducing salinity and causing ice floes in winter, which disrupt navigation. Major islands in this sea include Hokkaido (Japan) and Sakhalin (Russia).

➢ The Timor Sea is part of the Indian Ocean, lying between Timor Island in the north, Australia in the south, and the Arafura Sea in the east. It is close to several Australian gulfs, including Beagle Gulf near Darwin, the capital of Australia's Northern Territory.

The Tasman Sea is in the southwestern Pacific Ocean, between Australia's southeast coast and Tasmania on the west, and New Zealand on the east. It connects to the Indian Ocean through Bass Strait and to the Pacific Ocean through Cook Strait.

Thus, the correct order of these seas from north to south is Bering Sea, Sea of Okhotsk, Timor Sea, Tasman Sea. (1-2-3-4). So, Option (d) is correct.



Q.51) Solutions (b)

Explanation:

Parliament can reduce or abolish a tax but cannot increase it (Article 117). **Hence statement 1 is correct.**

The budget shall distinguish expenditure on revenue account from other expenditure (Article 112). There is no Constitutional requirement on the Budget to distinguish receipts on revenue account from other receipts. **Hence statement 2 is not correct.**

The expenditure charged on the Consolidated Fund of India shall not be submitted to the vote of Parliament. However, it can be discussed by Parliament (Article 113).

The Constitution of India contains the following provisions with regard to the enactment of the budget: The President shall in respect of every financial year cause to be laid before both

the Houses of Parliament a statement of estimated receipts and expenditure of the Government of India for that year (Article 112). No demand for a grant shall be made except on the recommendation of the President (Article 113). **Hence statement 3 is correct.**

Q.52) Solutions (c)

Explanation:

In India, there is no provision in the Constitution for the system of legal responsibility of a minister. It is not required that an order of the President for a public act should be countersigned by a minister. Moreover, the courts are barred from inquiring into the nature of advice rendered by the ministers to the president. **Hence statement 1 is correct.**

Ministers hold office during the pleasure of the President, which means that the President can remove a minister even at a time when the council of ministers enjoys the confidence of the Lok Sabha. However, the President removes a minister only on the advice of the Prime Minister. In case of a difference of opinion or dissatisfaction with the performance of a minister, the Prime Minister can ask him to resign or advice the President to dismiss him. **Hence statement 2 is correct.**

Q.53) Solutions (a)

Explanation:

The Cabinet Committee are organizations which are instrumental in reducing the workload of the Cabinet. **These committees are extra-constitutional in nature** and are nowhere mentioned in the Constitution. However, the Rules of Business provide for their establishment. The composition of a Cabinet Committee varies from 3 to 8 people. Even Ministers who are not the part of the Cabinet can be added to a Cabinet Committee. Usually, each cabinet committee has at least one Cabinet Minister. The members of the Cabinet Committee can be from both the Lok Sabha and the Rajya Sabha. **Hence statement 1 is correct.**

They are set up by the Prime Minister according to the exigencies of the time and requirements of the situation. Hence, their number, nomenclature, and composition vary from time to time. They are disbanded after their task is completed. Establishment /discontinuation of cabinet committees can be done by Prime minister any time, it **doesn't require Lok Sabha approval. Hence statement 2 is not correct.**

Q.54) Solutions (b)

Explanation:

The 73rd Constitutional Amendment Act provides for a five-year term of office to the panchayat at every level. Every Panchayat shall continue for five years from the date of its first meeting. **Hence, Statement 1 is correct:**
It can be dissolved before the completion of its term. It can be dissolved earlier in accordance with the procedure prescribed by State Law.
Further, fresh elections to constitute a Panchayat shall be completed: before the expiry of its duration of five years in case of dissolution, before the expiry of a period of six months from the date of its dissolution. Where the remainder of the period (for which the dissolved Panchayat would have continued) is less than six months, it shall not be necessary to hold any election for constituting the new panchayat for such period. **Hence, Statement 2 is not correct**
A Panchayat constituted upon the dissolution of a Panchayat before the expiration of its duration shall continue only for the remainder of the period. **Hence, Statement 3 is correct.**

Q.55) Solutions (d)

Explanation:

The 'Permanent Executive' refers to the body of non-elected government officials who are appointed to permanent posts and remain in office regardless of changes in the ruling political party. This includes civil servants, government employees, and administrators. The executive branch is not just about presidents, prime ministers, and ministers. It also extends to the administrative machinery (civil servants), While the heads of government and their ministers, saddled with the overall responsibility of government policy, are together known as the political executive having a shorter term of office (In India, it is generally for 5 years); those responsible for the day-to-day administration are called the permanent executive, i.e. the Bureaucracy.

