

Q.1) Solution (c)**Explanation:**

- As per Article 148(1) of the Constitution, the Comptroller and Auditor General (CAG) is appointed by the President of India. Under Articles 149–151 of the Constitution and the CAG's (Duties, Powers and Conditions of Service) Act, 1971, the CAG audits the receipts and expenditure of the Union and State governments, and also audits government companies as defined in the Companies Act. Hence, **statements 1 and 3 are correct.**
- There is no mention of tenure in the Constitution, but under the CAG (Duties, Powers and Conditions of Service) Act, 1971, the CAG holds office for six years or until the age of 65 years, whichever is earlier — not five years. Hence, **statement 2 is not correct.**
- Under Article 148(1)–(3), the CAG can be removed only by the President in the same manner and on the same grounds as a judge of the Supreme Court, i.e., through a special majority resolution of Parliament on grounds of proved misbehaviour or incapacity. Hence, **statement 4 is correct.**

Q.2) Solution (b)**Explanation:**

- The Indian Councils Act, 1892 allowed certain members of legislative councils to be nominated based on recommendations from provincial bodies like municipal committees, universities, district boards, and chambers of commerce. Though the word “election” wasn't explicitly used, this was the beginning of a representative (indirect) system in India. Hence, **option b is the correct answer.**

Q.3) Solution (b)**Explanation:**

- The Preamble was adopted on 26 November 1949, along with the rest of the Constitution, not after it. In fact, the Preamble was discussed and settled last, but it was enacted together with the Constitution, not afterward. Hence, **statement 1 is not correct.**
- The term “Sovereign” signifies that India is free to make its own laws, both internally and externally, without the control of any external authority. This independence includes freedom from the British Crown or any foreign power. Hence, **statement 2 is correct.**

Q.4) Solution (a)**Explanation:**

- The writ of Prohibition is issued only against judicial or quasi-judicial authorities, not against administrative or legislative bodies. It is meant to prevent a lower court or tribunal from exceeding its jurisdiction or acting contrary to the law. Hence, **statement 1 is not correct.**
- Writ of Quo Warranto cannot be issued against a private body, even one established by a statute, because its purpose is to challenge the legality of a person holding a public office. The writ is specifically for substantive public offices and cannot be used for private offices or roles with only private duties. **Hence, statement 2 is not correct.**
- Article 32 guarantees the right to move the Supreme Court for enforcement of Fundamental Rights. Thus, it is itself a Fundamental Right (Dr. Ambedkar called it the “heart and soul” of the Constitution) and also provides the constitutional remedy for protecting Fundamental Rights. **Hence, statement 3 is correct.**

Q.5) Solution (d)**Explanation:**

- The President may, with the consent of the State Government, entrust to that government or its officers functions relating to any matter within the Union’s executive power. This is explicitly provided under Article 258(1) of the Constitution. **Hence, statement 1 is correct.**
- The Governor of a State may, with the consent of the Government of India, entrust to the Union Government or its officers functions relating to matters within the State’s executive power. This is provided under Article 258A (inserted by the 7th Amendment, 1956). **Hence, statement 2 is correct.**
- The Constitution does not require the President to consult the State Government before revoking the consent. Under Article 258(2), such entrustment is subject to conditions and can be withdrawn at any time by the President. **Hence, statement 3 is correct.**

Q.6) Solution (a)**Explanation:**

- The concept of suspension of fundamental rights during emergency is borrowed from the Weimar Constitution of Germany. The Concurrent List was borrowed from the Australian Constitution, not Ireland or the USA. The Directive Principles of State Policy (DPSPs) were borrowed from the Irish Constitution, which itself was influenced by the Spanish Constitution. **Hence, options A, B and D are incorrect.**

- The concept of a federation with a strong center was borrowed from the Canadian Constitution. This model for India's federal system, which includes the center holding more power than the states, was also influenced by the Government of India Act of 1935. **Hence, option C is correct.**

Q.7) Solution (a)

Explanation:

- Under sections 3 to 10A of the Representation of the People Act, 1951
- 4. Qualifications for membership of the House of the People.
- A person shall not be qualified to be chosen to fill a seat in the House of the People, unless—
- (a) in the case of a seat reserved for the Scheduled Castes in any State, he is a member of any of the Scheduled Castes, whether of that State or of any other State, and is an elector for any Parliamentary constituency. **Hence, statement 1 is correct.**
- Qualifications for membership of a Legislative Assembly.
- A person shall not be qualified to be chosen to fill a seat in the Legislative Assembly of a State
- unless—
- (a) in the case of a seat reserved for the Scheduled Castes or for the Scheduled Tribes of that State, he is a member of any of those castes or of those tribes, as the case may be, and is an elector for any Assembly constituency in that State;. **Hence, statement 2 is not correct.**

Q.8) Solution (c)

Explanation:

- Under Article 66(1), the Vice President is elected by an electoral college consisting of members of both Houses of Parliament. Unlike the President's election, nominated members of both the Lok Sabha and Rajya Sabha do take part in the Vice-President's election. Hence, **statement 1 is correct.**
- As per Article 66(1) and the 1952 Act, the election is held by the system of proportional representation by means of the single transferable vote, and the voting is secret. Hence, **statement 2 is correct.**

- In the Vice President's election, each MP (elected or nominated) has one vote of equal value. In contrast, in the President's election, the votes of MPs and MLAs carry different values based on population representation. Hence, **statement 3 is correct.**

Q.9) Solution (b)**Explanation:**

- Balwant Rai Mehta Committee (1957) was appointed by the Government of India in 1957 to study the Community Development Programme and National Extension Service. It first recommended a three-tier structure of Panchayati Raj- Zila Parishad at the district level, Panchayat Samiti at the block level and Gram Panchayat at the village level. **Hence, option b is the correct answer.**

Q.10) Solution (c)**Explanation:**

- The Public Accounts Committee (PAC) examines the accounts showing the appropriation of sums granted by Parliament, and whether the money has been spent within the scope of the demand and for the purpose for which it was sanctioned. In other words, the PAC ensures regularity, legality, and propriety of expenditure — i.e., funds are used for the intended purpose. **Hence, statement 1 is correct.**
- The PAC does not question policy. It only examines how money was spent, not why it was spent — i.e., it looks at financial propriety and compliance, not policy merits. **Hence, statement 2 is not correct.**

Q.11) Solution (b)**Explanation:**

- "Population control and family planning" is specifically mentioned in the Concurrent List (Entry 20A) — added by the 42nd Amendment Act, 1976. "Economic and social planning" is in the Concurrent List (Entry 20). **Hence, options 1 and 3 are correct.**
- "Fisheries" appears in the State List (Entry 21) — covers fisheries within inland waters and territorial waters. "Public order (but not including the use of any naval, military or air force or any other armed force of the Union)" is in the State List (Entry 1). **Hence, options 2 and 4 are not correct.**

Q.12) Solution (a)

Explanation:

- Part XII (Articles 264–300A) deals with Finance, Property, Contracts and Suits. Part XIV (Articles 308–323) covers Services under the Union and the States, including Public Service Commissions. Part XVIII (Articles 352–360) deals with Emergency Provisions (National, State, and Financial Emergencies). Part XV (Articles 324–329A) deals with Elections. **Hence, only one pair is matched correctly.**

Q.13) Solution (b)**Explanation:**

- Special Intensive Revision (SIR) is not limited to periods before general elections. It is a special exercise ordered by the Election Commission when it feels the need for a thorough verification and purification of electoral rolls — for instance, when large discrepancies, migrations, or inaccuracies are found. It may or may not coincide with an upcoming election. **Hence, statement 1 is not correct.**
- Under Section 14 of the Representation of the People Act, 1950, the Election Commission, in consultation with the State Government, can fix a qualifying date (the date on which a person must satisfy the age and eligibility conditions). Normally, the qualifying date is 1st January of the year, but during Special Revision, it may be advanced or postponed by the ECI. Hence, **statement 2 is correct.**
- SIR involves door-to-door verification of entries, deletion of dead/duplicate/migrated voters, and enrolment of newly eligible voters, especially those who have turned 18 years on the qualifying date. Hence, **statement 3 is correct.**

Q.14) Solution (c)**Explanation:**

- Maharashtra and Gujarat are covered under Article 371(2). Nagaland is covered under Article 371A and it grants special protections to Naga religious and social practices, customary law, and land ownership. Arunachal Pradesh is covered under Article 371H. Odisha is not covered under any clause of Article 371 or its sub-clauses (Although Odisha has Scheduled Areas and tribal protections, these are under Fifth Schedule, not Article 371). **Hence, only four options are correct.**

