Q1. Answer : B

Explanation:

Statement 1 is incorrect:

Generally, a decline in revenue would lead a company to tighten its budget, including the Capex budget. In times of financial constraints, businesses may prioritize cost-cutting measures rather than increasing investments. Therefore, a decline in revenue is not a typical reason for a significant increase in the Capex budget.

Statement 2 is correct:

This is a common and significant reason for an increase in the Capital Expenditure (Capex) budget. Expansion plans often involve investments in new facilities, technology, machinery, or infrastructure. Whether the company is entering new markets, launching new products, or simply scaling up its existing operations, these initiatives typically require substantial capital investments. Hence, a rise in the Capex budget is a natural response to support expansion and growth strategies.

Statement 3 is correct:

Intensified competition in the market can drive companies to invest in various areas to maintain or enhance their competitive edge. This may include investments in research and development (R&D) for innovation, upgrading technology and equipment, improving operational efficiency, or enhancing marketing and branding efforts. These strategic investments are aimed at staying ahead of or catching up with competitors, and they often contribute to an increase in the Capex budget.

Statement 4 is incorrect:

While a decrease in interest rates can make borrowing more attractive and potentially lower the cost of financing for capital projects, it is not typically the primary driver for a substantial increase in the Capex budget. Companies may consider interest rates when making financing decisions, but Capex decisions are more directly linked to strategic initiatives, growth plans, and market competition.

A Capital Expenditure Budget (Capex Budget) is a financial plan that outlines a company's intended spending on physical assets over a specific period, typically a year. These assets are long-term in nature and contribute to the company's productive capacity.

The Capex budget is a strategic financial plan that guides a company's investment in long-term assets, supporting its growth, competitiveness, and operational efficiency. It involves a comprehensive process of planning, approval, implementation, and evaluation to ensure that capital expenditures align with the company's overall objectives and financial health.

Q2. Answer :B

Explanation:

Statement 1 is correct:

A downgrade in a company's credit rating typically signals an increased risk of default. Investors, in turn, will demand a higher yield on the company's bonds to compensate for the higher risk.

Statement 2 is correct:

When the Federal Reserve raises interest rates, it affects the overall interest rate environment. Bond yields tend to increase to align with the higher rates, as investors seek higher returns to match the rising risk-free rate.

Statement 3 is Incorrect:

When a bond enters its call window, the issuer gains the option to repurchase the bond at its par value. However, this action doesn't directly result in an increase in the bond's yield. The yield may be affected if the market anticipates the bond being called and adjusts prices accordingly, but the direct impact is on the bond's price rather than its yield.

Statement 4 is correct:

An unexpected increase in inflation expectations can lead to a higher yield on bonds. Investors will demand a higher yield to compensate for the potential decrease in the purchasing power of the fixed-interest payments they will receive in the future due to higher expected inflation.

Statement 5 is incorrect:

As a bond approaches its maturity date, its price tends to converge towards its par value. This convergence can result in a decrease in the bond's yield, especially if the bond was initially issued at a discount. This is because the bond's price moves closer to its face value as it nears maturity, and the yield is inversely related to the bond's price.

BOND YIELD

A bond yield represents the return an investor expects to receive annually on a bond investment. It's essentially a way to gauge the profitability of owning a particular bond. There are a few key things to consider when it comes to bond yields:

Types of Yields: There are different ways to calculate a bond's yield, depending on the information you have and what aspects of the return you're interested in. Here are two common types:

Coupon Yield: This is a simple calculation of the annual interest payment (coupon) divided by the face value (price) of the bond. For example, if a bond pays a $50 annual coupon and has a face value of $1,000, the coupon yield is 5% ($50/$1,000).

Yield to Maturity (YTM): This is a more complex calculation that considers all the future interest payments you'll receive on the bond, as well as the face value you'll get back at maturity, and factors in the current market price of the bond. It basically reflects the total return you'd earn if you held the bond until it matured and reinvested all the coupon payments at the same YTM rate.

Yield v/s Price: The relationship between bond yield and price is inversely proportional. This means that when the price of a bond goes up, the yield goes down, and vice versa. Let's say you buy a bond at its face value ($1,000) with a 5% coupon rate. You'll receive $50 annually. But what if the market price of the bond increases to $1,200? The coupon amount stays the same, but now the yield has decreased to 4.17% ($50/$1,200).

Yield and Risk: Generally, higher bond yields indicate higher risk. Investors demand a greater return for lending money to borrowers perceived as being less creditworthy. So, corporate bonds typically offer higher yields than government bonds because there's a greater chance the company could default on the loan.

Bond yields are significant for both investors and issuers:

For Investors: Bond yields influence your investment decisions. By comparing the yields of different bonds, you can assess which ones offer the best potential return for your risk tolerance. Yields also affect the overall price movements of bonds you already hold. When interest rates rise, existing bonds with lower yields tend to decrease in value.
For Issuers: Bond yields determine the borrowing cost for companies and governments. When issuing new bonds, they'll offer a yield that's competitive with the prevailing market rates. Lower yields are preferable for issuers as they translate to lower borrowing costs.
Bond yields reflect the market's risk perception and expected future interest rates. Rising yields indicate potential for higher returns but also higher borrowing costs. Conversely, falling yields suggest lower returns but potentially cheaper borrowing. Understanding bond yields is crucial for informed investment decisions, as they impact both fixed-income and stock markets. However, predicting future bond yields is complex and influenced by various factors, making ongoing analysis essential.

Q3. Answer B
Explanation
Explanation:
Statement 1 is incorrect:
While the state has the authority to legislate on matters related to education, it cannot violate fundamental rights in doing so. The Constitution of India guarantees the right to freedom of religion under Article 25(1), which includes the freedom to profess, practice, and propagate one's religion. Mandating the teaching of a specific religious scripture in public schools could be seen as an infringement on this fundamental right, especially if it is imposed without considering the diverse religious beliefs of the population.
Statement 2 is correct:
Article 25(1) guarantees the freedom of religion, allowing individuals to follow and practice their chosen faith. It extends to the right to provide religious education to one's children in a manner consistent with one's own beliefs. Mandating the teaching of a specific religious scripture in public schools could be viewed as a violation of this freedom, as parents may object to their children being exposed to teachings that go against their religious convictions.
Statement 3 is incorrect:
The Supreme Court of India has, in various judgments, emphasized the importance of protecting the rights of religious minorities. Compulsory religious education in schools has been deemed unconstitutional as it can infringe upon the rights of individuals to practice their religion freely. The Court tends to uphold the principles of secularism and individual freedom of religion.
Statement 4 is correct:
While the forced participation in religious practices would certainly be a clear violation of fundamental rights, the law could also be struck down if it mandates the teaching of a specific religious scripture without providing an option for parents to opt-out. The right to choose the kind of education one's children receive, as enshrined in Article 21, includes the right to decide on the religious education imparted to them.
The parent's objection carries significant weight based on their fundamental right to freedom of religion enshrined in the Indian Constitution. The state law mandating a specific religious scripture in public schools is likely to be challenged and struck down by the Supreme Court, upholding the rights of religious minorities and their freedom of choice regarding their children's religious education.
The Indian Constitution guarantees the right to freedom of religion as a fundamental right under Articles 25 to 28. This right is central to India's secular character, ensuring equal respect for all religions and the freedom of individuals to practice their faith.
Articles Involved:
Article 25(1): This is the cornerstone, guaranteeing citizens the freedom of conscience and the right to freely profess, practice, and propagate religion. This encompasses the freedom to choose, follow, or not follow any religion.
Article 25(2): This clarifies that the freedom granted under Article 25(1) is subject to public order, morality, and health. The government can impose reasonable restrictions to maintain social order, prevent harm, or protect public health.
Article 26: This guarantees all religious denominations the right to manage their own affairs in matters of religion. This includes establishing and maintaining religious institutions, appointing clergy, and conducting religious activities.
Article 27: This prohibits the compulsion of any person to pay taxes for the promotion or maintenance of any particular religion. Citizens are free to contribute to their religion voluntarily.
Article 28: This forbids religious instruction in state-run educational institutions except for the study of comparative religion and morals. This protects students from religious indoctrination and ensures their right to choose their religious education.
Scope of the Right:
Freedom of Conscience: This includes the right to have one's own beliefs, even if not part of an organized religion.
Freedom of Choice: Individuals can choose their religion, convert to a different one, or choose not to follow any religion.
Freedom of Practice: This includes the right to perform religious rituals, ceremonies, and observances as per their faith.
Freedom to Propagate: Individuals can share their religion with others peacefully through preaching, conversion attempts, or publishing religious texts.
Limitations:
Public Order, Morality, and Health: The government can restrict religious practices that disrupt public order, violate moral principles, or endanger public health. For example, practices involving human sacrifice or harmful self-flagellation would be restricted.
Social Welfare and Reform: The government can enact laws for promoting social welfare and reform within religious communities, particularly regarding practices considered discriminatory or harmful. For example, laws prohibiting child marriage or Sati (widow burning) would be valid.
Importance of this Right:
Secularism: It upholds India's secular character by ensuring equal treatment of all religions and preventing discrimination based on faith.

Religious Tolerance: It fosters an environment of tolerance and respect for diverse religious beliefs and practices.
Individual Freedom: It empowers individuals to choose their religious path and practice it freely without fear of coercion or persecution.
Landmark Cases:
SR Bommai vs Union of India (1994): The Supreme Court held that the right to religion is not absolute and can be restricted for reasons of public order, morality, and health.
Mohini Jain vs State of Karnataka (1992): The Court declared the practice of Sati unconstitutional, violating the right to life and freedom of religion.
Kerala Education Society vs VD Joseph (1958): The Court upheld the ban on religious instruction in state-run schools, protecting the rights of religious minorities.
The right to freedom of religion is a cornerstone of Indian democracy. It ensures a society where individuals can practice their faith freely and coexist peacefully with those of different faiths. This right, however, is not absolute and can be reasonably restricted to maintain social order, protect public health, and promote social welfare. The Indian Constitution strives to strike a balance between individual religious freedom and the collective good.

Q 4. Answer : D
Explanation
Positive discrimination in India refers to a set of policies and measures implemented by the government to address historical and social injustices, uplift marginalized communities, and reduce economic disparities. The concept is rooted in the principles of social justice and equity, aiming to provide equal opportunities to groups that have historically faced discrimination and disadvantage.
The Indian Constitution itself incorporates provisions for positive discrimination. Articles 15(4), 16(4), and 46 explicitly allow the state to make special provisions for the advancement of socially and educationally backward classes and for Scheduled Castes and Scheduled Tribes.
Positive discrimination in India is not a one-size-fits-all approach; it takes into account the diverse nature of disadvantages and discrimination faced by different communities.
It involves a combination of policies, including reservations, targeted development programs, and affirmative action, to address specific needs and challenges faced by various groups.
Statement 1 is correct:
The reservation system is a prominent aspect of positive discrimination in India. It involves the allocation of a certain percentage of seats in educational institutions, government jobs, and elected bodies to specific groups, primarily Scheduled Castes (SCs), Scheduled Tribes (STs), and Other Backward Classes (OBCs).
The purpose of reservations is to ensure proportional representation of historically marginalized communities in various sectors, addressing the historical social and economic imbalances.

Q 5: Answer B
Explanation
The Dvorak technique is primarily used for estimating the intensity of a cyclone (Option B).
Why the other options are inaccurate:
Predicting the path of a cyclone (Option A): The Dvorak technique does not directly predict the path of a cyclone. While it can provide clues about the overall development and potential intensification of a storm, it lacks the necessary information to accurately forecast its trajectory. Specialized models and techniques are employed for cyclone track prediction.
Naming cyclones (Option C): The naming of cyclones follows specific protocols established by international organizations like the World Meteorological Organization (WMO). The Dvorak technique plays no part in this process.
Identifying the location of a cyclone (Option D): While satellite imagery used in the Dvorak technique can help pinpoint the general location of a cyclone, other readily available resources like weather maps and direct observations from land or sea are more effective for this purpose.
Therefore, the primary function of the Dvorak technique lies in analyzing cloud patterns to estimate the intensity (strength) of a cyclone. This information is crucial for issuing timely warnings, and evacuations, and taking necessary precautions to protect lives and property.
Statement 2 is correct:
Positive discrimination goes beyond reservations and includes affirmative action for minorities, which can be religious or linguistic minorities.
Policies and programs are implemented to promote the educational and economic development of minority communities, ensuring they have equal access to opportunities and are not excluded from the mainstream development process.
Statement 3 is correct:
Positive discrimination encompasses a broader set of measures to bridge social and economic gaps between different communities.
This involves the implementation of welfare programs, poverty alleviation initiatives, and targeted development schemes aimed at improving the overall socio-economic conditions of underprivileged groups.
Statement 4 is correct:
Special attention is given to providing educational opportunities for underprivileged groups as part of positive discrimination.
Scholarships, free education programs, and initiatives like mid-day meals in schools are designed to ensure that children from economically weaker sections have access to quality education, breaking the cycle of poverty and disadvantage.
Positive discrimination in India is a multifaceted and evolving approach aimed at creating a more inclusive and equitable society. It acknowledges historical injustices and seeks to rectify them through a combination of policies that focus on representation, socio-economic development, and educational opportunities for the most marginalized and disadvantaged sections of the population.