Q.56) Solutions (d)

Explanation:

Statement I: The Council is headed by a Mayor whose tenure is coterminous with the council. This statement is incorrect. While the Municipal Council generally has a fixed tenure of five years, the Mayor's tenure often varies by state legislation and is not always coterminous with the council. In some cities like Bengaluru and Delhi, the Mayor's term is only one year, while in others like Bhopal, it can be five years, and in Mumbai, it is two and a half years. The mayor's term is not universally tied to the full five-year term of the entire council. **Hence, Statement I is incorrect**

Statement II: Council consists of the Councillors directly elected by the people, as well as a few nominated persons. This statement is correct. The Municipal Council is primarily

composed of councillors (corporators) who are directly elected by the people from territorial constituencies known as wards. State laws also make provisions for the nomination of persons who have special knowledge or experience in municipal administration. These nominated members typically do not have the right to vote in the council meetings. The council also includes local MPs and MLAs as ex-officio members in some cases. **Hence, Statement II is correct**

Q.57) Solutions (d)

Explanation:

The Supreme Court has been assigned a very significant role in the Indian democratic political system. It is a federal court, the highest court of appeal, the guarantor of the fundamental rights of the citizens and guardian of the Constitution. It should be free from the encroachments, pressures and interferences of the executive (council of ministers) and the Legislature (Parliament). It should be allowed to do justice without fear or favour. The Constitution has made the following provisions to safeguard and ensure the independent and impartial functioning of the Supreme Court:

The judges of the Supreme Court are appointed by the President in consultation with the members of the judiciary itself. **Hence, statement 1 is not correct.**

The judges of the Supreme Court are provided with the Security of Tenure. They can be removed from office by the President only in the manner and on the grounds mentioned in the Constitution. The salaries, allowances, privileges, leave and pension of the judges of the Supreme Court are determined from time to time by the Parliament.

They cannot be changed to their disadvantage after their appointment except during a financial emergency. **The salaries, allowances and pensions of the judges and the staff as well as all the administrative expenses of the Supreme Court are charged on the Consolidated Fund of India**. **Hence, statement 2 is correct.**

The retired judges of the Supreme Court are prohibited from pleading or acting in any Court or before any authority within the territory of India.

The Chief Justice of India can appoint officers and servants of the Supreme Court without any interference from the executive. He can also prescribe their conditions of service.

The Parliament is not authorised to curtail the jurisdiction and powers of the Supreme Court. The Constitution has guaranteed to the Supreme Court, jurisdiction of various kinds. However, the Parliament can extend the same. **Hence, statement 3 is correct.**

Q.58) Solutions (a)

Explanation:

The budget consists of two types of expenditure - the expenditure charged upon the Consolidated Fund of India and the expenditure made' from the Consolidated Fund of India. The charged expenditure is non-votable by the Parliament, that is, it can only be discussed by the Parliament, while the other type has to be voted by the Parliament.

Pensions of the judges of high courts, while salaries and allowances of the high court judges are charged expenditures in the respective state budgets. Hence, Option 1 is incorrect
Salary, allowances and pension of the Comptroller and Auditor General of India.
Salaries, allowances and pension of the chairman and members of the Union Public Service Commission. **Administrative expenses of the Supreme Court, the office of the Comptroller and Auditor General of India and the Union Public Service Commission including the salaries, allowances and pensions of the persons serving in these offices. Hence, Option 2 is correct**
The list of the charged expenditure is as follows: Emoluments and allowances of the President and other expenditure relating to his office. **Salaries and allowances of the Chairman and the Deputy Chairman of the Rajya Sabha and the Speaker and the Deputy Speaker of the Lok Sabha.** Salaries, allowances and pensions of the judges of the Supreme Court. **Hence, Option 3 is correct**

Q.59) Solutions (a)

Explanation:

Article 156 specifies the term for the office of Governor s five years subject to the other provisions of the Article. Constitution of Indian only specifies the term but does not fix the term of five years for the office of Governor. **Hence, Statement 1 is correct**
Governor can hold the office beyond his specified term and shall not vacate his office until the successor assumes the charge. This provision is in lines of Article 153 which specifies that there shall be a Governor for each state. **Hence, Statement 2 is not correct**

Q.60) Solutions (c)

Explanation:

The Constitution lays down that a person shall be disqualified from being a member of Parliament if he is so disqualified on the ground of defection under the provisions of the Tenth Schedule. A member incurs disqualification under the defection law:

He has been convicted for any offence resulting in **imprisonment for two or more years**. This criterion for disqualification is mentioned in the Representation of People Act (1951), not under the Tenth Schedule of the Constitution of India. **Hence statement 1 is not correct.**

if he voluntary gives up the membership of the political party on whose ticket he is elected to the House; if he votes or abstains from voting in the House contrary to any direction given

by his political party; **if any independently elected member joins any political party**; and if any nominated member joins any political party after the expiry of six months. **Hence, Statement 2 and 3 are correct**

Q.61) Solutions (a)

Explanation:

Statement-I is correct- because the Indian Constitution is indeed considered a living document. This is due to its capacity to adapt and evolve with the changing social, economic, and political needs and aspirations of society, rather than being a rigid or static set of rules.

Statement-II is correct because Article 368 provides the procedure for constitutional amendments, which allows for changes to be incorporated, ensuring the document's relevance over time. Furthermore, the actual working of the Constitution has shown enough flexibility of interpretation by both political practices (amendments) and judicial rulings, which ensures it remains a dynamic instrument.