Q.15) Solution (d)**Explanation:**

- A gyroscope measures or maintains orientation and angular velocity. Gyroscopes are core components of inertial navigation systems (INS) and attitude and heading reference systems (AHRS) used in aircraft, ships, and spacecraft. Smartphones use

microelectromechanical system (MEMS) gyroscopes to detect orientation and motion for auto-rotation and gaming/motion sensing. Modern gyro stabilizers (large mechanical or electronic gyros) are used in ships and yachts to counteract rolling and maintain balance. Gyroscopes are crucial in inertial guidance systems of missiles and drones, helping determine orientation and trajectory stability. Many cameras and smartphones use tiny gyroscopes to detect motion or shake, allowing the system to compensate for blur via lens or sensor adjustment. **Hence, all the five options are correct.**

Q.16) Solution (a)

Explanation:

- Boiling occurs when the vapor pressure of a liquid equals the external pressure. If external pressure increases, the liquid needs a higher temperature to reach that vapor pressure. Thus, boiling point increases on increasing the pressure (as seen in pressure cookers). **Hence, option a is the correct answer.**

Q.17) Solution (d)

Explanation:

- The high-pressure high-temperature (HPHT) method indeed simulates the natural formation conditions of diamonds in the Earth's mantle. Both natural and synthetic (HPHT) diamonds have the same cubic (isometric) crystal structure. Hence, **statement 1 is correct.**
- Natural diamonds often contain nitrogen impurities, while lab-grown diamonds (HPHT or CVD) can be engineered to have controlled impurity levels. Spectroscopic methods (like photoluminescence and infrared spectroscopy) can indeed distinguish between them based on such impurity patterns. Hence, **statement 2 is correct.**
- HPHT diamonds often contain metallic inclusions (from catalysts like Fe, Ni, or Co), and their growth morphology (e.g., cubo-octahedral patterns) differs from natural diamonds. Thus, gemological labs can distinguish them. Hence, **statement 3 is correct.**

Q.18) Solution (a)

Explanation:

- Polar Satellite Launch Vehicle (PSLVs) are designed mainly to place satellites into Polar Sun-Synchronous Orbit (SSO) and also LEO. Geosynchronous Satellite Launch Vehicles (GSLVs) are used to launch communication satellites into Geosynchronous Transfer Orbit (GTO). Small Satellite Launch Vehicles (SSLVs) are intended for small satellites — mostly to Low Earth Orbit (LEO). Reusable Launch Vehicle – Technology

Demonstrator (RLV-TD) is a technology demonstration for reusable orbital launch systems. **Hence, option a is the correct answer.**

Q.19) Solution (d)

Explanation:

- Barcodes are 1D and use reflected laser light to interpret line widths and spaces. QR codes are 2D, composed of black and white squares, and are decoded using image sensors/cameras via pattern recognition. Hence, **statement 1 is correct.**
- QR codes indeed use Reed–Solomon error correction, allowing recovery even with ~30% damage. Standard barcodes generally have no built-in error correction, so if damaged, they become unreadable. Further, QR codes can store up to ~7,089 numeric or ~4,296 alphanumeric characters. Typical 1D barcodes (like UPC, EAN) store 10–30 numeric digits only. Hence, **statements 2 and 3 are correct.**

Q.20) Solution (c)

Explanation:

- Infrared (IR) rays are electromagnetic waves with wavelengths ranging roughly from 700 nm to 1 mm — longer than visible light but shorter than microwaves. They are primarily associated with heat radiation, as all warm objects emit infrared radiation. Their applications include instruments like thermal imaging cameras, night vision devices, remote controls, infrared spectroscopy, etc. **Hence, option c is the correct answer.**

Q.21) Solution (a)

Explanation:

- Regenerative braking in electric and hybrid vehicles converts the vehicle's kinetic energy (normally lost as heat during braking) into electrical energy, which is then stored in the battery for reuse — improving energy efficiency. During braking, the electric motor reverses its operation — instead of drawing electrical power to produce motion, it acts as a generator, converting mechanical (kinetic) energy into electrical energy. **Hence, option a is the correct answer.**

Q.22) Solution (b)

Explanation:

- Recently, there has been a massive rise in fentanyl-related overdose deaths, especially in the United States, Canada, and parts of Europe. Fentanyl is a synthetic opioid that is 50–100 times more potent than morphine. Although it has legitimate medical uses (like managing severe pain in cancer or surgery patients), it has become

a major public health crisis due to illicit production and trafficking. Illicit fentanyl is often mixed with heroin, cocaine, or counterfeit pills, making it highly lethal even in microgram quantities. **Hence, option b is the correct answer.**

Q.23) Solution (b)

Explanation:

- DNA (Deoxyribonucleic acid) contains thymine (T) as one of its four nitrogenous bases (A, T, G, C). RNA (Ribonucleic acid) contains uracil (U) instead of thymine, pairing with adenine. DNA is double-stranded and helical, making it chemically more stable than RNA. This stability allows DNA to serve as long-term storage of genetic information, while RNA, being single-stranded, is more short-lived and reactive. However, the replacement of thymine with uracil in RNA is due to chemical and evolutionary differences, not directly because of DNA's double-helix stability. Although both are correct, Statement II does not explain Statement I. **Hence, option b is the correct answer.**

Q.24) Solution (d)

Explanation:

- Certain algae, especially blue-green algae (cyanobacteria), produce harmful algal toxins (like microcystins, domoic acid) that can poison fish, shellfish, and even humans — causing harmful algal blooms (HABs). Some dinoflagellates (a group of algae) such as *Noctiluca scintillans* and *Pyrodinium bahamense* are bioluminescent, producing blue-green light through the luciferin-luciferase reaction. Many algae are unicellular — e.g., *Chlamydomonas*, *Chlorella*, Diatoms, Dinoflagellates, while others are multicellular (like seaweeds). Hence, **statements 1, 2 and 4 are correct.**
- Some species of algae reproduce through parthenogenesis. This is a form of asexual reproduction in which an embryo develops directly from an unfertilized egg (female gamete). Brown Algae: Parthenogenesis is relatively common in various brown algae species, including *Ectocarpus* and *Lessonia nigrescens*. In some cases, like the "Amazon" populations found in the Sea of Japan, populations consist exclusively of females that reproduce via parthenogenesis, thriving for millions of years without males. In many species of brown algae, unfused female gametes are capable of parthenogenesis, while male gametes typically are not. Green Algae: Parthenogenesis has also been observed in some green algae, such as *Spirogyra* and *Oedogonium*, where female gametes can develop into new individuals without fertilization. **Hence, statement 3 is correct.**

Q.25) Solution (d)

Explanation:

- Tragopans is a genus of pheasants found in the Himalayas and Northeast India (e.g., Western Tragopan, Blyth's Tragopan). Known for their colorful plumage and are threatened bird species. Nightjars are nocturnal insect-eating birds, with excellent camouflage; found worldwide, including India (e.g., Jungle Nightjar). Megapodes are ground-dwelling birds found in Southeast Asia and the Pacific; they are known for building large mound nests to incubate eggs using heat from decomposing vegetation (e.g., Nicobar Megapode). **Hence, option d is the correct answer.**

Q.26) Solution (a)

Explanation:

- ASGM is the largest source of anthropogenic mercury emissions globally. Mercury is used to extract gold from ore, and much of it is released into the atmosphere and water, causing serious pollution. Hence, **option 1 is correct.**
- Coal naturally contains trace amounts of mercury. When coal is burned, mercury is released into the air and can later deposit into soil and water, entering the food chain (especially in fish). Hence, **option 2 is correct.**
- Most modern pesticides do not contain mercury (though older ones sometimes did). Today, agricultural runoff mainly contributes nitrogen, phosphorus, and pesticide residues, not mercury. **Hence, option 3 is not correct.**
- Volcanoes emit mercury naturally from the Earth's crust during eruptions, contributing to global atmospheric mercury levels. Hence, **option 4 is correct.**

Q.27) Solution (a)

Explanation:

- Under Sections 3 and 4 of the Biological Diversity Act, 2002, any person or organization (especially foreign entities) must obtain prior approval from the National Biodiversity Authority (NBA) before commercial utilization, bio-survey, or bio-utilization of biological resources or associated knowledge from India. Hence, **statement 1 is correct.**
- "Benefits arising from the use of biological resources are shared equitably between the resource users and local communities traditionally conserving those resources." This is one of the key objectives of the Act. The principle of Access and Benefit Sharing (ABS) ensures that profits or intellectual benefits from biological resources are equitably shared with local and traditional communities that conserve and sustain biodiversity. Hence, **statement 2 is correct.**
- The Act applies to both Indian and foreign entities, though the level of regulation differs. Indian citizens and companies must seek approval from State Biodiversity Boards for commercial use of biological resources. Only foreign nationals or organizations need approval from the NBA directly. **Hence, statement 3 is not correct.**

Q.28) Solution (a)**Explanation:**

- Article 9 of the UNFCCC (1992) clearly states that developed country Parties shall provide new and additional financial resources to developing countries to cover the costs of mitigation and adaptation, and to support technology transfer and capacity-building. This is based on the principle of “Common but Differentiated Responsibilities and Respective Capabilities (CBDR–RC)”. Hence, **statement 1 is correct.**
- Under Article 9, developed countries have a binding commitment to provide financial assistance. Developing countries are not required to contribute financially under the Convention, though they may do so voluntarily. This distinction reflects equity and historical responsibility in climate change governance. Hence, **statement 2 is correct and it also explains statement 1.**

Q.29) Solution (c)**Explanation:**

- Primary alkaline batteries (e.g., AA/AAA alkalines) generally have higher energy density and a longer shelf life / lower self-discharge than traditional zinc–carbon primary cells. Alkaline cells use zinc (often as powdered zinc) as the anode and manganese dioxide (MnO_2) as the cathode. This chemistry gives higher capacity and lower self-discharge, which explains why alkalines outperform zinc–carbon cells. Hence, **statements 1 and 2 are correct and statement 2 explains statement 1.**
- Primary alkaline batteries are not rechargeable in normal use. There exist rechargeable alkaline variants, but standard primary alkalines are designed for single use and attempting to recharge them is unsafe and causes rapid capacity loss. Hence, **statement 3 is not correct.**

Q.30) Solution (b)**Explanation:**

- The foreign exchange reserves for the four countries in the correct ascending order (smallest to largest) is India (~ \$650 billion), Switzerland (~ \$950 billion), Japan (~ \$1.24 trillion) and China (~ \$3.57 trillion). Hence, **option b is the correct answer.**

Q.31) Solution (c)

Explanation:

To calculate the monetary aggregates M1, M2, M3, and M4, let's first understand their typical components:

M1 = Currency with the public + Demand deposits with commercial banks

M2 = M1 + Savings deposits with post office savings banks (or similar)

M3 = M1 + Time deposits with commercial banks (up to 1 year and over 1 year)

M4 = M3 + Total deposits with post office savings organisation (excluding National Savings Certificates)

Now substitute the values:

Currency with public = ₹8,000 crore

Demand deposits = ₹6,000 crore

Savings deposits (post office) = ₹3,000 crore

Net Time deposits with commercial banks = ₹5,000 crore

Total deposits (post office savings org.) = ₹1,000 crore

Calculations:

$M1 = 8,000 + 5,000 + 1,000 = ₹14,000$ crore

$M2 = M1 + 3,000 = 14,000 + 3,000 = ₹17,000$ crore

$M3 = M1 + 5,000 = 14,000 + 5,000 = ₹19,000$ crore (Note: M3 usually includes all time deposits; here we include both up to 1 year and over 1 year)

$M4 = M3 + 1,000 = 19,000 + 1,000 = ₹20,000$ crore

Q.32) Solution (a)**Explanation:**

- GDP is location-based — it includes production within a country's borders whether done by domestic or foreign entities. GNP is the total sum of GDP and Net Factor Income from Abroad (NFIA). It includes residents' income earned abroad and excludes foreigners' income earned domestically. Hence, **statements 1 and 2 are correct.**

- If a country earns large remittances or income from abroad, its GNP will be higher than its GDP, because those remittances add to national income. **Hence, statement 3 is not correct.**

Q.33) Solution (c)

Explanation:

- Supply-side measures (e.g., improving infrastructure, reducing input costs, easing regulations) directly address the root causes of stagflation by increasing supply and productivity — lowering inflation and boosting growth simultaneously. Balanced fiscal policy that supports productive investment, moderates inflationary pressures, and protects vulnerable groups is crucial in addressing stagflation. Hence, **statements 1 and 3 are correct.**
- While contractionary monetary policy can curb inflation, doing it aggressively during stagflation worsens unemployment and output decline. Thus, it's not an appropriate or balanced response. **Hence, statement 2 is not correct.**

Q.34) Solution (a)

Explanation:

- “REITs are companies that own and operate income-generating real estate properties and are required to distribute at least 90% of their taxable income as dividends to shareholders.” This is a defining feature of REITs (Real Estate Investment Trusts) — they must distribute at least 90% of taxable income to shareholders, ensuring regular income and preventing profit hoarding. Hence, **statement 1 is correct.**
- Exchange-Traded Funds (ETFs) can indeed track REIT indices (like Nifty REIT & InvIT Index in India). They give investors indirect exposure to real estate through securities, not through physical property ownership. Hence, **statement 2 is correct.**
- Investors in a REIT do not directly own or manage the underlying properties. Ownership is indirect, through units or shares of the REIT, and management decisions are handled by professional managers or trustees. **Hence, statement 3 is not correct.**

Q.35) Solution (b)

Explanation:

- Germany, France and Italy are members of European Union (EU). Norway is not a member of the EU (it belongs to the EEA & Schengen, but not EU). Switzerland is not

a member of the EU (it has bilateral agreements only with EU). Iceland is not a member of the EU (it is a member of EEA). **Hence, option b is the correct answer.**

Q.36) Solution (c)

Explanation:

- Based on the 2024-25 estimated production data for the soybean-producing Indian states:
 - Telangana $\approx$ 2.38 lakh tonnes
 - Karnataka $\approx$ 4.46 lakh tonnes
 - Gujarat $\approx$ 4.56 lakh tonnes
 - Rajasthan $\approx$ 11.77 lakh tonnes
 - Maharashtra $\approx$ 50.17 lakh tonnes
 - Madhya Pradesh $\approx$ 55.40 lakh tonnes. **Hence, option c is the correct answer.**

Q.37) Solution (d)

Explanation:

- Sustainable Aviation Fuels (SAFs) are designed to reduce lifecycle carbon emissions compared to conventional jet fuels, and they must not compete with food production or cause environmental degradation. Using food crops (like corn, sugarcane, palm oil, etc.) as feedstock for SAF is discouraged because it leads to food vs. fuel conflicts and is not considered truly sustainable under international standards such as ICAO's CORSIA or EU's Renewable Energy Directive (RED II). **Hence, option 1 is not correct.**
- Sustainable aviation fuel production should not rely on land suited for food production, as it undermines food security and biodiversity. Further, water may be used in processing but is not a direct feedstock in SAF production. Feedstocks include used cooking oil, agricultural residues, municipal solid waste, algae, and other non-food biomass. **Hence, options 2 and 3 are not correct.**

Q.38) Solution (a)

Explanation:

- Fixed Rate Bonds have a coupon rate fixed for the entire tenure. They generally pay interest semi-annually (twice a year). For example- 8.24% GS 2018 means a Government Security (G-Sec) issued at an 8.24% annual coupon rate, maturing in 2018. Hence, **statement 1 is correct.**

- Floating Rate Bonds (FRBs) have a coupon rate linked to a benchmark, typically the average yield of the last three 182-day Treasury Bills plus a fixed spread. This spread is decided at the time of issuance and remains constant throughout the life of the bond. Only the benchmark rate changes periodically (every 6 months), not the spread. **Hence, statement 2 is not correct.**

Q.39) Solution (d)

Explanation:

- The Government Securities (G-Secs) market in India is regulated by the Reserve Bank of India (RBI) and is open to a broad range of participants. Commercial Banks and Primary Dealers (PDs) are major participants in the G-Sec market. PDs act as market makers, ensuring liquidity by quoting continuous buy-sell prices. **Hence, option 1 is correct.**
- Entities like insurance companies (LIC, etc.), mutual funds, provident funds, and pension funds invest heavily in G-Secs to meet long-term and low-risk portfolio needs. FPIs are allowed to invest in both central and state government securities, within limits set by RBI and SEBI. Investments are monitored through the Fully Accessible Route (FAR) and the Medium-Term Framework (MTF). Corporates can invest in G-Secs to manage their portfolios, meet statutory liquidity needs, or diversify investments. **Hence, options 2, 3 and 4 are correct.**

Q.40) Solution (c)

Explanation:

- The Clearing Corporation of India Limited (CCIL) acts as the central counterparty (CCP) for all transactions in the Government Securities (G-Secs) market. It was established in 2001 and is regulated by the Reserve Bank of India (RBI). CCIL provides clearing and settlement services for trades in- government securities, foreign exchange, money market instruments and derivatives (like IRS – Interest Rate Swaps). **Hence, option c is the correct answer.**

Q.41) Solution (a)

Explanation:

Statement 1 is correct: FIMMDA is indeed an association of various financial institutions like Scheduled Commercial Banks, Public Financial Institutions, Primary Dealers, and Insurance Companies, established to develop the fixed income, money, and derivatives markets in India.