Q 6. Answer : B

Explanation

In FY23, bilateral trade between India and China was US$ 113.83 billion. As of 2022-23, China was India's third-largest trading partner. Bilateral trade between the two countries reached US$ 115.83 billion in 2021, growing 34% from US$ 86.39 billion in 2020. India became China's 16th largest trade partner in 2020. Total trade between India and China has increased by 29% in the last five years, reaching US$ 115 billion in FY22 from US$ 89.72 billion in FY18. Hence, statement 1 is incorrect. In FY22, China accounted for 15.4% of India's total imports, with India importing goods worth US$ 94.2 billion from China. India exported 4,459 commodities to China in FY23, with exports totaling US$ 15.33 billion. Major exports from India to China include petroleum products, marine products, iron ore, spices, and organic chemicals. India imported 7,484 commodities from China in FY23, with imports totaling US$ 98.50 billion. Major imports from China include electronic components, computer hardware, telecom instruments, organic chemicals, and machinery for dairy.

Bangladesh is India's biggest trading partner in the subcontinent, with India being the second-biggest export partner, accounting for 12% of total exports to Bangladesh. Hence, statement 2 is incorrect. The total trade turnover in FY23 between India and Bangladesh was US$ 14.22 billion. India exported 6,050 commodities to Bangladesh in FY23, with exports totalling US$ 12.20 billion, including cotton yarn, petroleum products, and other cereals. India imported 1,155 commodities from Bangladesh in FY23, with imports totaling US$ 2.02 billion, including RMG cotton, cotton fabrics, and spices.

Indonesia is India's 2nd largest trading partner in ASEAN after Singapore. Hence, statement 3 is correct. Bilateral trade has grown significantly, from US$ 6.9 billion in 2007 to US$ 38.84 billion in 2023. Indonesia ranks 33rd in FDI equity inflows into India. India imported 2,221 commodities from Indonesia in FY23, totaling US$ 28.82 billion. Major imports include coal, vegetable oils, iron and steel, minerals, and cosmetics.

Q 7. Answer: A

Explanation:

Tipu Sultan, the ruler of Mysore from 1782 to 1799, was a complex and controversial figure. Beyond his military prowess, he is also credited with several innovations during his reign.

1. Use of rockets in warfare (Correct):

Innovation: Tipu Sultan is widely acknowledged as a pioneer in the development and deployment of Mysorean rockets. These rockets were iron-cased, with improved range and accuracy compared to earlier rocket technology.

Significance: The Mysorean rockets proved quite effective in warfare. They could be launched in large salvos, creating panic and disruption in enemy formations, especially cavalry charges.

2. Development of a new irrigation system (incorrect):

While Tipu Sultan focused on agriculture and implemented revenue reforms, there was no substantial proof of introducing a completely new irrigation system during his reign. He might have improved upon existing irrigation practices, but the development of a completely new system lacks concrete evidence.

3. Introduction of the printing press to India (Incorrect):

Prior Arrival: The printing press was introduced in India much earlier, in the 16th century, by the Portuguese.

Tipu Sultan's Contribution: He established a printing press within his kingdom for administrative purposes, primarily printing government documents. However, this doesn't equate to introducing the technology itself to India.

4. Standardization of a national currency (Incorrect):

Later Development: The standardization of a national currency for the entire Indian subcontinent happened much later, under British rule in the 19th century.

Tipu Sultan's Coinage: While Tipu Sultan did introduce a new coinage system within his kingdom, it wasn't a national currency applicable throughout India. His coins weren't widely accepted outside of his domain.

Tipu Sultan stands as a figure of innovation, especially with the development of Mysorean rockets. However, attributing the introduction of the printing press and national currency to his reign is historically inaccurate. By examining different perspectives and using reliable sources, we can gain a more nuanced understanding of his legacy.

Tipu Sultan

Early Life and Rise to Power:

Birth and Parentage: Born as Sultan Fateh Ali Sahab Tipu in 1751 to Hyder Ali, a skilled military leader who had risen to power in the Kingdom of Mysore.

Military Training: Tipu received military training from French officers employed by his father, shaping his military prowess and strategic acumen from an early age.

Rocket Artillery and Innovations:

Pioneer of Rocket Artillery: Recognized as a pioneer in rocket artillery, Tipu Sultan expanded the use of iron-cased Mysorean rockets, showcasing innovative military strategies.

Military Manual: The commissioning of the military manual Fathul Mujahidin underscores Tipu's commitment to technological advancements in warfare, particularly in the use of rockets.

Administrative Reforms and Contributions:

Coinage and Calendar: Tipu introduced a new coinage system and calendar, reflecting his interest in administrative and economic reforms to strengthen the Mysore state.

Economic Growth: Reforms supporting the Mysore silk industry contributed to economic prosperity, highlighting Tipu's multifaceted approach to governance.

Cultural Contributions: Tipu's patronage extended to the arts, and his support for Channapatna toys showcases a cultural impact beyond military and economic spheres.

Military Engagements:

Second Anglo-Mysore War: Tipu Sultan's achievements in the Second Anglo-Mysore War highlighted his military prowess and successful resistance against British forces.

Treaties: The negotiation of important treaties, including the 1784 Treaty of Mangalore and the Treaty of Gajendragad with the Marathas, showcased Tipu's diplomatic skills.

Conflict with the British:

Implacable Enemy: Tipu Sultan's unwavering opposition to the British East India Company marked him as a formidable adversary in their colonial expansion in South India.

Third Anglo-Mysore War: The Treaty of Seringapatam, though forced upon him, resulted in territorial losses, including Malabar and Mangalore.
Legacy and Historical Significance:
Freedom Fighter: Tipu Sultan's legacy endures as a freedom fighter who fiercely resisted British expansion, symbolizing the spirit of resistance and independence.
Contributions: His contributions to military technology, administrative reforms, and cultural advancements have left an indelible mark on the history of South India, solidifying his place as a prominent historical figure.
Tipu Sultan's life was marked by a combination of military brilliance, administrative acumen, and cultural contributions. His determined resistance against the British has made him a symbol of independence and a significant historical figure in South Indian history

Q 8: Answer : B
Explanation:
Statement 1 is incorrect:
While Madagascar boasts a rich birdlife, the Aldabra rail (Dryolimnas cuvieri aldabranus) isn't found there. It's endemic, meaning it lives exclusively on the Aldabra Atoll. This atoll is a group of coral islands north of Madagascar, part of the Seychelles archipelago.
Statement 2 is correct:
Due to the absence of predators on the Aldabra Atoll, there was no evolutionary pressure for the Aldabra rail to maintain flight. Over time, its wings became vestigial (reduced in size and function), making it flightless. This unique adaptation sets it apart as the only living flightless bird in the vast Indian Ocean.
Statement 3 is incorrect:
It's a subspecies of the white-throated rail (Dryolimnas cuvieri). Both birds share a common ancestor, but the Aldabra rail's island environment led to the loss of flight capability. So, while closely related, the Aldabra rail is a thriving resident of the Aldabra Atoll.
Statement 4 is correct:
The Aldabra rail's evolutionary journey is a prime example of iterative evolution. Fossil evidence suggests that flightless rails once populated the Aldabra Atoll before it submerged underwater. Interestingly, when the land re-emerged, flightless rails reappeared, hinting that the trait re-evolved due to the predator-free environment. This repeated loss of flight showcases how evolution adapts to specific pressures. This "try, lose, try again" approach highlights iterative evolution.
Statement 5 is correct:
Raising young in the Aldabra rail community is a cooperative effort! Both parents participate in biparental care. This means they share the responsibility of incubating the eggs and nurturing the chicks after hatching. This teamwork helps ensure the chicks' survival and future generations of flightless rails on the Aldabra Atoll.

Q 9. Answer : D
Explanation:
National Voters Day: The theme for National Voters Day 2024 is "Nothing Like Voting, I Vote For Sure".
National Tourism Day: The theme for National Tourism Day 2024 is "Sustainable Journeys, Timeless Memories".
World Hindi Day: The theme for World Hindi Day 2024 is "Hindi–Bridging Traditional Knowledge and Artificial Intelligence".
World Wetlands Day: The theme for World Wetlands Day 2024 is "Wetlands and Human Wellbeing".
So, all of the above pairs are correct. Therefore, the correct answer is D) All four.

Q 10: Answer : A
Explanation:
The landmark case in which the Supreme Court of India affirmed the right to free legal aid as a fundamental right under Article 21 is: A) Hussainara Khatoon v. State of Bihar
Case Background:
The case of Hussainara Khatoon v. State of Bihar (1979) is one of the most significant cases in Indian jurisprudence concerning the right to legal aid.
The case originated from a letter addressed to the Chief Justice of India by a social activist, revealing the plight of undertrial prisoners languishing in jails in Bihar.
Legal Issues:
Violation of Fundamental Rights: The case highlighted the gross violation of fundamental rights, particularly the right to a speedy trial guaranteed under Article 21 of the Indian Constitution.
Right to Legal Aid: It also brought to the forefront the issue of access to justice for indigent and marginalized individuals who could not afford legal representation.
Supreme Court's Decision:
The Supreme Court, in its landmark judgment in Hussainara Khatoon v. State of Bihar (1979), held that the right to free legal aid is an essential component of the right to a fair trial guaranteed under Article 21 of the Indian Constitution.
The court emphasized that access to justice and legal representation are integral to the principles of equality and fairness enshrined in the Constitution.
The judgment in this case laid down several important guidelines and directives to ensure the effective implementation of the right to free legal aid, particularly for marginalized and underprivileged sections of society.
The Hussainara Khatoon case marked a significant milestone in the evolution of the right to legal aid in India. It underscored the judiciary's role in protecting and promoting the rights of the vulnerable and disadvantaged sections of society, ensuring their access to justice and fair trial.

Q 11: Answer : D
Explanation:
All the pairs mentioned are correct
Chirag Shetty was awarded the Major Dhyan Chand Khel Ratna Awards 2023.
Lionel Messi won the FIFA Men's Player Award 2023.
Narges Mohammadi was the recipient of the Nobel Prize for Peace 2023.
Ravi Kannan received the Ramon Magsaysay Award 2023.
Claudia Goldin was awarded the Nobel Prize in Economic Sciences 2023.
So, the correct answer is (D) All five.

Q 12. Answer : D

Krishonnati Yojana, introduced by the Government of India in 2005 to boost the agriculture sector, has recently undergone significant changes.

Krishonnati Yojana, an umbrella scheme comprising 11 schemes/missions, aims to develop the agriculture and allied sector in a holistic and scientific manner to increase farmers' income. The schemes focus on enhancing production, productivity, and better returns on produce.

The schemes/missions covered under Krishonnati Yojana include:

1. Mission for Integrated Development of Horticulture (MIDH)
2. National Food Security Mission (NFSM)
3. National Mission for Sustainable Agriculture (NMSA)
4. Sub-Mission on Agriculture Extension (SMAE)
5. Sub-Mission on Seeds and Planting Material (SMSP)
6. Sub-Mission on Agricultural Mechanization (SMAM)
7. Sub-Mission on Plant Protection and Plant Quarantine (SMPPQ)
8. Integrated Scheme on Agriculture Census, Economics and Statistics (ISACES)
9. Integrated Scheme on Agricultural Cooperation (ISAC)
10. Integrated Scheme on Agricultural Marketing (ISAM)
11. National e-Governance Plan (NeGP-A)

These schemes focus on creating/strengthening infrastructure for production, reducing production costs, and marketing agricultural and allied produce. They have been under implementation for varying durations over the past few years.