Statement-II explains Statement-I because the provisions for amendment (Article 368) and the flexibility of interpretation by the judiciary and political class are the mechanisms through which the Constitution is able to adapt to changing needs, thus making it a "living document".

Q.62) Solutions (d)

Explanation:

• Directive Principles lists mainly three things:
o **the goals and objectives that we as a society should adopt**;
o **certain rights that individuals should enjoy apart from the Fundamental Rights**; and
o **certain policies that the government should adopt**.
• The governments from time to time tried to give effect to some Directive Principles of State Policy. They passed several zamindari abolition bills, nationalised banks, enacted numerous factory laws, fixed minimum wages, cottage and small industries were promoted and provisions for reservation for the uplift of the scheduled castes and scheduled tribes were made. Such efforts to give effect to the Directive Principles include the right to education, formation of Panchayati raj institutions all over the country, partial right to work under employment guarantee programme and the mid-day meal scheme etc.

Q.63) Solutions (c)

Explanation:

• The term 'preamble' refers to the introduction or preface to the Constitution. It contains the summary or essence of the Constitution. N A Political, an eminent jurist and constitutional expert, called the Preamble as the **'identity card of the Constitution.'**
• According to K M Munshi, a member of the Drafting Committee of the Constituent Assembly, the Preamble is the **'horoscope of our sovereign democratic republic.**
• In the words of Sir Alladi Krishnaswami Iyer, a member of the Constituent Assembly who played a significant role in making the Constitution, 'The **Preamble to our Constitution expresses what we had thought or dreamt so long'.**

Q.64) Solutions (c)

Explanation:

Article	**Provision with respect to Panchayats**	
243 A	Gram Sabha	**Correct**
243 D	Reservation	**Correct**
243 G	Powers, Authority and responsibilities of Panchayats	**Incorrect**
243 I	Constitution of Finance Commission	**Incorrect**

Only two pairs are correct.

Q.65) Solutions (a)

Explanation:

• Under Article 28, no religious instruction shall be provided in any educational institution wholly maintained out of State funds. However, this provision shall not apply to an educational institution administered by the State but established under any endowment or trust, requiring imparting of religious instruction in such institution. Further, no person attending any educational institution recognized by the State or receiving aid out of State funds shall be required to attend any religious instruction or worship in that institution without his consent. **Hence statement 1 is correct.**
• Article 27 lays down that no person shall be compelled to pay any taxes for the promotion or maintenance of any particular religion or religious denomination. This provision prohibits the only levy of a tax and not a fee. This is because the purpose of a fee is to control secular administration of religious institutions and not to promote or maintain the religion. Thus, a fee can be levied on pilgrims to provide them some special service or safety measures. Similarly, a fee can be levied on religious endowments for meeting the regulation expenditure. **Hence statement** 2 **is not correct.**

Q.66) Solutions (a)

Explanation:

• The Parliament (under Article 32) can empower any other court to issue writs. Since no such provision has been made so far, only the Supreme Court and the high courts can issue the writs and not any other court. Before 1950, only the High Courts of Calcutta, Bombay, and Madras had the power to issue the writs. Article 226 now empowers all the high courts to issue the writs. **Hence statement 1 is correct.**
• The Supreme Court can issue writs only for the enforcement of fundamental rights whereas a high court can issue writs not only for the enforcement of Fundamental Rights but also for any other purpose. The expression for any other purpose refers to the enforcement of an ordinary legal right. Thus, the writ jurisdiction of the Supreme Court, in this respect, is narrower than that of the high court. **Hence statement 2 is correct.**
• A remedy under Article 32 is in itself a Fundamental Right and hence, the Supreme Court may not refuse to exercise its writ jurisdiction. On the other hand, a remedy under Article 226 is discretionary and hence, a high court may refuse to exercise its writ jurisdiction. **Hence statement 3 is correct.**

Q.67) Solutions (d)

Explanation:

The Zonal Councils are statutory (and not constitutional) bodies. They are established by the States Reorganisation Act of 1956. The act divided the country into five zones (Northern, Central, Eastern, Western and Southern) and provided a zonal council for each zone. However, the North- Eastern Council was created by a separate Act of Parliament the North-Eastern Council Act of 1971. **Hence, Statement** 1 **is not correct**
The Home Minister of Central Government is the common Chairman of the all-zonal councils. Each zonal council consists of the following members: home minister of Central government; Chief ministers of all the States in the zone; Two other ministers from each state in the zone; Administrator of each union territory in the zone, if any. Besides, the following persons can be associated with the zonal council as advisors (i.e., without the right to vote in the meetings): person nominated by the Planning Commission (now abolished); Chief secretary of the government of each state in the zone; and Development Commissioner of each state in the zone. Each Chief minister acts as a vice-chairman of the council by rotation, holding office for a period of one year at a time. **Hence, Statement 2 is not correct**:
They are only deliberative and advisory bodies. **Hence, Statement** 3 **is not correct**

Q.68) Solutions (c)

Explanation:

• The Constitution authorises the Parliament to form new states or alter the areas, boundaries or names of the existing states without their consent. In other words, the Parliament can redraw the political map of India according to its will. Hence, **the territorial integrity or**

continued existence of any state is not guaranteed by the Constitution. Therefore, India is rightly described as '**an indestructible union of destructible states**.