Statement 2 is incorrect: While FIMMDA plays a significant role in regulating and standardizing the fixed income market, membership is not mandatory for all banks and financial institutions dealing in fixed income securities in India. It is a voluntary association

Q.42) Solution (c)

Explanation:

Tri-Party Agent, as it is a third party that facilitates all aspects of the transaction, including collateral selection, payment, settlement, custody, and management. While organizations like the Clearing Corporation of India Limited (CCIL) act as the Tri-Party Agent and intermediary in India, the correct general term for the role is the Tri-Party Agent

Q.43) Solution (b)

Explanation:

Money market instruments include call money, repos, T- Bills, Cash Management Bills Commercial Paper, Certificate of Deposit and Collateralized Borrowing and Lending Obligations (CBLO).

Corporate Bonds: Considered a long-term debt instrument, not a money market instrument.

Debentures: Similar to corporate bonds, a long-term debt instrument, not belonging to the money market.

Q.44) Solution (a)

Explanation:

The primary deficit is calculated by subtracting the interest payments on previous borrowings from the fiscal deficit.

Here's the calculation:

Fiscal Deficit: ₹8,00,000 crore

Interest Payments: ₹3,00,000 crore

Primary Deficit: Fiscal Deficit - Interest Payments

Primary Deficit: ₹8,00,000 crore - ₹3,00,000 crore = ₹5,00,000 crore

Q.45) Solution (b)

Explanation:

Repo rate: This is the interest rate at which the Reserve Bank of India (RBI) lends money to commercial banks. When the RBI increases the repo rate, it becomes more expensive for banks to borrow money, which discourages them from lending excessively and ultimately slows down the money supply in the economy, helping to control inflation.

Why other options are incorrect:

- a) Decreasing the repo rate: This would actually stimulate the economy by making it easier for banks to borrow, potentially leading to higher inflation.
- c) Increasing government spending: This is a fiscal policy measure, not a monetary policy measure. Increased government spending can inject more money into the economy, which could exacerbate inflation.
- d) Reducing taxes: Like increasing government spending, reducing taxes is a fiscal policy measure that can lead to increased spending and potentially higher inflation.

Q.46) Solution (a)

Explanation:

Buddhism asserted the right for Nibbana to women as the social and institutional patriarchy did not exclude women from realizing nibbana. So, **statement 1 is correct.**

Nibbana, as per Buddhism, can be attained only through the path shown by the enlightened teacher or Buddha and gods have no role in it. So, **statement 2 is not correct.**

Parinibbana is the term associated with death while Nibbana means dying out of desire or extinction of desire within oneself. So, **statement 3 is not correct.**

Q.47) Solution (b)

Explanation:

Paumachariyam is a Jain version of Ramayana written by Vimalasuri. The Paumachariyam is only one among many in the long tradition of Ramakatha among Jains, although it is oldest and the best-known.

Q.48) Solution (d)

Explanation:

Tamralipti (modern Tamluk in West Bengal) was the principal port of North India during the Gupta period. It served as a vital link between the inland trade centers of the Ganga basin and the maritime routes connecting Southeast Asia and Sri Lanka. The port is frequently mentioned in Buddhist and Jataka texts, and by Chinese travelers like Fa-Hien, highlighting its importance in international commerce.

Q.49) Solution (d)**Explanation:**

Mohenjo-Daro River: Indus River, Pakistan

Important findings:

- Bronze dancing girl in Tribhanga pose
- Seal of Pasupathi Mahadeva
- Steatite statue of beard man
- Great bath
- Granary
- A piece of woven cotton

Ropar

- River: Sutlej River
- Important findings: Discovered by Y D Sharma in 1953.

Rangpur

- River: Madar river, Gujarat
- Important findings:
- Situated on the left bank of Madar River (Gujarat).
- Plant remains (rice, millets and bajara)

Q.50) Solution (b)**Explanation:**

The Mauryan Empire had an efficient and centralized administrative system. The chief source of information regarding administration under the Mauryan Empire is Chanakya's work, Arthashastra. Megasthenes also gives some information in his book Indika.

Revenue in the Mauryan Empire was collected on land, irrigation, shops, customs, forests, ferries, mines, and pastures. License fees were collected from artisans and fines were charged in the law courts.

The Mauryas attached greater importance to assessment than to storage and depositing. The samaharta was the highest executive official in charge of assessment and the sannidhata was the chief custodian of the state treasury and storehouse. **Hence option (b) is the correct answer.**

Q.51) Solution (a)

Explanation:

Qutub-ud-din Aibak and not Balbun was referred to as Lakh Baksh. Lakh Baksh is usually referred to as those who give away property and wealth to the needy and poor. Because of his generosity and gave liberal donations, Qutub-ud-din Aibak was called Lakh Baksh.

Ghiyas-ud-din Balban (1266 to 1287 AD), the ninth Sultan of the Mamluk dynasty of Delhi, was one of the most powerful Sultans. He adopted a policy of consolidation rather than expansion.

Balban ruled in an autocratic manner and worked hard to elevate the position of the Sultan. He introduced a new theory of kingship and redefined the relations between the Sultan and nobility. He did not allow any noble to assume great power.

Q.52) Solution (d)**Explanation:**

Battle of Khanwa (1527): Babur defeated Rana Sanga, strengthening the new Mughal rule in northern India.

Battle of Chausa (1539): Sher Shah Suri defeated Mughal emperor Humayun.

Battle of Talikota (1565): A coalition of Deccan Sultanates defeated the Vijayanagara Empire, leading to its decline.

Battle of Haldighati (1576): Akbar's forces defeated Maharana Pratap in a strategically important battle, though Rajput resistance continued.

Q.53) Solution (b)**Explanation:**

Banjar - It was the worst kind of land that was left out of cultivation for longer than 2-3 years.

It is correct

Chachar - It was a kind of land allowed to lie fallow for two or three years and then resumed under cultivation. **It is correct**

Polaj - It was the ideal and best type of land throughout the empire. This land was cultivated always and was never allowed to lie fallow. **It is incorrect**

Q.54) Solution (a)**Explanation:**

Bentinck (governor-general, 1828-35) abolished the office of the SP. The collector/magistrate was now to head the police force in his jurisdiction and the commissioner in each division was to act as the SP. This arrangement resulted in a badly organised police force, putting a heavy burden on the collector/magistrate. **Hence, Statement 1 is incorrect**

In 1774, Warren Hastings restored the institution of faujdars and asked the zamindars to assist them in suppression of dacoits, violence and disorder. **Hence, Statement 2 is incorrect**

1791 Cornwallis organised a regular police force to maintain law and order by going back to and modernising the old Indian system of thanas (circles) in a district under a daroga (an Indian) and a superintendent of police (SP) at the head of a district. He relieved the zamindars of their police duties. **Hence, Statement 3 is correct**

Q.55) Solution (a)

Explanation:

Bangaduta (1822) is a weekly in 4 languages (English, Bengali, Persian, Hindi) founded by Rajaram Mohan Roy, Dwarkanath Tagore and others. So, **pair 1 is not correct.**

Derozio, Henry (1809-1831) poet, rationalist thinker and teacher. Henry Louis Vivian Derozio was appointed a teacher of the Calcutta hindu college in May 1826 when he was only seventeen. Derozio was also actively involved in promoting the welfare of his Eurasian community, and had begun editing a daily English newspaper, The East Indian. So, **pair 2 is correct.**

Harish Chandra Mukherjee was an Indian journalist and patriot, who fought for the indigo cultivators (and against the indigo planters) and forced the government to bring about changes. He was associated with the Hindu Patriot right from its start in 1853. In 1855, he secured the ownership and became the editor of the newspaper. So, **pair 3 is correct.**

Q.56) Solution (d)

Explanation:

Indian Social Conference was founded by M.G. Ranade and Raghunath Rao, the Indian Social Conference met annually from its first session in Madras in 1887 at the same time and venue as the Indian National Congress. It focussed attention on the social issues of importance; it could be called the social reform cell of the Indian National Congress, in fact. The conference advocated inter-caste marriages, opposed polygamy and kulinism. It launched the 'Pledge Movement' to inspire people to take a pledge against child marriage.