In the Union Budget 2023-24, many existing schemes have been merged into Krishonnati Yojana. This consolidation is expected to increase the quantum of funds available for state-level, localized interventions, moving away from numerous schemes with meager outlays. However, merging these interventions may impact the existing institutional framework for alternative agricultural practices.

Schemes such as Pradhan Mantri Krishi Sinchayee Yojana, National Food Security Mission, Rainfed Area Development and Climate Change Programme, Sub-Mission on Agricultural Mechanization, among others, have been subsumed into Krishonnati Yojana. These schemes specifically address the challenges of rainfed farming.

Q 13: Answer C

Statement 1 is correct. Neonicotinoids have been associated with the phenomenon known as "colony collapse disorder," which involves the disruption of honeybee colonies due to factors that affect navigation and foraging behavior.

Statement 2 is incorrect. Neonicotinoids do not increase the lifespan of honeybees; in fact, their impact is generally negative, affecting bee health.

Statement 3 is correct. Neonicotinoids have been known to leach into soil and water, contaminating both surface water and groundwater. This can lead to unintended exposure for non-target organisms and can contribute to the overall environmental impact of these pesticides.

Statement 4 is correct. Neonicotinoids are systemic pesticides, which means they are taken up by plants and can be present in various parts of the plant, including nectar and pollen. Pollinators that visit these plants can be exposed to these pesticides, which can affect their health and behavior.

Statement 5 is incorrect. This statement is not a commonly cited concern related to neonicotinoids. The primary concerns are related to their impact on pollinators and the broader ecosystem, rather than their effects on soil acidity.

Q 14: Answer A

Explanation

Statement 1 is correct. The given chemical equation is a balanced representation of the combustion reaction where hydrogen gas (H2) reacts with oxygen gas (O2) to form water vapor (H2O).

Statement 2 is incorrect. The given equation does not violate the law of conservation of mass. It is balanced, with equal numbers of hydrogen atoms on both sides (4 hydrogen atoms in total).

Statement 3 is incorrect. The coefficient "2" in front of H2O indicates that two moles of water molecules (H2O) are formed, not two molecules. A mole is a unit that represents a specific number of entities (atoms, molecules, etc.).

Statement 4 is incorrect. The equation itself does not provide information about which reactant is limiting or in excess.

Q 15: Answer : C

Explanation

Statement 1 is incorrect. When sucrose is dissolved in water, it dissociates into its component molecules, glucose and fructose, which are both types of simple sugars.

Statement 2 is incorrect. The dissolved sucrose does not separate into its individual elements in the solution. It remains in the form of molecules.

Statement 3 is correct. Sucrose is a disaccharide made up of glucose and fructose molecules linked together. When dissolved in water, it breaks down into these two simple sugar molecules.

Statement 4 is incorrect. Sucrose does not break down into glucose and galactose when dissolved in water. It breaks down into glucose and fructose.

Q 16: Answer : D

Indicator species are organisms that can provide information about the health of an ecosystem. They are sensitive to changes in their environment and their presence, absence, or abundance can indicate the condition of the ecosystem.

1.Salamanders: Salamanders are considered indicator species because they are sensitive to changes in temperature and moisture levels, which can be affected by habitat disturbances such as deforestation or pollution.

2.Lichen: Lichens are also indicator species because they are sensitive to air pollution, particularly sulfur dioxide. Their presence or absence can indicate the level of air pollution in an area.

3.Trout: Trout are often used as indicator species for water quality. They require clean, cold water with high oxygen levels, so their presence can indicate good water quality, while their absence may suggest pollution or habitat degradation.

4.Barn Owl: The barn owl is a top predator and a species that has adapted well to agricultural making this bird an exemplary indicator species for studying the impacts of hemp.

So, the correct answer is: D) 1, 2, 3, and 4

Q 17: Answer : C1.

Explanation

1. The Wimbledon Championships is indeed the oldest tennis tournament in the world, founded in 1877. It is considered one of the most prestigious tennis events.

2.The French Open is the only Grand Slam tournament played on clay courts. The tournament is held at the Stade Roland Garros in Paris, France, and is known for its red clay courts.

Q18: Answer : B

The March 23 Movement (M23), also known as the Congolese Revolutionary Army, is a rebel military group primarily composed of ethnic Tutsi in the Democratic Republic of the Congo (DRC). Operating mainly in North Kivu province, M23 rebelled against the DRC government in 2012-2013, leading to significant displacement of people. In November 2012, M23 briefly took control of Goma, a major city, but later withdrew following international pressure and negotiations.

MAJOR CONFLICT MOVEMENTS IN AFRICA:

Al-Shabaab (Somalia): An Islamist militant group fighting to overthrow the Somali government and establish an Islamic state.

Boko Haram (Nigeria): An Islamist extremist group that has carried out numerous attacks in Nigeria, seeking to establish an Islamic state.

Lord's Resistance Army (Uganda and Central Africa): A rebel group known for its brutal tactics and led by Joseph Kony, notorious for abducting children to serve as soldiers and sex slaves.

Tuareg Rebellion (Mali): A series of rebellions by the Tuareg people in northern Mali seeking autonomy or independence.

Niger Delta Avengers (Nigeria): A militant group in the Niger Delta region of Nigeria, known for attacking oil installations in protest against environmental damage and exploitation.

Janjaweed (Sudan): A militia group accused of committing atrocities in the Darfur region of Sudan.

Front for the Liberation of the Enclave of Cabinda (FLEC) (Angola): A separatist movement seeking independence for the Cabinda region of Angola.

Ogaden National Liberation Front (ONLF) (Ethiopia): A separatist rebel group fighting for the independence of the Somali-inhabited Ogaden region of Ethiopia.

RENAMO (Mozambique): A former rebel movement turned political party that has engaged in sporadic conflict with the government of Mozambique.

Q : 19: Answer : D

Explanation:

Doctrine of Colourable Legislation:

This doctrine refers to the practice of the legislature enacting laws that appear to be within its constitutional powers but are, in substance, aimed at achieving an objective beyond its authority. It prohibits the legislature from passing laws that are disguised attempts to circumvent constitutional limits.

Doctrine of Severability:

The doctrine of severability allows a court to uphold part of a law while invalidating other parts that are unconstitutional. This means that if a law contains both valid and invalid provisions, the court can strike down the invalid parts while leaving the rest of the law intact.

Doctrine of Eclipse:

The doctrine of eclipse holds that if a law is inconsistent with the Constitution at the time of its enactment, it is considered void from the beginning. This means that the law is rendered ineffective and without legal force.

Doctrine of Laches:

The doctrine of laches is a legal principle that prevents a party from asserting a claim if they have unreasonably delayed in asserting that claim and the delay has prejudiced the other party. It is based on the idea that parties should not be allowed to sit on their rights and must assert them promptly.

Q 20: Answer : D

The Wilkinson Microwave Anisotropy Probe (WMAP) was a space telescope designed to study the cosmic microwave background (CMB) radiation. The CMB is the thermal radiation left over from the Big Bang, which occurred approximately 13.8 billion years ago and is considered the earliest observable state of the universe.

WMAP's primary goal was to make detailed measurements of the temperature fluctuations in the CMB across the entire sky. These temperature fluctuations provide valuable information about the early universe, including its age, composition, and evolution.

By studying the CMB, WMAP was able to provide strong evidence for the Big Bang theory and refine our understanding of the universe's structure and history. Its observations confirmed many predictions of the Big Bang model, such as the overall composition of the universe, its flat geometry, and the presence of dark matter and dark energy.

Overall, WMAP was a groundbreaking mission that significantly advanced our knowledge of the universe's origins and evolution.

The other options are incorrect because they do not relate directly to the observations of the cosmic microwave background (CMB) radiation, which was the primary focus of the Wilkinson Microwave Anisotropy Probe (WMAP).

A) Hubble Space Telescope: The Hubble Space Telescope is primarily used for observing the universe in visible, ultraviolet, and near-infrared wavelengths. While it has made many significant discoveries about the universe, its observations are not focused on studying the CMB radiation.

B) Chandra X-ray Observatory: The Chandra X-ray Observatory is an X-ray telescope designed to observe X-ray emissions from objects in space, such as black holes, supernovae remnants, and galaxy clusters. It does not study the CMB radiation, which is in the microwave part of the electromagnetic spectrum.

C) Spitzer Space Telescope: The Spitzer Space Telescope was an infrared telescope used to study the universe at infrared wavelengths. Like the Hubble Space Telescope, it made many important discoveries but was not designed to observe the CMB radiation.

In contrast, the Wilkinson Microwave Anisotropy Probe (WMAP) was specifically designed to study the CMB radiation, making it the correct choice for a space telescope associated with observations of the CMB.

Q 21: Answer : D

Explanation: All of the pairs listed are correctly matched with their sports and their terminology.

Tennis - Forehand: A forehand in tennis is a shot made by swinging the racket across one's body with the hand moving palm-first.

Basketball - Slam Dunk: A slam dunk, also simply known as a dunk, is a type of basketball shot that is performed when a player jumps in the air, controls the ball above the horizontal plane of the rim, and scores by shoving the ball directly through the basket with one or both hands.

Baseball - Changeup: A changeup is one of the slowest pitches thrown in baseball, and it is predicated on deception. Pitchers will release a changeup along the same trajectory as their fastball, but at a significantly slower velocity.

Golf - Ace: In golfing parlance, an "ace" refers to a hole-in-one. This occurs when a golfer manages to sink the ball into the cup with a single stroke, right from the tee box4.

Boxing - Jab: A jab is a type of punch used in martial arts. Several variations of the jab exist, but every jab shares these characteristics: while in a fighting stance, the lead fist is thrown straight ahead and the arm is fully extended from the side of the torso.

Hockey - Slapshot: In hockey, a slapshot is a type of shooting technique that is used to produce a fast and powerful shot. It is considered one of the most difficult shots to master and one of the most difficult for goalies to save.

So, the correct answer is D) All six.

Q 22: Answer : B

Explanation:

Recent news reports have highlighted the critically low water levels in La Baells Reservoir.

La Baells Reservoir is located in the Berga comarca of Barcelona, Spain. The reservoir was built in 1976 to collect water from the Llobregat River, primarily supplying water to Barcelona and its surrounding areas.

Recent news reports in 2023 and 2024 have focused on the drought affecting Spain and the critically low water levels in La Baells Reservoir, reaching as low as 26% of its capacity. This situation is concerning as it impacts water availability not only for Barcelona but also highlights the challenges of climate change and water management in the region.

Q 23: Answer : B

Explanation:

Statement 1 is incorrect:

Eravikulam National Park lies nestled within the Western Ghats mountain range, which runs parallel to the western coast of India. The Eastern Ghats form another mountain range on the eastern side of the peninsula.

Statement 2 is correct:

This statement is a well-known fact about the park. The Neelakurinji (Strobilantheskunthiana) is a mesmerizing violet flower that paints the hills in a vibrant blue carpet every 12 years. This synchronous blooming phenomenon makes Eravikulam a sight to behold during these special bloom seasons.

Statement 3 is incorrect:

While the park serves as a crucial habitat for the endangered Nilgiri Tahr (mountain goat), it's not named after them. The name "Eravikulam" has its roots in the Malayalam language, where "Eravi" translates to "streams and pools" and "kulam" means "pond." This likely refers to the numerous water bodies found within the park's boundaries.

Statement 4 is correct:

Anamudi, towering at a majestic 2,695 meters, is the highest peak in South India and falls proudly within the park's territory. This peak offers breathtaking panoramic views of the surrounding landscape.

Eravikulam National Park, located in the Western Ghats of Kerala, India, is a biodiverse region known for its unique geography, rich flora and fauna, and the conservation of the endangered Nilgiri Tahr.

Location and Geography:

Eravikulam National Park spans 97 km² and is situated in the Idukki and Ernakulam districts of Kerala. The park features a high rolling hill plateau with an average elevation of about 2,000 meters, including the highest peak in South India, Anamudi, at 2,695 meters. The terrain is characterized by high-altitude grasslands interspersed with sholas, creating a picturesque landscape.

Rivers and Waterfalls:

Perennial streams flow through the park, forming tributaries of the Periyar River in the west and the Cauvery River in the east. The region is also home to the scenic Lakkom Waterfalls, enhancing the natural beauty of the area.