• The Union government can destroy the states whereas the state governments cannot destroy the Union. In USA, on the other hand, the territorial integrity or continued existence of a state is guaranteed by the Constitution. The American Federal government cannot form new states or alter the borders of existing states without the consent of the states concerned. That is why the USA is described as 'an indestructible union of indestructible states.'

Q.69) Solutions (a)

Explanation:

According to IUCN (2004), the total number of plant and animal species described so far is slightly more than 1.5 million. Estimates vary widely and many of them are only educated guesses.

Statement 1 is correct and statement 2 is not correct: More than 70 per cent of all the species recorded are animals, while plants (including algae, fungi, bryophytes, gymnosperms, and angiosperms) comprise no more than 22 per cent of the total. **Among animals, insects are the most species-rich taxonomic group, making up more than 70 per cent of the total.** That means, out of every 10 animals on this planet, 7 are insects. The number of fungi species in the world is more than the combined total of the species of fishes, amphibians, reptiles, and mammals.

Statement 3 is not correct: Although India has only 2.4 per cent of the world's land area, **its share of the global species diversity is an impressive 8.1 per cent.** That is what makes our country one of the 12 mega diversity countries of the world. Nearly 45,000 species of plants and twice as many of animals have
been recorded from India.

Q.70) Solutions (a)

Explanation:

An important characteristic of all communities is that **composition and structure constantly change in response to the changing environmental conditions**. This change is orderly and sequential, parallel with the changes in the physical environment. These **changes lead finally to a community** that is in near equilibrium with the environment and that is called a **climax community**. The gradual and fairly predictable change in the species composition of a given area is called **ecological succession**. During succession some species colonise an area and their populations become more numerous, whereas populations of other species decline and even disappear. The entire sequence of communities that successively change in a given area are called **sere**(s). The **individual transitional communities** are termed **seral stages or seral**

communities. In the successive seral stages, there is a **change in the diversity of species of organisms**, **increase in the number of species and organisms** as well as an **increase in the total biomass**. **Hence option (a) is the correct answer.**

Q.71) Solutions (d)

Explanation:

An overwhelming majority of animals and nearly all plants cannot maintain a constant internal environment. Their body temperature changes with the ambient temperature. In aquatic animals, the osmotic concentration of the body fluids changes with that of the ambient water osmotic concentration. These animals and plants are simply conformers. Thermoregulation is energetically expensive for many organisms. This is particularly true for small animals like shrews and hummingbirds. Heat loss or heat gain is a function of surface area. **Since small animals have a larger surface area relative to their volume, they tend to lose body heat very fast when it is cold outside; then they have to expend much energy to generate body heat through metabolism. This is the main reason why very small animals**
are rarely found in polar regions. Hence option (d) is the correct answer. Allen's rule, an ecogeographical rule, states that significant differences exist in the size of limbs and
other external organs of animals, even within the same species, depending on the geographical region in which they live. Animals living in colder regions of the world, for instance, have shorter limbs than those living in warmer regions as an adaptation to control the dissipation of heat. A smaller body surface area helps animals in colder regions stay warm by slowing down the loss of body heat. During the course of evolution, the costs and benefits of maintaining a constant internal environment are taken into consideration. Some species have evolved the ability to regulate, but only over a limited range of environmental conditions, beyond which they simply conform With reference to National Board for

Q.72) Solutions (a)

Explanation:

Statement 1 is correct: National Board for Wild Life is a ―Statutory Organization‖ constituted under the Wildlife Protection Act, 1972.
Statement 2 is not correct: The **NBWL is chaired by the Prime Minister.** It has 47 members including the Prime Minister. Among these, 19 members are ex-officio members. Other members include three Members of Parliament (two from Lok Sabha and one from Rajya Sabha), five NGOs and 10 eminent ecologists, conservationists and environmentalists.
Statement 3 is not correct: The board is advisory in nature and advises the Central Government on framing policies and measures for conservation of wildlife in the country.

However, it is a very important body because it serves as apex body to review all wildlife-related matters and approve projects in and around national parks and sanctuaries.

Q.73) Solutions (b)

Explanation:

Statement 1 is correct: CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. Its aim is to **ensure that international trade in specimens of wild animals and plants does not threaten their survival.**

Statement 2 is not correct: CITES was drafted as a result of a resolution adopted in **1963 at a meeting of members of IUCN** (The World Conservation Union). The text of the Convention was finally agreed at a meeting of representatives of 80 countries in Washington, D.C., the United States of America, on 3 March 1973, and **on 1 July 1975 CITES entered in force.**

Statement 3 is correct: CITES **is an international agreement to which States and regional economic integration organizations adhere voluntarily**. States that have agreed to be bound by the Convention ('joined' CITES) are known as Parties. **Although CITES is legally binding on the Parties – in other words they have to implement the Convention – it does not take the place of national laws.** Rather it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES is implemented at the national level.