Q.57) Solution (c)

Explanation:

Tarabai Shinde was a feminist activist who protested patriarchy and caste in 19th century India. She is known for her published work, Stripurush Tulana ("A Comparison Between Women and Men"). The pamphlet is a critique of upper-caste patriarchy, and is often considered the first modern Indian feminist text.

Q.58) Solution (c)**Explanation:**

Dev Samaj was founded in 1887 at Lahore by Shiv Narayan Agnihotri (1850- 1927), earlier an Brahmo follower, Dev Sadan is a religious and social reform society. The society emphasised on the eternity of the soul, the supremacy of the guru, and the need for good action. It called for an ideal social behaviour such as not accepting bribes, avoiding intoxicants and non- vegetarian food, and keeping away from violent actions. Its teachings were compiled in a book, Deva Shashtra. Agnihotri spoke against child marriage. **Hence, Statement 1 is correct**

Bharat Dharma Mahamandala is an all-India organisation of the orthodox educated Hindus, it stood for a defence of orthodox Hinduism against the teachings of the Arya Samajists, the Theosophists, and the Ramakrishna Mission. **Hence, Statement 2 is correct**

Q.59) Solution (d)**Explanation:**

Jyotiba Phule (1827-1890), born in Satara, Maharashtra, belonged to the mali (gardener) community and organized a powerful movement against upper caste domination and brahminical supremacy. Phule founded the Satyashodhak Samaj (Truth Seekers' Society) in 1873, with the leadership of the samaj coming from the backward classes, malis, telis, kunbis, saris and dhangars. So, **statement 1 is correct.**

He dedicated his book Gulamgiri or Gulamgin to the American movement to free slaves, he linked the conditions of the black slaves in America with those of the lower castes in India. This comparison contains an expression of hope that one day, like the end of slavery in America, there would be an end to all sorts of caste discriminations in Indian society. So, **statement 2 is correct.**

He opened an orphanage home to avoid infanticide. In this regard, he is believed to be the first Hindu to start an orphanage for the unfortunate children. So, **statement 3 is correct.**

Q.60) Solution (b)**Explanation:**

The Tanha Bhagat revolt conflicted the taxes imposed on them in a civil obedience movement fashion and started a Satyagraha path much before Gandhi.

Q.61) Solution (d)**Explanation:**

In 1920 the British imposed a harsh treaty on the Turkish Sultan or Khalifa. People were furious about this as they had been about the Jallianwala massacre. Also, Indian Muslims were keen that the Khalifa be allowed to retain control over Muslim sacred places in the erstwhile Ottoman Empire.

The Indian Muslims were incensed when they discovered that their loyalty had been purchased during the War by assurances of generous treatment of Turkey after the War - a promise British statesman had no intention of fulfilling. The Muslims regarded the Caliph of Turkey as their spiritual head and were naturally upset when they found that he would retain no control over the holy places in the erstwhile Ottoman Empire, the jazirat-ul-Arab (Arabia, Syria, Iraq and Palestine). The leaders of the Khilafat agitation, Mohammad Ali and Shaukat Ali, now wished to initiate a full-fledged movement. **Hence statements 1 and 2 are correct.**

The Congress supported the movement and Mahatma Gandhi sought to conjoin it to the Non - Cooperation movement. Gandhiji, who had been in close touch with the Khilafat leaders for quite some time, and was a special invitee to the Khilafat Conference in November 1919, had all along been very sympathetic to their cause, especially because he felt the British had committed a breach of faith by making promises that they had no intention of keeping. In February 1920, he suggested to the Khilafat Committee that it adopt a programme of non-violent non-cooperation to protest the Government's behaviour. On 9 June 1920, the Khilafat Committee at Allahabad unanimously accepted the suggestion of non-cooperation and asked Gandhiji to lead the movement. The movement was launched formally on 1 August 1920. **Hence statement 3 is correct.**

Q.62) Solution (c)**Explanation:**

The nationalist agitation forced the Government to make some changes in legislative functioning by the Indian Councils Act of 1892. The 'reformed' Imperial Legislative Council met, during its tenure till 1909, on an average for only thirteen days in a year, and the number of unofficial Indian members present was only five out of twenty-four.

The nationalists were totally dissatisfied with the Act of 1892. They saw in it a mockery of their demands. The Councils were still impotent; despotism still ruled. They now demanded a majority for non-official elected members with the right to vote on the budget and, thus, on the public purse.

They raised the slogan 'no taxation without representation.' Gradually, they raised their demands. **Hence, option (c) is the correct answer.**

Q.63) Solution (d)

Explanation:

The Didarganj Yakshini, discovered near Patna (ancient Pataliputra), is one of the finest examples of Mauryan art and polished stone sculpture. Carved from Chunar sandstone, the statue displays the famous Mauryan polish, graceful posture, and elaborate ornamentation. The Yakshini holds a chauri (flywhisk) in her right hand, symbolizing prosperity and divine femininity, and represents the early mastery of Indian sculptural art.

Q.64) Solution (a)

Explanation:

The themes of the murals of the Ajanta Caves range from religious to secular like decorative designs that include a variety of animals, trees and flowers; portraits of various Buddhas and Bodhisattvas; and narrative scenes portraying Jataka stories. **Statement 1 is correct**

The representation of one of the memorable events of Buddha's life after enlightenment which ranks among the best of the paintings at Ajanta, is in cave No. XVII. This represents Buddha's visit to the door of Yashodhara's abode in the city of Kapilavastu while she herself has come out with her son Rahula to meet the Great King. **Statement 2 is incorrect**

Q.65) Solution (c)

Explanation:

During the reign of Akbar, painting was organized in one of the imperial establishments. Large number of painters from all the castes were invited to join. Daswant and Basawan were the famous painters. Apart from illustrating Persian fables, painters were soon assigned the task of illustrating Persian text of Mahabharata, etc. Thus, Indian scenes and themes came into

vogue. An illustrated manuscript of the Tuti-nama in the Cleveland Museum of Art (USA) appears to be the first work of the Mughal School. The style of painting in this manuscript shows the Mughal style in its formative stage. **Statement 1 is correct**

Indian colors like peacock blue, the Indian red, etc. began to be used. Above all the flat effect of the Persian Style began to be replaced by the roundness of Indian brush, giving pictures a three-dimensional effect. **Statement 2 is correct**

Q.66) Solution (c)

Explanation:

Cirrus clouds are formed at high altitudes (8,000 - 12,000m). They are thin and detached clouds having a feathery appearance. They are always white in colour.

Q.67) Solution (a)

Explanation:

The savanna types of Grasslands are present in following continents in the Earth

South America- There are two distinct regions namely the llanos of the Orinoco basin[north of equator] and the campos of the Brazilian Highlands [South of equator].

Africa - The belt includes West African Sudan, and then curves southwards into East Africa and southern Africa north of the Tropic of Capricorn.

Australia - The Australian savanna is located south of the monsoon strip (northern Australia) running from west to east north of the Tropic of Capricorn.

Asia (Indian Savanna) - Certain parts across Northern Karnataka, Southern Maharashtra and Telangana exhibit characteristics of both semi-arid and savanna climate.

Q.68) Solution (c)

Explanation:

Increase in the temperature increases moisture absorption and retention capacity of air parcel as temperature increases kinetic energy of constituent molecules providing more volume inside the air parcel. **So, statement 1 is correct.**

Relative humidity is high in Sub Polar low pressure belt as high convective rainfall due to continuous rising of air and cloud formation keeps the air parcel almost saturated. So, **statement 2 is correct.**

Q.69) Solution (a)

Explanation:

ITCZ is also known as Doldrums or calm because of the windless weather in the area of trade wind converge and low pressure belt generally circles the earth in the equator. The sun and the warm water in the equatorial region heats the air. **Statement 1 is correct.**

Horse latitudes are located around 30-35 degree latitude north and south of equator situation near subtropical high pressure belts. So, **Statement 2 is not correct.**

Q.70) Solution (c)

Explanation:

Canaries current is along the north western coast of Africa which flows in the north Atlantic ocean.