Fauna:

Eravikulam National Park is renowned for its diverse wildlife. It harbours 26 mammal species, with the Nilgiri Tahr, a mountain goat, being a flagship species for conservation. Other mammals include lion-tailed macaques, gaur, Indian muntjac, sambar deer, golden jackals, jungle cats, wild dogs, leopards, and tigers. Lesser-known species like Nilgiri langur, stripe-necked mongoose, and Indian porcupine also inhabit the park.

Birds and Butterflies:

The park boasts a rich avian population, with 132 bird species recorded, including endemics such as the black-and-orange flycatcher and Nilgiri wood pigeon. Additionally, 101 butterfly species, including endemic ones like the red disk bushbrown and Palnifourring, add to the biodiversity.

Neelakurinji Flower:

One of the park's highlights is the Neelakurinji flower, which blooms once every 12 years, covering the landscape in a vibrant carpet of blue-purple hues.

Conservation:

Established in 1978, the park is administered by the Kerala Department of Forests and Wildlife. Its primary goal is the protection and conservation of the Nilgiri Tahr, an endangered species. The park plays a crucial role in maintaining the ecological balance of the Western Ghats.

Q 24: Answer : B

Explanation

Ekman transport is a term used in oceanography to describe the net motion of ocean water that is generated by wind. When wind blows over the surface of the ocean, it imparts momentum to the water, causing it to move. However, due to the Coriolis effect (the deflection of moving objects caused by

Earth's rotation), the direction of this motion is not directly downwind, but rather at an angle to the right of the wind direction in the Northern Hemisphere and to the left in the Southern Hemisphere.
The Ekman transport refers to the net movement of water in response to this wind forcing. The motion of water at the surface sets up a spiral pattern of motion known as the Ekman spiral, where water moves at an angle to the wind direction, with each layer of water moving slightly more to the right (or left in the Southern Hemisphere) than the layer above it, due to the Coriolis effect.
The net result of this process is a transport of water at right angles to the wind direction, to the right in the Northern Hemisphere and to the left in the Southern Hemisphere. This phenomenon is important in ocean circulation patterns and can have significant effects on marine ecosystems and climate.

Q 25: Answer: D
A co-operative bank is a financial entity which belongs to its members, who are at the same time the owners and the customers of their bank. It is often established by people belonging to the same local or professional community having a common interest.
It is formed to promote the upliftment of financially weaker sections of the society and to protect them from the clutches of money lenders who provide loans at an unreasonably high-interest rate to the needy. The co-operative structure is designed on the principles of cooperation, mutual help, democratic decision making and open membership. It follows the principle of 'one shareholder, one vote' and 'no profit, no loss'.
Cooperatives Banks are registered under the Cooperative Societies Act, 1912. These are regulated by the Reserve Bank of India and National Bank for Agriculture and Rural Development (NABARD) under the Banking Regulation Act, 1949 and Banking Laws (Application to Cooperative Societies) Act, 1965.
The Reserve Bank of India (RBI) has decided to adopt a simple four-tiered regulatory framework with differentiated regulatory system for UCBs. The RBI decision is based on the report submitted by NS Viswanathan Committee on UCBs.
It is aimed at strengthening the financial soundness of the existing urban cooperative banks (UCBs).
Changes made
The RBI has stipulated a minimum net worth of Rs 2 crore for Tier 1 UCBs operating in single district and Rs 5 crore for all other UCBs (of all tiers). This is expected to strengthen the financial resilience of the banks and enhance their ability to fund their growth. Hence, statement 1 is correct.
Most of the banks already comply with the requirement. The UCBs which do not meet the requirement will be provided a glide path of five years with intermediate milestones to facilitate smooth transition to revised norms.
The minimum CRAR requirement for Tier 1 banks is retained at the present prescription of 9% under current capital adequacy framework based on Basel-1 rules. For Tier 2, Tier 3 and Tier 4 UCBs, while retaining the current capital adequacy framework, it has been decided to revise the minimum CRAR to 12% so as to strengthen their capital structure. Hence, statement 2 is correct.
The increase in CRAR requirement is reasonable as these UCBs do not have full capital charge for market risk and currently maintain no capital charge for operational risk. As per the data reported by the banks as on March 31, 2021, most of UCBs have CRAR more than 12% (1274 banks out of 1534).
Further, the banks that do not meet the revised CRAR will be provided with a glide path of three years for achieving the same in a phased manner. Accordingly, these banks will have to achieve a CRAR of 10% by the financial year ended March 31, 2024, 11% by March 31, 2025 and 12% by March 31, 2026. Hence, statement 3 is correct.
In order to boost growth opportunities in the sector, the RBI has decided to introduce automatic route for branch expansion to UCBs which meet the revised Financially Sound and Well Managed (FSWM) criteria and permit them to open new branches up to 10% of the number of branches as at the end of the previous financial year. While the branch expansion proposals under the prior approval route will also continue to be examined as hitherto, the process will be simplified to reduce the time taken for granting approvals for opening new branches. Hence, statement 4 is correct.
In respect of housing loans, it has decided to assign the risk weights on the basis of loan-to-value (LTV) ratio alone which would result in capital savings. This will be applicable to all Tiers of UCBs. Revaluation Reserves will be considered for inclusion in Tier-I capital subject to applicable discount on the lines of scheduled commercial banks.
In order to examine the issues concerning recommendation for capital augmentation under the provisions of Section 12 of the Banking Regulation Act, 1949 (as amended) – applicable to co-operative societies – a Working Group comprising the representatives from the RBI, SEBI and Ministry of Co-operation, Government of India has been constituted.
The committee has also made certain recommendations regarding Umbrella Organization for the UCB sector which will be examined once the entity is fully operational.

Q 26: Answer A
Explanation
Statement 1 is correct. When the magnet is moved closer to the conducting loop, a changing magnetic field will induce an electromotive force (EMF) in the loop. According to Faraday's law of electromagnetic induction, this EMF will result in the flow of an induced current in the loop.
Statement 2 is incorrect. The interaction between a magnet and a conducting loop does not lead to the emission of visible light.
Statement 3 is incorrect. Gravitational forces are related to mass, not magnetic interactions.
Statement 4 is incorrect. The motion of the magnet does not cause the loop to expand in size.

Q 27: Answer : C
Statement 1 is incorrect. In a stable orbit, increasing the spacecraft's velocity does not directly cause it to move to a higher altitude. The orbit's shape (elliptical, circular, etc.) remains the same.
Statement 2 is incorrect. Increasing the spacecraft's velocity does not directly cause it to move to a lower altitude in a stable orbit.

Statement 3 is correct. When the spacecraft's velocity is increased while in a stable orbit, it will remain in the same orbit but will have a higher speed. This is consistent with the conservation of angular momentum in an orbital system.
Statement 4 is incorrect. In a stable orbit, increasing the spacecraft's velocity does not cause it to escape Earth's gravitational pull. It would need significantly higher velocity to achieve escape velocity.

Q 28: Answer : B
Explanation: Both the assertion and the reason are true, and the reason (R) correctly explains why the assertion (A) is true. The uncertainty principle is a fundamental concept in quantum mechanics, and it arises due to the wave-like nature of particles at the quantum level. When attempting to measure the position of a particle with high precision, the act of measurement disturbs the particle's momentum, and vice versa. This inherent uncertainty in the measurements is a fundamental feature of the quantum world and is not simply a limitation of our measurement tools. Heisenberg's uncertainty principle is a consequence of this wave-particle duality and has profound implications for our understanding of the behavior of subatomic particles.

Q 29: Answer : C
Explanation: Statement 1 is incorrect. The Himalayan Birch (Betula utilis) is known for its characteristic white or pale bark, which peels off in thin sheets or layers, giving it a distinct appearance. The white bark is one of the identifying features of this tree.
Statement 2 is correct. The Himalayan Birch is indeed commonly found at high altitudes in alpine regions, especially in the Himalayan range. It is well adapted to the challenging conditions of these high-altitude environments.
Statement 3 is incorrect. While the Himalayan Birch is used for various purposes, including in traditional medicine and for making paper, it is not primarily used for timber and fuelwood.
Statement 4 is correct. The Himalayan Birch is a deciduous tree, meaning it sheds its leaves during the winter months. The loss of leaves helps the tree conserve water and energy during the colder season.

Q 30: Answer B
Statement 1 is correct. Raynaud's phenomenon is characterized by sudden and severe color changes in the affected body parts, usually in response to cold temperatures or emotional stress.
Statement 2 is incorrect. Raynaud's phenomenon does not lead to increased blood flow to the affected areas; instead, it causes vasoconstriction, leading to reduced blood flow.
Statement 3 is incorrect. Raynaud's phenomenon causes blood vessels to narrow (vasoconstriction), which reduces blood flow to the affected areas.
Statement 4 is correct. Raynaud's phenomenon is often accompanied by pain, tingling, or numbness in the affected fingers and toes due to the restricted blood flow.

Q 31: Answer : B
Statement 1 is correct. The ongoing severe floods in Slovenia, are described as the worst natural disaster the country has experienced since gaining independence in 1991.
Statement 2 is incorrect. Hun Sen, one of the world's longest-serving leaders, announced his resignation as prime minister after a landslide victory in July's election. His eldest son, Dr. Hun Manet, became the next prime minister.
Statement 3 is incorrect. The declaration of a state of emergency in the Amhara region of Ethiopia in response to escalating clashes between the military and local Fano militiamen.
Statement 4 is correct. The talks on the Ukraine crisis concluded in the Saudi Arabian city of Jeddah.

Q 32: Answer : B
Explanation:
•Crop Cultivation: The Indus people sowed seeds in the floodplains after the receding of floodwaters, typically in November. They harvested wheat and barley around April, before the onset of the next flood. Additionally, they produced other crops such as rice, peas, sesame, and mustard.
•Storage Facilities: Food grains, including wheat, barley, rice, peas, sesame, and mustard, were stored in large granaries located in both Mohenjodaro and Harappa. These granaries likely served various purposes, including storing surplus produce, receiving cereals as taxes from peasants, and maintaining provisions for emergencies.
•Agricultural Tools: Although no hoe or ploughshare has been discovered, evidence suggests that fields were ploughed in the pre-Harappan phase at Kalibangan in Rajasthan. The Harappans likely used wooden ploughshares for tilling the fields, although it's unclear whether these ploughs were drawn by men or oxen. Stone sickles may have been used for harvesting crops.

Q 33: Answer : C
Explanation
The Sharabhapuriya dynasty was a regional power that ruled parts of central and eastern India during the 5th-6th century CE. However, very little is known about their history, culture, and achievements, as there are few surviving records or inscriptions from their time. Therefore, historians often refer to this period as the Dark Age of Indian history, as it is marked by a lack of reliable sources and a decline in political stability and cultural development. The term Dark Age is also used to contrast this period with the preceding Gupta Empire, which is considered the Classical Age of Indian civilization, and the succeeding Pala Empire, which is regarded as the beginning of the Pala-Sena School of Art and the Buddhist Renaissance in India.

Q 34: Answer : B
Explanation
Shikharji Temple, located atop Parasnath Mountain in Jharkhand, is revered as one of the holiest Jain Tirths and is a prominent pilgrimage site for Jain followers. The temple holds significance as it is believed to be the place where twenty out of twenty-four Tirthankaras attained Moksha, or liberation from the cycle of rebirth. The name "Shikharji" signifies the

highest or venerable peak, reflecting its location atop the Parasnath Range. Also known as Sammed Shikhar or zenith of concentration, the temple attracts numerous devotees seeking spiritual enlightenment.
Dharmanath Temple, situated in Mattancherry, Kochi, Kerala, is dedicated to the 15th Tirthankara of Jainism, Dharmanath. This temple, estimated to be around 100 years old, boasts beautiful marble-cut architecture. Built by King Bhanu Raja and Queen Suvrata Rani, it holds historical significance within the Jain community. Dharmanath, born to King Bhanu Raja and Queen Suvrata Rani in the Ikshvaku dynasty, is revered by devotees who visit the temple to pay homage.
Kulpakji Temple, also known as Kolanupaka Temple, is a renowned Jain temple located in Telangana, India, with a history dating back 2,000 years. The temple houses idols of Lord Rishabhanatha, Lord Neminatha, and Lord Mahavira. The image of Lord Rishabhanatha, carved from green stone and historically known as "Manikyaswami" and Jivantasvami, is particularly revered. The temple's interior features intricate red sandstone and white marble architecture, attracting pilgrims and visitors seeking spiritual solace.