Q.74) Solutions (b)

Explanation:

1. **Snow Leopard - Loudest roar (Incorrect):** Snow leopards cannot roar due to their vocal cord anatomy. Instead, they make a non-aggressive "chuffing" or "prusten" sound, as well as yowls and growls. The animal with the loudest roar among big cats is the lion, and the loudest animal overall is the sperm or blue whale.

2. **Indian Rhino - Males maintain loose territories (Correct):** The Indian rhinoceros (greater one-horned rhino) is largely solitary, only associating in the breeding season or when raising calves. Males maintain loose territories.

3. **Dhole - Crepuscular (Correct**): Dholes are primarily crepuscular, meaning they are most active during dawn and dusk. While some populations show variations depending on habitat and human presence (sometimes appearing more diurnal), their general classification includes being crepuscular. **Hence option (b) is the correct answer.**

Q.75) Solutions (c)

Explanation:

When we conserve and protect the whole ecosystem, its biodiversity at all levels is protected - we save the entire forest to save the tiger. This approach is called in situ (on-site) conservation. However, when there are situations where an animal or plant is endangered or threatened (organisms facing a very high risk of
extinction in the wild in the near future) and needs urgent measures to save it from extinction, ex-situ (offsite) conservation is the desirable approach.
Examples of in-situ conservation methods are biosphere reserves, national parks, sanctuaries, and sacred groves. Examples of ex-situ conservation methods are Zoological parks, botanical gardens, and wildlife safari parks.

Q.76) Solutions (c)

Explanation:

Each biotic community comprises of Producers, Consumers, and Decomposers. **Producers:** The green autotrophic plants are regarded as producers. They are able to synthesize carbohydrates, proteins, fats, amino acids, etc. (complex organic compounds) from certain inorganic constituents (Carbon Dioxide, Water, mineral salts, etc.) obtained from the surrounding environment with the help of chlorophyll in the presence of sunlight. The process of producing food using sunlight is known as photosynthesis.
Consumers or Phagotrophs: The living organisms that cannot produce their own food and procure their food or nutrition by consuming producers directly or indirectly are called Consumers. **Hence statement 1 is correct.**
They are of three types:
o **Primary Consumers:** They are commonly known as herbivorous.
o **Secondary Consumers:** They are commonly called carnivores or flesh-eating animals.
o **Tertiary consumers:** These are the top carnivores which prey upon carnivores, omnivores, and herbivores. Lions, tigers, shark, eagle, etc. are considered as tertiary consumers.
Omnivores: They are animals that are both herbivores and carnivores i.e. they consume plants as well as animals. **Decomposers or Saprotrophs:** They are micro-organisms mostly bacteria, fungi, protozoa, etc. Instead of ingesting food as done by the heterotrophs, they release enzymes into the dead organic matter, convert the complex organic substances into simpler compounds and then absorb some of the degraded products. **Hence statement 2 is correct.**

Q.77) Solutions (c)

Explanation:

Ethanol blending is generally considered environmentally sustainable because it is a cleaner-burning fuel, reduces fossil fuel reliance, and lowers GHG emissions. **Hence, Statement I is correct**

Studies indicate that ethanol blends achieve reductions in CO2 equivalent emissions, fossil fuel use, and particulate matter (PM) formation compared to petrol. **Hence, Statement II is correct and it explains why it is environmentally sustainable.**

Large-scale production of ethanol from first-generation feedstock (like sugarcane) increases pressure on land and water resources rather than reducing it. Sugarcane is a water-intensive crop, and its cultivation can strain groundwater and water resources in already water-stressed regions, as mentioned in studies regarding India's ethanol policy. **Hence, Statement III is incorrect.**

Q.78) Solution (d)

Explanation:

Anchor investor is a concept launched by SEBI in 2009. Anchor investors are institutional investors (not individual) who are invited to subscribe/purchase the shares before the Initial Public Offer (IPO) opens so that it popularizes the issue and increases the confidence of the other investors and improves the demand of the share. Each anchor investor needs to invest a minimum sum in the issue. The anchor investors are allotted share one day before the IPO opens and there is some lock in period before which they cannot exit their investment.

Q.79) Solution (d)

Explanation:

A Share Buyback (also known as share repurchase), is when a company buys its own outstanding shares to reduce the number of shares available in the open market.
Companies with their reserves (past accumulated profit) buyback their own shares and those purchased shares are extinguished that means they will not exist. Share buyback can be of two types as explained in the figure below:
In the first case, shares were purchased from all the owners proportionately, so that after buyback, number of shares held by every owner will be less, but percentage ownership of all shareholders remains same.
In the second case, all shares were purchased from a particular owner/owners. So, after the buyback, number of shares held by the remaining owners will remain same but their percentage ownership increases.
Companies buy back shares for a number of reasons, such as to increase the value of remaining shares available by reducing the supply or to prevent other shareholders from taking a controlling stake. As the company's pay from its reserves for the buyback of shares, so after the buyback, the assets of the company reduce. In the share buyback, the previous owners are selling the shares to the company and hence they get the money, so it is a way of disinvestment also. For example, just consider C as govt. and XYZ as a PSU in the below figure.