Peruvian current flows along the western coast of South America in the eastern Pacific ocean.

South Atlantic drift is originated because of the downward moving warm Brazilian current meeting cold Falkland current getting deflected eastwards due to coriolis force forming south Atlantic current. This again moves to its left along western coast of Africa as cold Benguela current approaching the equator changing again to hot south equatorial current. **So, statement 2, 4 and 5 are correct.**

Q.71) Solution (a)

Explanation:

Weight losing raw materials are materials that weigh less after getting manufactured than what should have been their weight as a raw material. For example, copper was taken from its raw material copper ore.

In the iron and steel industries, iron ore and coal both are weight-losing raw materials. Therefore Iron and Steel Industry, Pulp Industry, and Sugar mills Industry are categorized as a weight-losing raw materials-based industry. **Hence, option 1 is correct**

Similarly, the locations of the pulp industry, copper smelting, and pig iron industries are located near their raw materials. **Hence, option 2 is correct**

Industries using weight-losing raw materials are located in the regions where raw materials are located. The sugar mills in India are located in sugarcane growing areas. **Hence, option 3 is correct**

Therefore, an optimum location for iron and steel industries should be near raw material sources. This is why most of the iron and steel industries are located either near coalfields (Bokaro, Durgapur, etc.) or near sources of iron ore (Bhadravati, Bhilai, and Rourkela).

Similarly, industries based on perishable raw materials are also located close to raw material sources.

Markets provide outlets for manufactured products. Heavy machines, machine tools, and heavy chemicals are located near the high-demand areas as these are market-orientated.

The cotton textile industry uses a non-weight-losing raw material and is generally located in large urban centers, e.g. Mumbai, Ahmedabad, Surat, etc. **Hence, option 4 is incorrect**

Petroleum refineries are also located near the markets as the transport of crude oil is easier and several products derived from them are used as raw materials in other industries. This industry is also a non-weight-losing raw material-based industry. Koyali, Mathura, and Barauni refineries are typical examples. Ports also play a crucial role in the location of oil refineries. **Hence, option 5 is incorrect**

Hence option (a) is the correct answer.

Q.72) Solution (c)

Explanation:

Rice is the staple crop of India, and every day millions of Indians find comfort in it. With a high carbohydrate content, it is known to provide instant energy and is a staple that is consumed by the majority of India's population.

Rice being a tropical and sub-tropical plant requires a fairly high temperature of more than 22°C and an amount of rainfall of more than 100 cm. Irrigation is necessary for areas of lesser rainfall. Clayey alluvial soil in which water can remain standing is ideal for rice. **Hence statement 1 is not correct.**

It is a Kharif crop that requires high temperature, (above 25°C) and high humidity with annual rainfall above 100 cm. **Hence statement 2 is not correct.**

In areas with less rainfall, it grows with the help of irrigation. Rice is grown in the plains of north and north-eastern India, coastal areas, and the deltaic regions. The development of a dense network of canal irrigation and tubewells have made it possible to grow rice in areas of less rainfall such as Punjab, Haryana, western Uttar Pradesh, and parts of Rajasthan.

In southern states and West Bengal, the climatic conditions allow the cultivation of two or three crops of rice in an agricultural year. In West Bengal farmers grow three crops of rice

called 'aus', 'aman', and 'boro'. But in the Himalayas and northwestern parts of the country, it is grown as a Kharif crop during the Southwest Monsoon season.

India contributes 21.9 percent of rice production in the world and ranked second after China in 2017. About one-fourth of the total cropped area in the country is under rice cultivation. **Hence statement 3 is correct.**

Q.73) Solution (d)

Explanation:

Global oil reserves are not distributed evenly across the globe. More than half of the world's proven oil reserves are located in the Middle East. Following the Middle East are Canada and the United States, Latin America, Africa, and the region occupied by the former Soviet Union. Each of those regions contains less than 15 percent of the world's proven reserves. **Hence statement 1 is correct.**

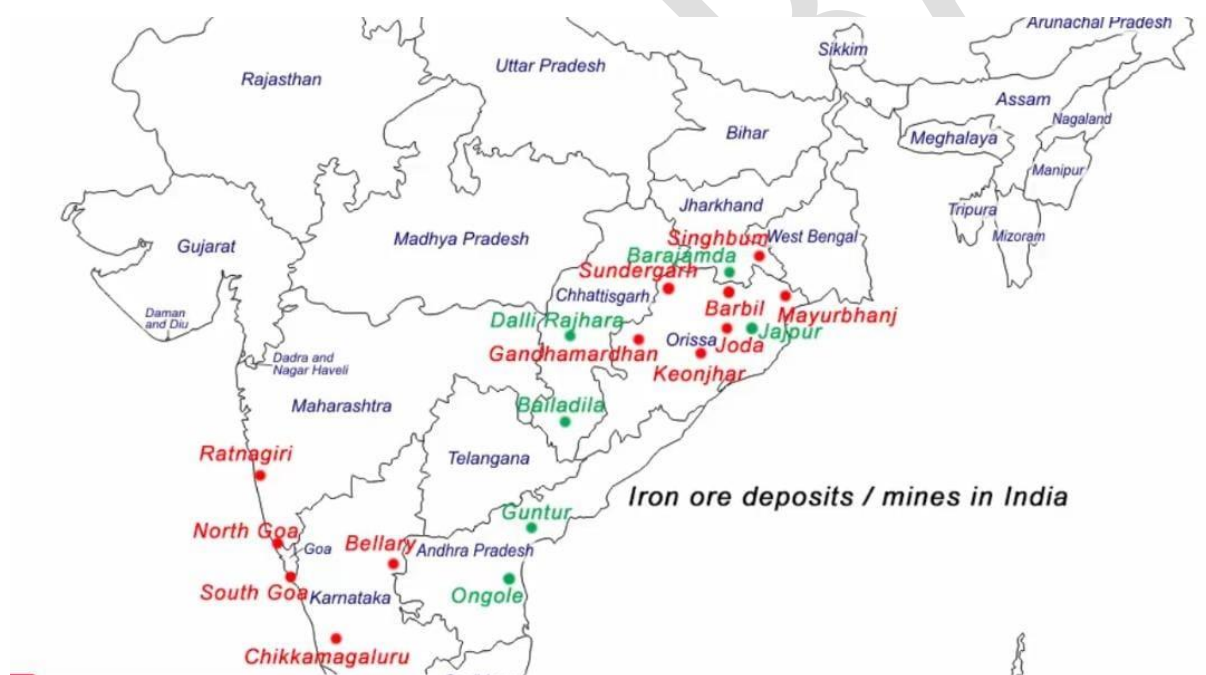
Venezuela has the largest amount of oil reserves in the world with more than 300 billion barrels in reserve. Saudi Arabia has the second-largest amount of oil reserves in the world with 297.5 billion barrels. **Hence statement 2 is incorrect.**

The Ghawar oilfield, located about 100km southwest of Dhahran in the Al Hasa Province of Saudi Arabia, is the world's biggest conventional oil field both by oil reserves and production. It is by far the biggest oil-producing field and is one of the world's six fields producing more than one million barrels of oil per day. Ghawar is estimated to account for about 6% of the world's total daily crude oil output. **Hence statement 3 is incorrect.**

Q.74) Solution (d)

Explanation:

Rhine Waterway - The Rhine flows through industrially advanced nations of Switzerland, Germany, France, Belgium, and the Netherlands. The Rhine River is navigable from Rotterdam for about 870km. At its source in Switzerland, it flows along the boundary of France and Germany and drains Germany and the Netherlands, and has its mouth near the North Sea. Hence option (d) is the correct answer.

Q.75) Solution (c)**Explanation:**

Hence, option (c) is the correct answer.

Q.76) Solution (a)**Explanation:**

Tides based on Frequency:

Semi-diurnal tide: The most common tidal pattern, featuring two high tides and two low tides each day. The successive high or low tides are approximately of the same height.

Diurnal tide: There is only one high tide and one low tide during each day. The successive high and low tides are approximately of the same height. **Hence statement 2 is incorrect.**

Mixed tide: Tides having variations in height are known as mixed tides. These tides generally occur along the west coast of North America and on many islands of the Pacific Ocean.