Q 35: Answer : D
Explanation
Ghazal is a poetic form characterized by rhyming couplets and a refrain, with each line sharing the same meter. Originating in Iran in the 10th century AD, a Ghazal typically consists of no more than 12 ashaar or couplets. It serves as a poetic expression of both the pain of loss or separation and the beauty of love despite that pain.
Amir Khusrau (1253–1325) is credited as one of the first to expound the art of crafting Ghazals. Many renowned historical Ghazal poets, such as Rumi and Hafiz, were either avowed Sufis themselves or sympathizers with Sufi ideas and beliefs. Ghazal poetry has continued to evolve over the centuries, remaining a profound and cherished form of poetic expression in various cultures influenced by Persian literature.

Q 36: Answer : C
Explanation
"Mandalasa Charitra" was indeed written by Krishnadeva Raya, the ruler of the Vijayanagara Empire from 1509 to 1529. His reign is considered the Golden Age of Telugu literature, during which he patronized and encouraged the growth of literature and arts. Krishnadeva Raya attached eight literary luminaries to his court, collectively known as the Ashtadiggajas, who made significant contributions to Telugu literature.
In addition to promoting Telugu literature, Krishnadeva Raya also patronized Haridasa, a Tamil poet. "Mandalasa Charitra" is one of his notable works written in Sanskrit, alongside other literary compositions like "Jambavati Kalyan" and "Rasamanjari." Krishnadeva Raya's support for literature and the arts left a lasting legacy, contributing to the rich cultural heritage of the Vijayanagara Empire.

Q 37: Answer : A
Explanation
Nathpanthis, also known as Siddha Siddhanta, follow the teachings of Gorakhnath and Matsyendranath and worship the Adinath form of Shiva. They employ Hatha Yoga techniques to attain a state of awakened self-identity with absolute reality. These monks are wanderers and do not stay in one place for long. When they stop walking, they maintain a sacred fire called dhuni.
Dashanami Sanyasis, on the other hand, belong to the Advaita Vedanta tradition and are disciples of Adi Shankaracharya. They are divided into ten groups, hence the name "Dash Nam Sanyasi."
Aghoris are devotees of Shiva manifested as Bhairava and are monists who seek salvation from the cycle of reincarnation through sadhana (spiritual practice) in cremation grounds. They aim to remove bonds from their life, including sensual pleasure, anger, greed, obsession, fear, and hatred. Aghoris engage in extreme, tamasic ritual practices.

Q: 38: Answer : D
Explanation: Chittaranjan Das, a lawyer by profession, was renowned for his legal acumen, notably securing the acquittal of Aurobindo Ghosh from the Alipore Conspiracy case, also known as the Murarikupur case or the Manicktolla Bomb case. He served as the president of the Indian National Congress for two consecutive sessions in 1921 (Ahmedabad) and 1922 (Gaya). However, during the 1921 session, Hakim Ajmal Khan presided over the session as Das was arrested prior to the session for supporting the non-cooperation movement.
Das played a pivotal role in the formation of the Swarajya Party after the withdrawal of the Non-Cooperation Movement, along with Motilal Nehru. He advocated for entering legislative councils to either reform or abolish them, believing that Swaraj (self-rule) should not be limited to certain classes but should be accessible to the masses. This approach led to the formation of the Swarajya Party, which aimed to work within the existing political framework to advance nationalist goals.

Q: 39: Answer: A
Explanation: Gandhi revolutionized the Congress organization by democratizing its membership with a four-anna (25 paisa) fee, establishing a hierarchical structure of committees from village to provincial levels, and reorganizing provincial committees to ensure proportional representation based on language. Additionally, he created a 15-member Working Committee as the true executive body of the Congress.

Q 40: Asnwer : C
Explanation : The Treaty of Surat, signed between the English and Raghunath Rao, included several provisions:
•The English agreed to provide military assistance to Raghunath Rao with 2500 men.
•Raghunath Rao agreed to cede Salsette and Bassein to the English.
•Marathas were prohibited from raiding into Bengal and Carnatic.
•Raghunath Rao deposited six lakhs as security.
•Certain areas of Surat and Bharuch were to be ceded to the English.
•The English would intervene if Raghunath Rao entered into a pact with Poona.
The Treaty of Purandhar, between the English and the Marathas, contained the following provisions:

•Both parties agreed to maintain peace.
•The English East India Company would retain control of Salsette.
•Raghunath Rao would receive a monthly pension of Rs. 2500 from Poona, and he would relocate to Gujarat.

The Treaty of Wadgaon, between the Bombay Government and the Marathas, had the following terms:
•The territories occupied by the Bombay Government after 1773 would be returned to the Marathas.
•The Bombay Government would prevent the arrival of English troops from Bengal.
•Sindhia would receive revenue from Bharuch.

Q 41: Answer D
Explanation
The Indigo Revolt, also known as the Blue Rebellion, occurred in Bengal in 1859 AD and had several key features:
•Thousands of ryots (peasants) in Nadia districts of Bengal refused to grow Indigo, which was monopolized by the English through land capture.
•In April 1860, peasants in Pabna and Nadia districts refused to pay rents to planters and attacked factories, supported by local zamindars and village headmen.
•Lieutenant Governor Ashley Eden issued an order to stop forcing ryots to accept contracts.
•Indigo plantation was shifted from Bengal to Bihar after the rebellion.
•The revolt was led by figures like the Biswas brothers, Rafiq Mondal, and Kader Molla, with support from zamindars like Ramrattan Mullick.
•Hindus and Muslims united against oppression, marking a rare collaboration.
•The Champaran workers also revolted in 1867-68 and later in 1917, led by Mahatma Gandhi.
•Dinabandhu Mitra's play "Nil Darpan" depicted the farmers' plight accurately, gaining support for the revolt.
•Reverend James Long translated "Nil Darpan" into English, bringing international attention to the issue.

Q 42: Answer : C
Explanation
The government launched the Eco-labelling Scheme known as the Eco Mark Scheme in 1991 to identify environment-friendly products. It is a voluntary mark labelling consumer products as environment-friendly based on specific quality and environmental parameters.
A product made, disposed of or used to reduce environmental harm significantly is considered environment-friendly. These products have less potential for pollution during their life cycle, i.e. raw material, use, manufacture, and disposal.
The Eco Mark Scheme applies to all products, including household and commercial products introduced in the market. Any industrialists and commercialists can apply to the BIS for an Eco Mark license.
Objectives of Eco Mark
There are five objectives of the Eco Mark Scheme, which are as follows:
•To provide incentives for importers and manufacturers to reduce the adverse environmental impact of products.
•To reward companies for their initiatives taken under this scheme.
•To provide information to consumers, take account of environmental factors in their purchase decisions and become environmentally responsible in their daily lives.
•To encourage citizens to purchase products with less harmful environmental impacts
•To promote the sustainable management of resources and improve the quality of the environment.
Eco Mark products list in India
The Eco Mark Scheme covers the below product categories:
•Soaps and detergents
•Food items
•Paints
•Lubricating oils
•Electrical and electronic goods
•Batteries
•Wood substitutes
•Food additives
•Aerosols and propellants
•Cosmetics
•Plastic products
•Fire-extinguisher
•Textiles
•Coir and coir products
•Leather
•Packing or packaging materials
•Architectural paints and powder coatings
Eco Mark symbol/Eco Mark logo
An earthen pot is the logo of the Eco Mark, signifying the usage of renewable resources, like clay, which consumes less energy and does not have hazardous waste. It represents the strength and fragility which characterises the ecosystem.
An Eco Mark signifies that a product is the right environmental choice product. The Eco Mark and ISI mark on a product indicates that the product meets the environmental criteria and quality requirements specified in the relevant Indian Standards.
The combination of the Eco logo and ISI mark is given below:
Criteria for Eco Mark
Manufacturers should ensure that the product qualifies the criteria as per Indian Standards before applying to BIS for Eco Mark certification. BIS will assess the products for certification based on the following environmental impact factors:
•The product has substantially less potential for pollution compared to similar products in terms of production, usage and disposal.
•The product is made of recyclable, recycled or biodegradable materials.
•The product creates a significant contribution towards the preservation of non-renewable resources.
•The product's use must contribute to a decrease in the environmental impact.
BIS will consider the following criteria while determining if the product is eligible under the Eco Mark Scheme:
•Process of production, including the source of raw materials
•The potential impact of the resources on the environment
•Natural resources utilised by the manufacturers
•Amount of biological waste emanating out of the product
•Amount of energy consumed while producing the product

•Disposal aspects related to the product and other requirements
•Sustainability of the product during one life cycle
•Biodegradability of the product

Q : 43: Answer : C
Explanation
The National Family Health Survey (NFHS) is a comprehensive survey conducted across India in a representative sample of households. It is overseen by the Ministry of Health and Family Welfare, with the International Institute for Population Sciences (IIPS) Mumbai serving as the main coordinating agency. IIPS collaborates with several Field Organizations for the survey's implementation. Hence, statement 2 is correct.
The primary objectives of the NFHS are to gather crucial data on health and family welfare for policy and program purposes, as well as to identify emerging health and family welfare issues. The survey provides vital state and national-level information on various aspects, including fertility, infant and child mortality, family planning practices, maternal and child health, reproductive health, nutrition, anaemia, and the quality of health and family planning services.
Funding for the NFHS is sourced from various organizations, including USAID, the Bill and Melinda Gates Foundation, UNICEF, UNFPA, and the Government of India. Each round of the NFHS aims to provide high-quality data on health and family welfare and address emerging issues in this field.
NFHS-1 took place in 1992-93, NFHS-2 in 1998-99, NFHS-3 in 2005-2006, and NFHS-4 in 2014-2015. Hence, statement 1 is incorrect. NFHS-4 was significant as it included all 29 states and six union territories for the first time, providing district-level estimates for all 640 districts based on the 2011 census. The survey covers a wide range of health-related topics, including fertility, mortality rates, maternal and child health, reproductive health, and various diseases.
National Family Health Survey-5 (NFHS-5)
The National Family Health Survey-5 (NFHS-5), conducted from 2019 to 2020, covered a vast sample of approximately 6.1 lakh households across India. It aimed to gather crucial data on various health and family welfare indicators, mirroring many aspects of the NFHS-4 survey carried out in 2015-16, thus enabling comparisons over time. However, the survey's Phase 2, which included the remaining states, faced delays due to the Covid-19 pandemic, with its results eventually released in September 2021.
The NFHS-5 data plays a significant role in establishing benchmarks and assessing the progress of the health sector over time. By providing evidence of ongoing program effectiveness and identifying the need for new, area-specific programs, it helps in targeting groups that require essential services. Furthermore, the survey serves as a vital tool for tracking progress toward the 30 Sustainable Development Goals (SDGs) that India aims to achieve by 2030.
This latest survey introduced several new topics, including preschool education, disability, access to sanitation facilities, death registration, menstrual hygiene practices, abortion methods, and reasons for abortion. Additionally, NFHS-5 expanded its focus areas to strengthen existing programs and develop new strategies for policy interventions. These areas include child immunization, micro-nutrient components, menstrual hygiene, frequency of alcohol and tobacco use, non-communicable diseases (NCDs), and expanded age ranges for measuring hypertension and diabetes among individuals aged 15 years and above.
Key findings from NFHS-5 revealed some significant trends. For instance, it reported the highest sex ratio recorded since the first modern synchronous census in 1881. Hence, statement 3 is correct. Additionally, there was a decline in the Total Fertility Rate (TFR) below replacement levels, indicating a decrease in the number of children being born. Hence, statement 4 is correct. The survey also highlighted slight improvements in child nutrition indicators, although anaemia incidences worsened across all states in India. Moreover, there was an increase in institutional births and improvements in women's empowerment indicators, showcasing progress in various aspects of health and welfare in the country.