Q.80) Solution (b)

Explanation:

From the above example, money multiplier decreases when banks are required to keep more reserves.
Money supply = (Money Multiplier) X (Monetary Base)
Statement 2 is correct: If the reserve requirements of banks increase, they have to hold a larger portion of their deposits as reserves and have less money available to lend out. This limits the money creation process, thus decreasing the money multiplier.
Statement 1 is incorrect because an increase in reserve requirements decreases, not increases, the money multiplier.
Statements 3 & 4 are incorrect because the money multiplier is the ratio of the money supply to the monetary base, and the relationship with the monetary base itself is not one of direct increase or decrease of the multiplier's value based on the base's value alone. An increase in the monetary base (also known as high-powered money or reserve money) will increase the total money supply through the multiplier effect, but it does not change the value of the multiplier itself, which is determined by factors like the reserve ratio and the public's currency-holding habits.
When we increase monetary base then money supply increases by the same proportion and money multiplier remains constant.
Money multiplier depends on reserves (CRR/SLR) and currency deposit ratio.

Q.81) Solution (c)

Explanation:

A perfectly competitive market has the following defining features:

1. The market consists of a large number of buyers and sellers
2. Each firm produces and sells a homogenous product. i.e., the product of one firm cannot be differentiated from the product of any other firm.
3. Entry into the market as well as exit from the market are free for firms.
4. Information is perfect

Q.82) Solution (c)

Explanation:

Money supply = (Money Multiplier) X (Monetary Base)
From the above formula, money supply can be increased by increasing the money multiplier or monetary base or both.
Statement 1 is correct: If the monetary base remains constant, increasing the money multiplier will lead to an increase in the total money supply. This is done by measures such as decreasing the reserve ratio (Cash Reserve Ratio or Statutory Liquidity Ratio) which allows banks to lend more money.

Statement 2 is correct: If the money multiplier remains constant, increasing the monetary base (e.g., through open market operations where the central bank buys government securities, injecting money into the system) will lead to an increase in the total money supply.

Q.83) Solution (a)

Explanation:

Money supply = (Money multiplier) X (Monetary base)
Statement 1: It changes the monetary base. This is correct. When the central bank buys securities, it injects new money into the banking system, increasing bank reserves and thus expanding the monetary base. When it sells securities, it absorbs money, contracting the monetary base.
Statement 2: It changes the money supply. This is correct. Changes in the monetary base have a multiplied effect on the overall money supply through the process of commercial bank lending and deposit creation (the money multiplier effect). The central bank uses OMO precisely to manage the total money supply in the economy.
Statement 3: It changes the money multiplier. This is incorrect. The money multiplier is determined by factors outside the direct control of OMO, such as the public's currency-to-deposit ratio and the banks' reserve-to-deposit ratio (which includes the Cash Reserve Ratio set by the central bank). OMO affects the amount of the monetary base, but not the ratio (the multiplier itself) that determines how much the money supply changes for a given change in the base.

Q.84) Solution (d)

Explanation:

Statement 1:
Under the inflation targeting framework introduced through amendments to the RBI Act, if the inflation target is not achieved, the **Reserve Bank of India** is mandated to explain the reasons for the failure to the Central Government.
Hence Statement 1 is Correct.

Statement 2:
The report must clearly spell out the remedial actions proposed by RBI to address the causes of failure and restore price stability.
Hence Statement 2 is Correct.

Statement 3:
The law also requires RBI to provide an estimate of the time period within which it expects to bring inflation back to the targeted level.
Hence Statement 3 is Correct.

Q.85) Solution (c)

Explanation:

Statement 1:
Headline inflation refers to the overall inflation in an economy, measured using a broad-based price index such as CPI, which includes prices of all major commodity groups like food, fuel, clothing, housing, and services.
Hence Statement 1 is Correct.

Statement 2:
Core inflation is derived by excluding highly volatile components such as food and fuel from headline inflation, to better capture the underlying and persistent inflationary trend, a measure closely monitored by the **Reserve Bank of India** for policy formulation.
Hence Statement 2 is Correct.

Q.86) Solution (b)

Explanation:

Inflation will necessarily occur in case there is effective demand in the economy. If there is increase in aggregate demand, there may not be inflation if the supply also increases.
If output decreases and demand also decreases then it may not result in inflation.
Increased government spending increases aggregate demand rather than effective demand.

Q.87) Solution (b)

Explanation:

Stagflation is an economic anomaly where stagnation in the economy is accompanied by higher inflation (instead of low inflation due to stagnated economy/demand).
Stagflation = Stagnation in the economy + Inflation
Stagflation is an economic condition characterized by a combination of stagnant economic growth (stagnation), high unemployment, and high inflation.