Spring tides:

The position of both the sun and the moon in relation to the earth has direct bearing on tide height. When the sun, the moon and the earth are in a straight line, the height of the tide will be higher. These are called spring tides and they occur twice a month, one on full moon period and another during the new moon period. **Hence statement 1 is correct.**

When the earth is closest to the sun (perihelion), around 3rd January each year, tidal ranges are also much greater, with unusually high and unusually low tides. When the earth is farthest from the sun (aphelion), around 4th July each year, tidal ranges are much less than average.

The time between the high tide and low tide, when the water level is falling, is called the ebb. **Hence statement 3 is not correct.**

Q.77) Solution (b)

Explanation:

The troposphere is the lowermost layer of the Earth's atmosphere. Most of the weather phenomena occur in this layer, although some may extend into the lower portion of the stratosphere.

The troposphere contains almost all the atmospheric water vapour, in fact, it contains about 70 to 80 percent of the total mass of the Earth's atmosphere.

The troposphere's average height is 13 km and extends roughly to a height of 8 km near the poles and about 18 km at the equator. The thickness of the troposphere is greatest at the equator because here the air is relatively warmer due to high insolation compared to other latitudes and the warm air is transported to great heights by strong convectional currents and thus the higher thickness at the equator. The difference in thickness is not due to gravity.

Hence, statement 1 is not correct

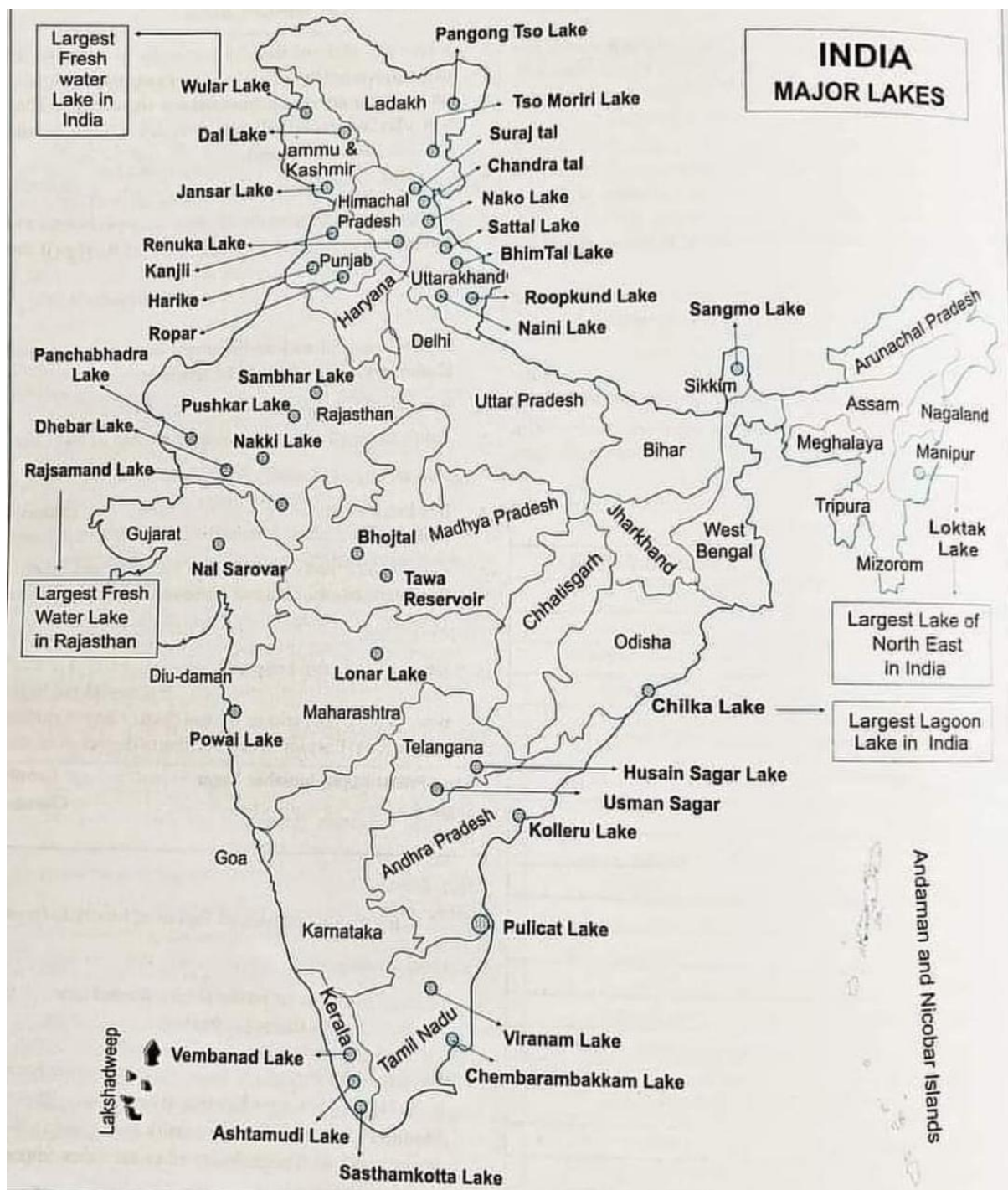
The tropopause is the upper limit of the troposphere and therefore forms the boundary between the troposphere and Stratosphere.

On average, the troposphere air temperature decreases with height at an overall positive lapse rate of about $6.5^{\circ}\text{C}/\text{km}$, until the tropopause.

Since the tropopause at poles is located at a lower elevation than the tropopause at the equator, the temperature of tropopause at poles is greater than the equator. The air temperature at the tropopause is about minus 80 degrees centigrade over the equator and about minus 45 degrees centigrade over the poles. **Hence, statement 2 is correct.**

Q.78) Solution (c)

Explanation:



Q.79) Solution (b)

Explanation:



Q.80) Solution (b)

Explanation:

Lake Razzaza, also known as Lake Milh (Arabic for Salt Lake), is the second-largest Lake (man-made) in Iraq and is part of a wide valley that includes the lakes of Habbaniyah, Tharthar and Bahr al-Najaf.

The Lake was constructed to control floods in the Euphrates and to be used as a huge reservoir for irrigation purposes. It was completed in the 1970s to receive excess water from Habbaniya Lake during flood season via drainage canals.

A combination of ongoing upstream dam projects and sporadic droughts that reduce annual rainfall impact Lake Razzaza.

One of Iraq's largest lakes, the man-made Razzaza, is seeing a significant decline in water levels and has been hit by pollution and high salinity levels.

FfD4 is to mobilize and reform development financing to meet the SDGs, especially in developing nations.

Statement 2 is correct: The Compromiso de Sevilla is the intergovernmental agreed outcome document.

Statement 3 is incorrect: The conference is organized by the United Nations, not the World Bank.

Q.81) Solution (b)**Explanation:**

1. Cryptocurrencies: These are included as VDAs, as per India's definition.
2. Non-Fungible Tokens (NFTs): NFTs, being digital assets, are included as VDAs.
3. Central Bank Digital Currency (CBDC): CBDC is issued by the government and is not classified under VDAs in the current Indian context.
4. Digital collectibles traded over blockchain

These are considered VDAs, as they are similar to NFTs.

Thus, option b) 1, 2 and 4 is the correct answer.

Q.82) Solution (a)**Explanation:**

A key goal of FfD4 is to mobilize and reform development financing to meet the SDGs, especially in developing nations. **Hence, Statement 1 is correct**

The Compromiso de Sevilla is the intergovernmental agreed outcome document. **Hence, Statement 2 is correct**

The conference is organized by the United Nations, not the World Bank. **Hence, Statement 3 is incorrect**

Q.83) Solution (a)**Explanation:**

The 2025 edition is indeed the 8th, but it is being held in France, not India. **Hence, Statement 1 is incorrect**

The Indian Army is represented by the Jammu and Kashmir Rifles, and the French Army by the 13th Foreign Legion Half-Brigade (13th DBLE). **Hence, Statement 2 is correct**

Exercise Shakti is biennial and focuses on counter-terrorism and tactical skills, not maritime cooperation. **Hence, Statement 3 is incorrect**

Q.84) Solution (a)**Explanation:**

Statement 1 is incorrect: NSP 2025 replaces the 2001 policy, not 2011.

Statement 2 is correct: It promotes integration of sports into education per NEP 2020.

Statement 3 is correct: It aims for global excellence, including targeting the 2036 Olympics.

Statement 4 is incorrect: The policy emphasizes both elite and grassroots development through its five pillars.