Q 44: Answer : B
Explanation
•Karamoja is a region in northeastern Uganda.
•Darfur is a region in western Sudan.
•Khartoum is the capital region of Sudan.
•Zanzibar is an autonomous region of Tanzania.
Oromia - A region in Ethiopia with its own distinct culture and language.
Tigray - Another region in Ethiopia known for its ancient history and cultural heritage.
Somaliland - A self-declared state in northern Somalia with its own government and borders.
Karamoja - A region in northeastern Uganda known for its pastoralist communities and unique culture.
Darfur - A region in western Sudan that has been affected by conflict and humanitarian crises.
Khartoum - The capital region of Sudan, encompassing the confluence of the Blue and White Nile rivers.
Zanzibar - An autonomous region of Tanzania known for its beautiful beaches and cultural heritage.
Kilimanjaro - A region in Tanzania that includes Mount Kilimanjaro, the highest peak in Africa.
Kivu - A region in the Democratic Republic of the Congo known for its lakes and natural beauty.
Kasai - A region in the Democratic Republic of the Congo known for its agricultural activities and cultural heritage.
Niger Delta - A region in Nigeria known for its oil reserves and environmental challenges.
Great Rift Valley - A geological region stretching from the Middle East to Mozambique, known for its unique landscapes and
biodiversity.
Sud-Ouest - A region in Cameroon known for its coffee production and diverse ethnic groups.
Coast Province - A former province in Kenya known for its coastal cities and tourist attractions.

Q 45: Answer : A
Explanation: The Forest Stewardship Council (FSC) is a non-profit organization established in 1993, not 1987, to promote responsible management of the world's forests. It was not established by the United Nations but was founded by a group

of environmentalists, businesses, and community leaders. Hence, statement 1 is incorrect.
FSC certification is not mandatory for all forestry operations worldwide. It is a voluntary certification that forestry operations can choose to pursue to demonstrate their commitment to sustainable forest management. Hence, statement 2 is incorrect.
The FSC label does not guarantee that a product is made from 100% recycled materials. Instead, it indicates that the wood used in the product comes from forests that are responsibly managed according to FSC standards. Hence, statement 3 is incorrect.
Overall, the FSC aims to promote environmentally appropriate, socially beneficial, and economically viable management of the world's forests through its certification and labeling system. Hence, statement 4 is correct.

Q 46: Answer : A
Explanation: Biosand Filter is indeed a point-of-use water treatment system designed to remove pathogens and suspended solids from water. Hence, statement 1 is correct.
It uses layers of sand and gravel to physically filter out impurities, making it an effective and sustainable method for water purification. Hence, statement 2 is correct.
BSFs are effective in removing up to 99% of bacteria, viruses, and protozoa, making water safe for drinking. But, unlike some other water treatment systems, Biosand Filter does not require electricity to operate, as it relies on gravity to filter water through the sand and gravel layers. Hence, statement 3 is incorrect.
Biosand Filter is not designed for desalination purposes. Its primary function is to improve the microbiological quality of drinking water. Hence, statement 4 is correct.
Biosand Filter (BSF)
The Biosand Filter (BSF) is a simple and sustainable point-of-use water treatment system that removes pathogens, suspended solids, and some chemical contaminants from water. It operates without electricity and is suitable for households in developing countries or areas with limited access to clean water. Here are key features and benefits of the Biosand Filter:
The filter consists of a concrete or plastic container filled with layers of sand and gravel. Water passes through these layers, where physical, biological, and chemical processes remove impurities.
Pathogens are removed through various mechanisms, including mechanical trapping, predation by microorganisms living in the filter media, and die-off due to lack of nutrients.
Water is poured into the filter and allowed to percolate through the sand and gravel layers. The filtered water is collected from a spout at the bottom of the filter.
The filter requires regular maintenance, such as cleaning the top layer of sand, to prevent clogging and maintain its effectiveness.
BSFs are effective in removing up to 99% of bacteria, viruses, and protozoa, making water safe for drinking.

Q 47: Answer : C
Explanation: The correct match is:
Brussels Declaration - Reaffirms the deep and abiding commitment of the States Parties to the Convention for the Protection of Human.
Durban Declaration - UN's blueprint to combat racism, racial discrimination, xenophobia
Manila Declaration - Commitment to reduce and control wastewater, marine litter and pollution from fertilizers.
Malabo Declaration - Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods

Q 48: Answer : D
Explanation
•Kiru Hydel Power Project is on the Chenab River, not the Ravi River.
•Salal Dam is on the Chenab River, not the Sutlej River.
•Koldam Dam is on the Sutlej River, not the Chenab River.
•Bansagar Dam is on the Son River, not the Krishna River.

Q 49: Answer : C
Explanation: The movement was influenced by socialist ideologies and aimed at the overthrow of British colonial rule:
This statement is incorrect. While the movement was influenced by socialist ideologies, its primary aim was to improve workers' rights and conditions rather than the overthrow of colonial rule.
British colonial administration ignored the movement and took no action to address workers' concerns:
This statement is incorrect. The colonial administration did not ignore the movement but rather responded to it, sometimes through suppression and sometimes through limited reforms. It suppressed the movement through legal and administrative measures.
The movement saw the emergence of indigenous labor literature and the use of vernacular languages to mobilize workers: This statement is correct. Indigenous labor literature and the use of vernacular languages played a significant role in mobilizing workers.
It resulted in the establishment of minimum wage laws for workers.
This statement is incorrect. The establishment of minimum wage laws for workers was not a direct result of the Working-Class Movement during this period. Minimum wage laws came much later, in the 20th century, as part of broader labor reforms.

Q 50: Answer : C
Explanation: The Stockholm Convention, ratified by India in 2006, is a global treaty to protect human health and environment from Persistent Organic Pollutants (POPs). POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to human beings and wildlife. POPs travel globally and can cause damage wherever they travel. The Convention that entered into force of 17th May, 2004, lays down that in its implementation, Governments will take measures to eliminate or reduce the release of POPs into the environment.
The Stockholm Convention seeks the elimination or restriction of production and use of all intentionally produced POPs

(industrial chemicals and pesticides). The Convention also seeks the continuing minimization and wherever feasible, ultimate elimination of the releases of unintentionally produced POPs such as dioxins and furans. At present, twenty one chemicals are covered under the Stockholm Convention, of which use of DDT is restricted in India. Use of DDT is banned for agricultural purposes; it is produced in a restricted manner for use in vector control only, as India has obtained exemption for use of DDT for vector control.

Stockpiles and wastes containing POPs must be managed and disposed of in a safe, efficient and environmentally sound manner, taking into account international rules, standards and guidelines. Each country is required to develop a plan for implementing its obligations under the Convention. A Global Environment Facility (GEF) has been set up as an interim financial mechanism, to assist the developing countries in implementation of the Convention.

Recent News

The Union Cabinet has given approval for the ratification of seven chemicals listed under the Stockholm Convention on Persistent Organic Pollutants (POPs). Additionally, the Cabinet has delegated its ratification powers for chemicals under the Stockholm Convention to the Union Ministries of External Affairs (MEA) and Environment, Forest and Climate Change (MEFCC) to streamline the procedure.

Key Points:

- POPs are chemical substances known for their persistence in the environment, bio-accumulation in living organisms' fatty tissues, low solubility in water, and adverse effects on human health and the environment.
- Exposure to POPs can result in various health issues such as cancer, damage to the nervous and immune systems, reproductive disorders, and developmental problems in children.
- These pollutants are capable of long-range environmental transport, leading to their widespread dispersion in the atmosphere.
- The Stockholm Convention, established in 2001 and effective since 2004, aims to protect human health and the environment from POPs.
- Member countries list POPs in various Annexes of the convention after thorough scientific research, deliberations, and negotiations.
- India ratified the Stockholm Convention in 2006 under Article 25(4), ensuring that amendments to the convention's Annexes cannot be enforced on India unless an instrument of ratification, acceptance, approval, or accession is explicitly deposited with the UN depositary.

Recent Cabinet Decision:

- The Cabinet approved the ratification of seven chemicals listed under the Stockholm Convention, which are regulated domestically under the Regulation of Persistent Organic Pollutants Rules, 2018. This regulation prohibits the manufacture, trade, use, import, and export of these seven chemicals:

1.Chlordecone
2.Hexabromobiphenyl
3.Hexabromodiphenyl ether and HeptaBromodiphenyl Ether (Commercial octa-BDE)
4.Tetrabromodiphenyl ether and Pentabromodiphenyl ether (Commercial penta-BDE)
5.Pentachlorobenzene
6.Hexabromocyclododecane
7.Hexachlorobutadiene

Q 51: Answer : D

Explanation:

- The Kubrawi Order was primarily established in the Kashmir region.
- It was founded by Mir Syed Ali Hamadani, a zealous missionary who sought to spread Islam in the region.
- Mir Syed Ali Hamadani encouraged his followers to convert Hindus to Islam and played a significant role in the demolition of Hindu temples.
- Sultan Sikandar (1389-1413) became a follower of Mir Syed Ali Hamadani's son, Mir Mohammad. Influenced by his noble Saiffudin and Mir, Sultan Sikandar ordered the demolition of many ancient temples in Kashmir.
- Sultan Zain-ul-Abidin (1420-1470) became the supporter of the Baihaqi Sayyids, who were also associated with the Kubrawiyyas.

Q 52: Answer D

Explanation: The Ramayana mentions chariots covered with leather. The Rig Vedic charioteers used varma (coats of mail) and sipra/sironastra (helmets). Equipped with asi (swords), hanas (arrows) and ilhianus (bows), the Kshatriyas on the chariots went to combat. The Indus valley people knew the use of copper, bronze, silver, gold but not iron. Some scholars claim that the horse was widely domesticated and used in India in the area covered by the Indus-Sarasvati (or Harappan) Civilisation, but this evidence remains unsubstantiated.

Q 53: Answer : D

Explanation: Battle of Bahadurgarh (February 1658):
- Sulaiman Shikoh and Raja Jai Singh of Amber defeated Shah Shuja.

Battle of Dharmat (April 1658):
- Raja Jaswant Singh and Karim Khan were defeated by Murad and Aurangzeb.

Battle of Samugarh (May 1658):
- Dara Shikoh was defeated by Aurangzeb.

Battle of Rupnagar (June 1658):
- Murad was captured and executed.

Battle of Khajwah (January 1659):
- Shah Shuja was defeated by Aurangzeb.

Battle of Deorai (March 1659):
- Dara Shikoh was defeated for the second time

Q 54: Answer : B

Explanation:
- According to Father Daniel Bartoli, a Jesuit author, Akbar established himself as the founder and leader of a new religion upon his return from Kabul. This religion, discussed by a council, is believed by modern scholars to be the inauguration of Akbar's new faith, the Din-i-Ilahi (Divine Monotheism).
- Abul Fazal, in the Ain-i-Akbari, discusses several laws enacted by Akbar to secularize the state. However, these laws were deemed illegal by the orthodox Badayuni.

•Akbar prohibited polygamy and allowed a second wife only under exceptional circumstances.
•He banned child marriages, circumcision of boys below the age of twelve, and the slaughter of animals on certain days totaling about half the year.

Q 55: Answer A
Explanation
•Aihole Inscription of Pulakesin II: This inscription mentions the defeat of Harsha by Pulakesin II, who assumed the title Paramesvara after this victory. It was written by Ravikirti, the court poet of King Pulakesin II, and is found at the AiholeMeguti Temple in Karnataka, India.
•Mehrauli Inscription: This inscription is related to Chandragupta II of the Gupta dynasty. It records Chandragupta's conquest of the Vanga countries and the Vakataka dynasty. The pillar was established by Chandragupta II as Vishnupada in honor of Lord Vishnu.
•Allahabad Pillar Inscription of Samudragupta: This inscription, composed by Harishena, credits Samudragupta with extensive military conquests. It suggests that Samudragupta defeated several kings of northern India and annexed their territories to his empire.
•Udayagiri Cave Inscription: This inscription mentions both Chandragupta II and Kumaragupta. The Udayagiri caves are located near Bhopal, Madhya Pradesh, and contain various inscriptions and sculptures dating back to the Gupta period.

Q 56: Answer : B
Explanation
•Succession: The succession during the Gupta rule was primarily hereditary. However, the practice of primogeniture (the transfer of the throne to the eldest son) was not fully developed, leading to uncertainties and chaos. This situation was sometimes exploited by chiefs and officials.
•Judicial System: The Gupta dynasty had a well-developed judicial system, with several books on law compiled during their reign. Civil and criminal laws were clearly distinguished for the first time. The king was regarded as the ultimate upholder of the law.
•Recruitment and Officials: The Gupta rulers, who were themselves Vaishyas (a varna associated with commerce and agriculture), recruited officials from lower varnas as well.