Demand-pull inflation occurs when aggregate demand in an economy exceeds aggregate supply, which typically leads to an increase in production, income, and employment in the short run. This situation of falling unemployment and rising economic output is the opposite of the stagnation (high unemployment, slow growth) seen in stagflation. **Hence, Statement 1 is incorrect**
Cost-push inflation occurs when the cost of factors of production (like raw materials or wages) increases, leading to a decrease in aggregate supply and thus higher prices, reduced production, and increased unemployment. This directly aligns with the characteristics of stagflation. A prominent historical example is the 1970s oil crisis, where a sharp increase in

oil prices led to cost-push inflation and resulted in widespread stagflation. **Hence, Statement 2 is correct**

Q.88) Solution (a)

Explanation:

Commercial Banks (excluding RRBs) have the highest share in agricultural credit in India, disbursing the majority of loans, often around 60% or more, due to their extensive networks, while Cooperative Banks and Regional Rural Banks (RRBs) follow with smaller shares, and NBFCs have a much smaller, though growing, presence in farm finance, according to data from sources like NABARD and RBI.

Key Breakdown:

Commercial Banks: Disburse the largest portion (around 60-79%), including both public and private sector banks, leveraging their wide reach for government-mandated priority sector lending.
Cooperative Banks: Contribute significantly but have seen their share decrease (around 9-19%), notes Indian Cooperative, Indian Cooperative, and IMS Unison University Dehradun.
Regional Rural Banks (RRBs): Also play a vital role, with a smaller share (around 8-12%) compared to commercial banks, according to Indian Cooperative and IMS Unison University Dehradun.
Non-Banking Financial Companies (NBFCs): Hold a very small percentage (around 1-2%) of the total agricultural credit, though their role is expanding

Q.89) Solutions (d)

Explanation:

Digital Rupee or e₹, is India's Central Bank Digital Currency (CBDC). It is the digital form of India's physical currency, the Rupee (₹). e₹ is issued by the Reserve Bank of India (RBI) in digital form and offers features similar to physical cash like convenience of use, guarantee of RBI, finality of settlement, etc. e₹ is stored in the user's digital wallet and can be used to receive / send money, and / or make payment for transactions, just like any physical ₹ note. **Hence Statement 1 is Correct.**

e₹ is a digital form of ₹ whereas UPI is a means of payment. In addition to being used for payments, e₹ also serves as a 'store of value', i.e., e₹ can be withdrawn from one's bank account and kept separately in the e₹ wallet. **Hence Statement 2 is Correct.**

The offline feature of e₹ enables the user to transact in locations with limited or no internet connectivity. It is expected to mirror the advantages of physical cash, making it a reliable solution for usage in remote areas. Currently, different solutions are being explored. One

solution facilitates P2P transactions without internet but still requires telecom connectivity, while another solution is being tested to enable offline P2M transactions on merchant POS terminals leveraging NFC communication. **Hence Statement 2 is Correct.**

Q.90) Solution (c)

Explanation:

Statement 1:
FDI can take place through the establishment of a wholly owned subsidiary by a foreign investor in India, subject to sectoral caps and entry routes prescribed under India's FDI policy administered by the **Department for Promotion of Industry and Internal Trade**.
Hence Statement 1 is Correct.

Statement 2:
FDI is permitted through joint ventures where a foreign investor collaborates with an Indian partner by contributing capital and participating in ownership and management, again subject to sector-specific regulations.
Hence Statement 2 is Correct.

Statement 3:
FDI also includes acquisition of shares of an existing Indian company by a foreign investor, either through primary market issuance or secondary market purchase, provided it meets the definition of FDI (long-term interest and ownership).
Hence Statement 3 is Correct.

Q.91) Solution (c)

Explanation:

AMOLED (Active-Matrix Organic Light-Emitting Diode) displays use self-emissive organic compounds, meaning each pixel produces its own light. When a pixel needs to show black, it turns off completely, resulting in "perfect" or "true" blacks and high contrast ratios. **Hence, Statement 1 is correct.**

QLED (Quantum Dot LED) displays are an enhancement of traditional LCD panels. They use a backlight (LED) to shine through a liquid crystal layer, with an added layer of quantum dots to improve color and brightness. Because they rely on a backlight rather than self-emissive pixels, they generally offer higher peak brightness but not the "infinite" contrast/true blacks of OLED. **Hence, Statement 2 is correct.**

Q.92) Solution (d)

Explanation:

Wetland	State/ UT	
1. Gogabil Lake	Assam	Bihar, Incorrect
2. Siliserh Lake	Himachal Pradesh	Rajasthan, Incorrect
3. Kopra Jalashay	Chhattisgarh	Correct
4. Udhwa Lake Bird Sanctuary	Jharkhand	Correct

Only 3 and 4 are correct.