Q.85) Solution (b)

Explanation:

Option a: The discovery is not about dark matter, but about CP violation in baryons. Hence Option a is Incorrect

Option b: The observed CP violation in Λb^0 baryons is a key clue to understanding why the universe is dominated by matter rather than antimatter. **Hence Option b is Correct**

Option c: The study does not compare stability, but rather asymmetry in decay behaviours. Hence Option c is Incorrect

Option d: The speed of light remains a universal constant and is not challenged by this discovery. Hence Option d is Incorrect.

Q.86) Solution (a)

Explanation:

PM-DDKY merges 36 existing central schemes. Hence **Statement 1 is Correct**

The scheme targets 100 low-performing districts, not all districts, and promotes climate-resilient and sustainable crops, not just high-yielding hybrids. **Hence statement 2 is Incorrect**

Monitoring is done via a digital dashboard with 117 indicators, overseen by NITI Aayog. Hence **statement 3 is Correct**

At least one district per state/UT is included under the scheme. Hence **statement 4 is Correct.**

Q.87) Solution (a)

Explanation:

Allographa effusosoredica is a newly discovered lichen species found in the Western Ghats, one of the world's richest biodiversity hotspots.

Key Features:

Belongs to the genus *Allographa*; this is the 53rd species of this genus recorded in India.

Notable for its:

Crustose (crust-like) thallus

Effuse soredia – powdery asexual structures for reproduction

Presence of norstictic acid, a rare secondary metabolite in lichens

Scientific Significance:

Discovered by MACS-Agharkar Research Institute, Pune

Identified using an integrated approach:

Classical taxonomy

Chemical profiling

Molecular sequencing (markers: mtSSU, LSU, RPB2 for fungus and ITS for alga)

Closely related to *Allographa xanthospora* genetically, but morphologically resembles *Graphis glaucescens*

Ecological Importance:

Lichens like this play roles in:

Soil formation

Supporting micro-ecosystems

Acting as bioindicators of environmental change

Symbiotic Nature:

A symbiosis between fungus and photobiont (*Trentepohlia* algae)

Enhances understanding of ancient mutualisms in tropical ecosystems

Q.88) Solution: (c)

Explanation:

Statement 1: MIRV technology was developed and deployed specifically because it complicates and can overwhelm existing ABM systems. The cost-exchange ratio is heavily biased toward the attacker with MIRVs, as one offensive missile requires multiple (often many more) defensive interceptors. **Hence the statement is Correct**

Statement 2: This capability is the reason MIRV deployment reduces the effectiveness of ABM systems, as the defense is forced to simultaneously defend against multiple incoming warheads (and possibly decoys) rather than a single one. **Thus, Statement 2 explains Statement 1.**

Statement 3: ABM systems are designed to intercept a limited number of incoming warheads/missiles, not multiple independent ones effectively. **Hence the statement is Incorrect**

Q.89) Solution (a)

Explanation:

Statement 1: CAFE norms set fleet-level efficiency targets for automakers, measured in CO₂ emissions per kilometre. Hence the **statement 1 is Correct**

Statement 2: BEE monitors compliance but does not adjudicate penalties; penalties are adjudicated by the State Electricity Regulatory Commissions (SERCs) under the Energy Conservation Act framework. **Hence the statement 2 is Incorrect.**

Q.90) Solution: (a)

Explanation:

Sustainable Power 1404 is the name of Iran's first major naval exercise after its June 2025 conflict with Israel. Conducted in the Gulf of Oman and northern Indian Ocean, the drill involved warships, coastal missile batteries, drones, and electronic warfare systems. Cruise missiles like Nasir and Qadir were test-fired at sea targets.

Q.91) Solution (d)

Explanation:

- **Statement 1:** Indigenous processors like Vikram reduce reliance on imported space-grade chips, boosting self-reliance. **Hence the statement is Correct**
- **Statement 2:** Semicon India is a comprehensive program for both chip design and fabrication ecosystem development. **Hence the statement is Correct**
- **Statement 3:** Space-grade chips trade off high speed for *durability, stability, and radiation tolerance*, which are vital for missions. **Hence the statement is Correct**

Q.92) Solution (c)

Explanation:

- I. Indra – Russia. - Indra is a joint military exercise between India and Russia, covering all three services. **This option is Correct**

- II. Maitree – Bangladesh. - Maitree is a joint exercise between India and Thailand, not Bangladesh. **This option is Incorrect**
- III. Shakti – France. - Shakti is a bilateral military exercise between India and France. **This option is Correct**
- IV. Garuda Shakti – Indonesia. - Garuda Shakti is a bilateral exercise between India and Indonesia. **This option is Correct**

Q.93) Solution (c)

Explanation:

Meloxicam (c) has been extensively safety-tested and promoted as a safe alternative since the early 2000s, while the other drugs listed have been found to be toxic to vultures:

- Ketoprofen & Aceclofenac → Toxic to vultures.
- Ibuprofen → Also harmful to vultures.
- **Meloxicam → Proven safe; promoted by Government of India.**

Q.94) Solution: (d)

Explanation:

- I. **Bitcoin – Payment Cryptocurrency**
Bitcoin was the first cryptocurrency, designed mainly as a peer-to-peer payment system and digital money. This is correct •
- II. **Tether – Stablecoin**
Tether (USDT) is pegged to the US Dollar, making it a stablecoin aimed at reducing volatility. This is correct •
- III. **Monero – Privacy Coin**
Monero (XMR) uses advanced cryptographic techniques to ensure anonymity of sender, receiver, and transaction value. This is correct •
- IV. **Uniswap (UNI) – Governance Token**

UNI token holders can vote on protocol changes, upgrades, and treasury decisions, making it a governance token in decentralized finance (DeFi). This is correct

Q.95) Solution: (b)

Explanation:

CEREBO is an indigenously developed, portable, non-invasive diagnostic device capable of quickly detecting intracranial bleeding and brain edema in cases of traumatic brain injury (TBI). It provides colour-coded, radiation-free results within a minute, and can be used safely by paramedics and unskilled personnel—especially valuable in remote areas without access to CT or MRI scans.

Q.96) Solution: (a)

Explanation:

Statement 1: Presumptive taxation simplifies compliance for small taxpayers (Sections 44AD, 44ADA, 44AE), letting them declare income at a fixed rate of turnover and avoid detailed accounting. **This statement is correct**

Statement 2: It is not restricted only to small businesses. Professionals (like doctors, engineers, architects, etc.) can also opt for presumptive taxation under Section 44ADA, and transporters under Section 44AE. **This statement is incorrect**

Q.97) Solution: (b)

Explanation:

The IAEA's primary mandate under its safeguards system is to verify that nuclear materials are not used for weapons, thus ensuring nuclear security and non-proliferation. **Hence Statement I is Correct**

The IAEA implements safeguards primarily in NPT signatories, but it can also enter voluntary safeguard agreements with non-NPT states (e.g., India's safeguards after the 2008 India–IAEA agreement). **Hence Statement II is Correct but does not explain Statement I directly Hence, the statement is partly true in fact but does not directly explain how nuclear security is ensured — it only describes the scope of implementation.**

By providing technical assistance in peaceful uses (medicine, food irradiation, agriculture, nuclear power safety), the IAEA builds trust and compliance among states, reinforcing non-proliferation norms, thereby explaining how the Agency enhances global nuclear security. **Hence Statement III is Correct and explains Statement I**

Q.98) Solution (c)

Explanation:

Metal–Organic Frameworks (MOFs) are crystalline porous materials composed of metal ions/clusters coordinated to organic ligands, forming a highly porous network.

- They exhibit exceptionally high surface area and tunable pore sizes, making them useful in:
 - o Gas storage (H_2 , CO_2 , CH_4),
 - o Catalysis,
 - o Drug delivery, and
 - o Water harvesting.
- Their gas adsorption capacity far exceeds that of activated carbon or zeolites.

Q.99) Solution (a)

Explanation:

Metallo- β -lactamases are zinc-dependent bacterial enzymes capable of breaking down a broad range of β -lactam antibiotics, including carbapenems, making infections caused by such bacteria difficult to treat. These enzymes are a major cause of antimicrobial resistance (AMR) in Gram-negative pathogens like *Pseudomonas aeruginosa* and *Klebsiella pneumoniae*.

Q.100) Solution (d)

Explanation:

- Menar Wetland Complex is in Rajasthan.
- Pala Wetland is the first Ramsar site of Mizoram.
- Tawa Reservoir is located in Madhya Pradesh.
- Gokul Jalashay is a newly designated site in Bihar.