Q 57: Answer : A
Explanation
•Bhagavati Sutra: Also known as Vyakhyaprajnapati, it is an important book of Jaina literature. It contains details about questions answered by Mahavira and also presents a different list of sixteen Mahajanapadas.
•Anguttara Nikaya: This Buddhist text gives a list of sixteen great kingdoms called the 'Sixteen Mahajanapadas'. It is part of the Sutta Pitaka, which contains the teachings of Buddha and is divided into five groups or Nikayas: Digha, Majhim, Sanyukta, Anguttar, and Khuddak. The Mahavastu, a text of the Lokottaravada school of Early Buddhism, also mentions the sixteen Mahajanapadas.
•Indica: Authored by Megasthenes, a Greek ambassador in Chandragupta Maurya's court, this text provides details about the Mauryan administration, particularly focusing on the administration of the capital city of Pataliputra, military organization, and contemporary social life.
•Arthashastra: Written by Chanakya, also known as Kautilya, this text is divided into three parts. The first part deals with the king, his council, and the departments of government; the second part with civil and criminal law; and the third part with diplomacy and war.

Q 58: Answer : D
Explanation
•First Jain Council: Convened at Pataliputra by Sthulabahu, the leader of the Digambaras, in the beginning of the 3rd century B.C. The final compilation of Jain literature called Twelve Angas was completed during this council.
•Second Jain Council: Held at Valabhi during the Gupta period, where the Jain Canon of the Swetambras was written. This council marked an important milestone in Jain history, particularly for the Swetambara sect.
•Division into Sects: Jainism is divided into two main sects: Digambaras and Svetambaras. Bhadrabahu, a prominent figure in Jain history, propagated the Digambara school. He migrated to Karnataka due to a predicted famine in Magadha.
•Differences between Digambaras and Svetambaras: Digambara monks practice complete nudity, while Svetambara monks wear white clothes. In the Digambara sect, women monks are allowed and wear plain unstitched white sarees. However, women are not allowed to be Tirthankaras (spiritual leaders) in the Digambara sect.

Q 59: Answer : A
Explanation
•Kurinji: Kurinji refers to hilly, forested terrains or mountainous regions. The chief deity associated with Kurinji was Murugan, whose primary occupations were hunting and honey collection.
•Mullai: Mullai denotes pastoral lands. The chief deity associated with Mullai was Mayon.
•Marudam: Marudam represents agricultural lands. The chief deity associated with Marudam was Indira.
•Neydal: Neydal signifies coastal lands. The chief deity associated with Neydal was Varunan, who was often regarded as the god of the sea.
•Palai: Palai indicates desert lands. The chief deity associated with Palai was Korravai.

Q 60: Answer: D
Explanation:
Statement 1 is correct:
Progressive taxation involves higher tax rates for individuals with higher incomes. By implementing a progressive tax system, the government can redistribute wealth and income from the rich to the poor. This can help reduce income inequality by ensuring that those who earn more contribute a higher proportion of their income to government revenue.
Statement 2 is correct:
Education and healthcare are critical factors in addressing income inequality. Access to quality education and healthcare can empower individuals to break the cycle of poverty, improve their skills, and enhance employability. Investments in these areas, particularly targeting the underprivileged, can

lead to a more skilled and healthy workforce, which is essential for sustainable economic growth and reducing income disparities.

Statement 3 is correct:

Targeted subsidies can directly benefit the lower-income segments of the population by making essential goods and services more affordable. This approach can alleviate the financial burden on the poor, ensuring they have access to basic necessities like food, fuel, and housing, thereby contributing to a more equitable distribution of resources.

Statement 4 is correct:

Financial inclusion involves providing access to banking and credit services to individuals who were previously excluded from the formal financial system. By promoting financial inclusion and facilitating access to credit for small businesses, the government can empower entrepreneurs, boost economic activity in underserved areas, and contribute to income generation at the grassroots level.

Income inequality

Income inequality in India is a complex and multifaceted issue influenced by various economic, social, and historical factors. Understanding the nuances of income inequality requires examining different dimensions such as regional disparities, educational disparities, gender inequality, and the impact of economic policies.

Regional Disparities:

India is characterized by significant regional variations in terms of economic development. While some states have experienced rapid economic growth and development, others lag behind.

Southern and western states like Maharashtra, Karnataka, and Tamil Nadu have higher per capita incomes compared to states in the northern and eastern regions.

Disparities in infrastructure, education, and healthcare facilities contribute to these regional variations, leading to income disparities.

Educational Disparities:

Education plays a crucial role in determining income levels. Disparities in access to quality education result in unequal opportunities for employment and income.

Rural-urban divides and variations between different states contribute to educational inequalities. The lack of educational infrastructure in rural areas further exacerbates these disparities.

Occupational Structure:

India has a diverse occupational structure, with a large portion of the population engaged in agriculture. The agricultural sector often experiences lower productivity and income levels compared to industries and services.

Informal employment, where workers lack job security and social protection, is prevalent in many sectors, leading to income instability.

Gender Inequality:

Gender-based income disparities persist in India. Women often face discrimination in terms of wages and job opportunities.

The gender pay gap is prevalent across various sectors, and women are often overrepresented in low-paying and informal jobs.

Wealth Inequality:

Beyond income, wealth distribution is another aspect of inequality. The concentration of wealth in the hands of a few individuals or families contributes to overall economic inequality.

Unequal access to assets, property, and financial resources further widens the wealth gap.

Social and Caste Dynamics:

India has a long history of social and caste-based inequalities. Discrimination and historical disadvantages based on caste can impact economic opportunities and income levels.

Affirmative action policies, such as reservations in education and jobs for marginalized communities, aim to address historical injustices.

Economic Policies:

Government policies and economic reforms can either exacerbate or alleviate income inequality. For instance, liberalization policies in the 1990s contributed to economic growth but also led to increased inequality.

Social welfare programs and inclusive policies can play a role in reducing income disparities by providing support to marginalized and economically vulnerable sections of society.

Globalization:

India's integration into the global economy has both positive and negative effects on income inequality. While globalization can create economic opportunities and growth, it may also lead to job displacement and unequal benefits distribution.

Addressing income inequality in India requires a comprehensive approach that includes targeted policies for education, healthcare, social welfare, and economic reforms. A holistic strategy considering the multifaceted nature of the issue is essential for creating a more inclusive and equitable society.

Q 61: Answer : D

Explanation:

Statement 1 is correct:

Increasing the retirement age: This increases the size of the workforce by keeping experienced individuals working longer. This can help address the shortage of skilled workers caused by an ageing population.

Raising the retirement age can extend the productive working years of the ageing population. This ensures that experienced and skilled workers remain in the workforce for a more extended period, contributing to economic productivity. By delaying retirement, individuals continue to earn and contribute to the tax base, alleviating some financial pressures on the pension and social security systems.

Statement 2 is correct:

Encouraging immigration of skilled workers: This directly addresses the lack of skilled workers by bringing in individuals who can contribute to the economy.

Immigration of skilled workers brings in a fresh, dynamic workforce that can contribute to economic growth. Skilled immigrants can fill gaps in the labour market, particularly in sectors facing shortages of specialized talent. They can contribute not only to the workforce but also bring diverse perspectives and ideas, fostering innovation and productivity.

Statement 3 is correct:

Investing in automation and technological advancements: This can improve productivity by automating tasks currently

performed by humans, even with a smaller workforce. This allows existing workers to be more efficient and potentially take on higher-level roles.

Automation and technological advancements can enhance productivity and efficiency across various industries. By automating routine and repetitive tasks, the workforce can focus on more complex and creative aspects of their jobs, leading to increased productivity. Technological advancements can stimulate economic growth by fostering innovation, creating new industries, and improving overall competitiveness in the global market.

Statement 4 is incorrect:

Increasing government spending on social security and healthcare: While this might seem appealing to support the ageing population, it doesn't directly address the issue of economic growth. In fact, it can create a fiscal burden on the government, potentially hindering its ability to invest in other areas that could stimulate the economy.

While social security and healthcare are critical for the well-being of an ageing population, significantly increasing spending without addressing the root causes may create fiscal burdens.

Focusing solely on increasing spending without addressing the demographic challenges may not be sustainable in the long term.

Q 62: Answer : D

Explanation:

Statement 1 is correct:

Constitutional supremacy means that the Constitution is the supreme law of the land. Any law enacted by the legislature that contradicts the provisions of the Constitution is considered invalid. This principle ensures that the Constitution remains the ultimate authority, and all other laws must align with its principles.

Statement 2 is correct:

Judicial review is a mechanism by which the courts examine the constitutionality of laws, government actions, and executive decisions. This authority is a crucial consequence of constitutional supremacy, granting the judiciary the power to safeguard the Constitution. Courts can strike down laws or actions that violate constitutional principles, ensuring a check on the legislative and executive branches.

Statement 3 is correct:

Constitutional supremacy establishes the Constitution as the highest legal standard in a nation. All laws and government actions must conform to the principles outlined in the Constitution. This ensures consistency and coherence in the legal system, preventing any legislation or action that deviates from constitutional norms.

Statement 4 is correct:

Constitutional supremacy places a responsibility on the government to act within the framework of fundamental rights guaranteed by the Constitution. These rights, such as the right to freedom of speech, equality, and due process, serve as a check on government power. Any government action that infringes upon these fundamental rights can be challenged in court.

Statement 5 is correct:

Constitutional amendments typically require a complex and challenging process, involving broad consensus and approval from various levels of government or a special majority in the legislature. This difficulty ensures that changes to the foundational law are not made impulsively and require careful consideration. It also upholds the stability and permanence of the Constitution.

In summary, the principle of constitutional supremacy establishes the Constitution as the supreme law, providing a framework for judicial review, setting the highest legal standard, guiding government actions through fundamental rights, and requiring a meticulous process for amendments. These consequences collectively maintain the integrity, authority, and stability of the constitutional order in a nation.

Q 63: Answer : A

Explanation:

Statement 1 is correct:

A cognizable offence is one for which a police officer has the authority to investigate, arrest without a warrant, and initiate legal proceedings without requiring a court-issued warrant. Cognizable offences are generally considered more serious in nature and include crimes such as murder, theft, and assault.

Statement 2 is incorrect:

The classification of an offence as cognizable or non-cognizable is not based on the nature of the punishment but on the severity of the offence. Both imprisonment and fines can be part of the punishment for cognizable offences.

Statement 3 is incorrect:

Offences under the Indian Penal Code (IPC) are classified into cognizable and non-cognizable offences based on their severity. While many offences under the IPC are cognizable, there are also non-cognizable offences. Non-cognizable offences require a warrant for arrest, and a private person has no authority to arrest without a warrant.

Code of Criminal Procedure (CrPC)

The Code of Criminal Procedure (CrPC), enacted in 1973, forms the backbone of India's criminal justice system. It outlines the legal procedures for investigating, prosecuting, and trying criminal offences, ensuring a fair and balanced process for both the accused and the victim. Let's delve deeper into the key aspects of the CrPC:

Objectives of the CrPC:

Establishing a Fair and Efficient System: The CrPC aims to create a system where criminal offences are investigated and prosecuted efficiently while upholding fairness and following due process.

Protecting Accused Rights: It safeguards the fundamental rights of the accused throughout the entire process, guaranteeing a fair trial, the right to legal representation, and protection against self-incrimination.

Ensuring Just Punishment: The CrPC ensures that punishment for those convicted of crimes is imposed justly and in accordance with the law, considering the severity of the offence and mitigating factors.

Structure of the CrPC:

The CrPC is a comprehensive document divided into two parts and 37 chapters.