Q.93) Solution (a)

Explanation:

The Tropical Forests Forever Facility (TFFF) was formally launched by Brazil at COP30. It is designed as a "payment-for-performance" model that uses agreed satellite monitoring standards to provide a continuing source of funding to tropical forest countries for preserving their forests. **Hence, Statement I is correct**

India, along with other developing countries like China, has not signed the Global Methane Pledge, which proposes a collective target to reduce global methane emissions. India has consistently resisted binding methane targets for its agriculture sector due to concerns about the livelihoods of millions of small and marginal farmers and food security. The COP30 guidelines on agricultural emissions were voluntary, and India ensured this flexibility was maintained. **Hence, Statement II is incorrect**

Q.94) Solution (a)

Explanation:

The Enforcement Directorate (ED) is mandated with the task of enforcing the provisions of the Prevention of Money Laundering Act, 2002 (PMLA). It conducts investigations to trace assets derived from proceeds of crime, provisionally attach property, and ensure prosecution of offenders. **Hence, Statement 1 is correct.**

The ED functions under the Department of Revenue, Ministry of Finance, not the Department of Economic Affairs. While it was initially formed as an 'Enforcement Unit' in the Department of Economic Affairs in 1956, its administrative control was transferred to the Department of Revenue in 1960. **Hence, Statement 2 is incorrect.**

Q.95) Solution (b)

Explanation:

The SHANTI Bill, 2025 (now an Act) repeals and replaces the Atomic Energy Act, 1962, and the Civil Liability for Nuclear Damage Act, 2010. It enables private Indian companies and joint

ventures to build, own, operate, and decommission nuclear power plants under a license and regulatory oversight, breaking the state's monopoly. **Hence, Statement 1 is correct**

A key objective of the SHANTI Bill is to facilitate the expansion of nuclear power capacity to meet India's long-term objective of achieving 100 GW by 2047 through significant private sector participation and investment. **Hence, Statement 2 is correct**

While the Bill allows private entities to participate in certain parts of the fuel cycle like fabrication of nuclear fuel (including conversion, refining and enrichment up to a certain threshold), the strategic and safety-sensitive activities such as final uranium enrichment (beyond a specified low threshold), spent fuel reprocessing, and radioactive waste management remain under the exclusive control and oversight of the central government to ensure national security and strategic interests are protected. **Hence, Statement 3 is incorrect.**

Q.96) Solution (d)

Explanation:

- Weimar Triangle is a regional political grouping of France, Germany, and Poland. It was formed on 29 August 1991 by a joint declaration issued in Weimar, Germany, by the Foreign Ministers of the three countries. The group takes its name from the city of Weimar, Germany, where the initial meeting took place. The Triangle was initially the key forum for supporting German-Polish reconciliation after World War II. **Hence, statement 1 is not correct.**
- It has no formal institutional headquarters or permanent secretariat; it operates through regular summit meetings of heads of state and foreign ministers. Although the Weimar Triangle still has no institutional structure, it remains a framework of reference at the political level. **Hence, statement 2 is not correct.**

Q.97) Solution (d)

Explanation:

- PathGennie is a novel computational framework developed by scientists that can significantly accelerate the simulation of rare molecular events. It is open-source software developed for fast tracking of drug discovery. It is aimed at fast-tracking the drug discovery process by accurately tracking molecular unbinding pathways. **Hence, statements 1 and 2 are correct.**
- It was developed by scientists at the S.N. Bose National Centre for Basic Sciences, Kolkata, an autonomous institute under the Department of Science and Technology. It addresses a long-standing challenge in molecular simulations, accurately modelling how drug molecules detach from their target proteins. It predicts the potential drugs unbind from their protein targets without the artificial distortions commonly used in standard methods. **Hence, statement 3 is correct.**

Q.98) Solution (c)

Explanation:

- OPEC (Organization of the Petroleum Exporting Countries) Plus was established in 2016 through the "Declaration of Cooperation" at the Vienna Group meeting. It was formed to counter falling oil prices caused by the surge in U.S. shale oil production. OPEC was established in 1960 by the five founding members Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. **Hence, statement 1 is not correct.**
- The headquarters of OEC Plus is located in Vienna, Austria. It controls approximately 40% of global oil production and nearly 80% of proven reserves. It comprises of 22 countries (12 OPEC countries plus Azerbaijan, Bahrain, Brunei, Kazakhstan, Russia, Mexico, Malaysia, South Sudan, Sudan, and Oman). **Hence, statements 2 and 3 are correct.**

Q.99) Solution (a)

Explanation:

- Amazonian stingless bees have become the first insect in the world to be granted legal rights, after two municipalities Satipo and Nauta in Peru passed an ordinance recently. They are among the planet's oldest pollinators, with a remarkable concentration of species in the Amazon rainforest. They are found in tropical regions across the world, and about half of the 500 known species live in the Amazon. Africa, Australia, Southeast Asia, and parts of the Americas are the main areas where the stingless bee is found. **Hence, option a is the correct answer.**

Q.100) Solution (b)

Explanation:

- PANKHUDI Portal is an integrated Corporate Social Responsibility (CSR) and partnership facilitation digital portal. It is launched by the Ministry of Women and Child Development. It is aimed at strengthening coordination, transparency, and structured stakeholder participation in initiatives for women and child development. **Hence, statement 1 is not correct.**
- It works as a single-window digital platform, Non–Resident Indians (NRIs), Non-Governmental Organisations (NGOs), Corporate Social Responsibility (CSR) contributors, corporate entities, and government agencies. And, it marks a significant step towards leveraging digital solutions for inclusive, collaborative, and outcome-oriented development of women and children across India. **Hence, statement 2 is correct.**