Part I (Sections 1-247): This part deals with general provisions, laying the foundation for the entire criminal justice process. It

defines key terms, outlines the powers of courts and police officers, and details procedures for investigation, arrest, detention, and pretrial processes.
Important Concepts: This part covers crucial concepts like cognizable and non-cognizable offences (affecting police arrest powers), First Information Reports (FIRs) which initiate investigations, and bail procedures.
Part II (Sections 248-547): This part focuses on the trial process itself, including procedures for presenting evidence, examining witnesses, arguments from prosecution and defence, sentencing, appeals, execution of sentences, and other miscellaneous provisions.
Trial Stages: This part details the steps involved in a trial, from framing charges to delivering judgments and handling appeals in higher courts.
Key Functionaries in the CrPC:
Police: They investigate offences, collect evidence, and arrest suspects. The CrPC outlines their powers and limitations to ensure it operates within legal bounds.
Magistrates: These judicial officers oversee investigations, grant bail, and conduct preliminary inquiries.
Courts: The CrPC prescribes procedures for different types of courts (Sessions Courts, High Courts, Supreme Court) to ensure a fair and hierarchical trial system.
Lawyers: They represent the accused or the prosecution, ensuring legal representation and adherence to legal procedures.
Importance of the CrPC:
The CrPC plays a vital role in upholding a just and balanced criminal justice system:
Safeguards Fundamental Rights: The CrPC acts as a shield against arbitrary actions by law enforcement agencies. It guarantees the accused's fundamental rights during investigation, trial, and even after conviction.
Ensures Due Process: The CrPC lays out a defined set of legal procedures that must be followed at every stage of the criminal justice process. This prevents shortcuts and upholds the principle of fair play.
Maintains Law and Order: By establishing a framework for effective investigation and prosecution of crimes, the CrPC helps deter criminal activity and maintain public safety.
Challenges and Areas for Improvement:
While the CrPC plays a crucial role, there are areas where improvements can be made:
Case Pendency: A significant backlog of cases in Indian courts can lead to lengthy trials and delays in justice delivery, impacting both the accused and the victim.
Police Misconduct: Instances of police exceeding their powers or using excessive force raise concerns about upholding the rights of the accused during investigations and arrests.
Victim Rights Advocacy: While the CrPC focuses on the accused's rights, there could be a stronger emphasis on victim protection measures, including witness support and timely compensation.
The Code of Criminal Procedure is a cornerstone of India's legal system. It guides the investigation, prosecution, and trial of criminal offences, ensuring a framework for a fair and just criminal justice system. By acknowledging its strengths and areas for improvement, ongoing reforms and interpretations by the judiciary can strengthen the CrPC and ensure it effectively serves the evolving needs of Indian society.

Q 64: Answer : B
Explanation:
The Directive Principles of State Policy (DPSP), enshrined in Part IV of the Indian Constitution, are not enforceable by law but are meant to guide the government in formulating policies for promoting the welfare of the people. They aim to establish a social and economic order based on social justice, equality, and human dignity.
Statement 1 is correct:
To secure the participation of workers in the management of industry: This objective finds its root in Article 43A of the Indian Constitution. It states that the State shall endeavour to promote worker participation in the management of industries and other institutions. This fosters a sense of ownership and shared responsibility among workers, potentially leading to increased productivity and improved working conditions.
Statement 2 is incorrect:
To promote voluntary action for the welfare of the weaker sections of society: The DPSP doesn't have a specific provision mandating the promotion of voluntary action. However, Articles 38 and 46 emphasize the State's role in uplifting the living standards and improving the conditions of weaker sections (e.g., Scheduled Castes, Scheduled Tribes, and Other Backward Classes). Encouraging voluntary action alongside government initiatives can complement these efforts and foster a sense of social responsibility within the community.
Statement 3 is correct:
To strengthen the unity and integrity of the nation: Article 38 lays the foundation for this objective. It highlights promoting national unity and integrity as a fundamental principle of state policy. The DPSP recognizes the importance of a cohesive and unified nation for overall progress and development.
Statement 4 is correct:
To establish village panchayats with adequate powers and resources: This objective directly aligns with Article 40 of the Constitution. It mandates the organization of village panchayats (local self-government bodies) at the grassroots level. The DPSP emphasizes empowering these panchayats with adequate powers and resources to enable them to function effectively and address local needs.
Statement 5 is incorrect:
To prohibit the consumption of all intoxicating drinks and drugs: While promoting public health is a DPSP objective (Article 47), the Constitution doesn't explicitly call for the prohibition of all intoxicating drinks and drugs. This falls under the legislative domain of the Parliament and state legislatures. They can enact laws regulating or prohibiting specific substances based on social, health, and economic considerations.
The Directive Principles of State Policy (DPSP) are a crucial part of the Indian Constitution, found in Part IV (Articles 36 to 51). They act as a roadmap for the government, outlining the ideals it should strive towards in establishing a just and equitable society.
Core Function:
Unlike Fundamental Rights, which are directly enforceable by courts, DPSPs are not legally binding. However, they serve as

guidelines for the government to make laws and policies promoting social, economic, and political welfare for all citizens.

Article 37 of the Constitution emphasizes their importance, stating that these principles are "fundamental in the governance of the country" and the state's duty to apply them in lawmaking.

Objectives of DPSP:

The DPSP encompass a wide range of objectives aimed at achieving a social and economic democracy. Here are some key goals:

Social justice: This includes securing a social order that guarantees justice for all, regardless of social or economic background. Reducing inequalities in income, status, and opportunity is a key focus (Article 38).

Economic justice: The DPSP promote equitable distribution of resources and prevents wealth concentration. They advocate for fair wages, an adequate livelihood for all, and state control over essential resources (Article 39).

Political justice: The principles aim to ensure equal participation in political processes and establish a welfare state that protects citizens' well-being (Article 41 - 47).

The DPSP covers a diverse range of areas.

Right to livelihood: The state should ensure citizens have an adequate means of earning a living (Article 39(a)).

Equal pay for equal work: Both men and women deserve equal wages for similar work (Article 39(d)).

Uniform civil code: The state should strive for a common set of laws governing personal matters applicable to all citizens (Article 44).

Education and public health: The DPSP emphasize the importance of providing quality education and healthcare for all (Articles 41, 47).

Environmental protection: The state is obligated to safeguard forests and wildlife (Article 48A).

The DPSP have significantly influenced Indian government policies. Many social welfare programs, such as the Right to Education Act, find their roots in these principles. They serve as a guiding force for establishing a more egalitarian society.

Article 36: Definition

Article 36 provides the definition of the State, which includes the government and Parliament of India, the government and Legislature of each State, and all local or other authorities within the territory of India or under the control of the Government of India.

Article 37: Application of the Principles contained in this Part

Article 37 clarifies that the principles mentioned in Part IV (DPSP) are fundamental in the governance of the country and the state shall strive to apply these principles in making laws.

Article 38: State to secure a social order for the promotion of the welfare of the people

Article 38 emphasizes that the State shall strive to promote the welfare of the people by securing a social order characterized by justice—social, economic, and political—and shall strive to minimize inequalities in income, status, facilities, and opportunities.

Article 39: Certain principles of policy to be followed by the State

Article 39 outlines several principles, including:

Equal justice and free legal aid.

Operation of the economic system does not result in the concentration of wealth and means of production.

Preventing the abuse of the economic system, ensuring that ownership and control of material resources are distributed to subserve the common good.

Protecting childhood and youth against exploitation and against moral and material abandonment.

Article 40: Organization of village panchayats

Article 40 directs the State to organize village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government.

Article 41: Right to work, to education, and to public assistance in certain cases

Article 41 ensures the right to work, education, and public assistance in certain cases, aiming to secure the right to work, education, and public assistance in the event of unemployment, old age, sickness, and disablement.

Article 42: Provision for just and humane conditions of work and maternity relief

Article 42 directs the State to make provisions for just and humane conditions of work and maternity relief.

Article 43: Living wage, etc., for workers

Article 43 emphasizes that the State shall endeavour to secure a living wage, a decent standard of life, and social and cultural opportunities for workers.

Article 43A: Participation of workers in the management of industries

Article 43A was inserted by the 42nd Constitutional Amendment Act, 1976. It encourages the State to take steps to secure the participation of workers in the management of undertakings, establishments, or other organizations.

Article 44: Uniform civil code for the citizens

Article 44 promotes the idea of a uniform civil code for the citizens throughout the territory of India, aiming to provide a common set of laws governing personal matters irrespective of religious beliefs.

Article 45: Provision for early childhood care and education to children below the age of six years

Article 45 directs the State to provide early childhood care and education for all children until they reach the age of six years.

Article 46: Promotion of educational and economic interests of Scheduled Castes, Scheduled Tribes, and other weaker sections

Article 46 directs the State to promote the educational and economic interests of Scheduled Castes, Scheduled Tribes, and other weaker sections and protect them from social injustice and exploitation.

Article 47: Duty of the State to raise the level of nutrition and the standard of living and to improve public health

Article 47 directs the State to regard the raising of the level of nutrition and the standard of living of the people and the improvement of public health as among its primary duties.

Article 48: Organization of agriculture and animal husbandry

Article 48 directs the State to organize agriculture and animal husbandry on modern and scientific lines and to take steps to preserve and improve the breeds, prohibiting the slaughter of cows and calves.

Article 48A: Protection and improvement of environment and safeguarding of forests and wildlife

Article 48A was added by the 42nd Constitutional Amendment Act, 1976. It mandates the State to protect and improve the environment and safeguard forests and wildlife.
Article 49: Protection of monuments and places and objects of national importance
Article 49 directs the State to protect monuments, places, and objects of artistic or historic interest that are declared to be of national importance.
Article 50: Separation of the judiciary from the executive
Article 50 emphasizes the separation of the judiciary from the executive in the public services of the State to secure impartial and efficient administration.
Article 51: Promotion of international peace and security
Article 51 directs the State to promote international peace and security and maintain just and honourable relations between nations, foster respect for international law and treaty obligations.
Evolution and Amendments:
Over the years, certain DPSP provisions have been amended to reflect changing social and economic needs. The 42nd and 44th Constitutional Amendments introduced new provisions and amended existing ones.
Criticisms:
Critics argue that the non-justiciability of DPSP makes them less effective and that they often remain unimplemented
The Directive Principles of State Policy are a vital component of the Indian Constitution, reflecting the nation's commitment to achieving social and economic justice. While they may not be legally enforceable, they provide a framework for the government to formulate policies that contribute to building a just and equitable society. The interpretation and implementation of these principles have evolved over time, reflecting the changing needs and priorities of the nation.

Q 65: Answer B
Explanation:
Statement 1 is correct:
The Speaker of Lok Sabha is considered the presiding officer and is expected to remain impartial, unbiased, and neutral while conducting the proceedings of the House. This impartiality is crucial to uphold the democratic principles of the parliamentary system.
In regular proceedings, the Speaker generally refrains from voting to maintain impartiality. The convention is that the Speaker only casts a vote in the case of a tie, and even then, it is often to maintain the status quo.
Statement 2 is correct:
The Speaker has the authority to decide on matters related to the disqualification of Members of Parliament under the Tenth Schedule of the Constitution (Anti-Defection Law). However, the Speaker's decision is not final and is subject to judicial review. If there is a dispute or a legal challenge regarding the Speaker's decision on disqualification, it can be taken to a court of law for review.
Statement 3 is incorrect:
While it is a convention and a norm for the Speaker to resign from their political party upon assuming the office of the Speaker, it is not an absolute requirement. Some Speakers may choose not to formally resign from their political party but are expected to act impartially while presiding over the proceedings of the Lok Sabha.
Statement 4 is incorrect:
The Speaker's role in the Parliament Secretariat is not purely ceremonial; it involves substantial administrative responsibilities. The Speaker is responsible for the administration of the Parliament Secretariat, which includes managing the staff, overseeing budgetary matters, and ensuring the smooth functioning of parliamentary services.
Statement 5 is incorrect:
The Speaker of Lok Sabha is not removed by the President. The Speaker can be removed by a resolution passed by a majority of the Members of Parliament.
The removal process is initiated through a no-confidence motion, and if the majority of the members support it, the Speaker ceases to hold office.
Lok Sabha Speaker
The Lok Sabha Speaker in India is a crucial and influential parliamentary position responsible for presiding over the meetings of the Lok Sabha, the lower house of the Parliament of India. The Speaker is elected by the members of the Lok Sabha and plays a pivotal role in maintaining order during debates and ensuring that parliamentary procedures are followed.
Election and Term:
Members of the Lok Sabha propose names for the position of Speaker.
The election is conducted through a voting process, and the candidate securing a simple majority becomes the Speaker.
The Speaker's term aligns with the term of the Lok Sabha, but they can resign or be removed before the completion of the term.
Independence and Impartiality:
The Speaker, upon election, is expected to sever all ties with their political party.
Impartiality is crucial to ensure fair proceedings in the Lok Sabha, and the Speaker refrains from participating in debates and voting, except in the case of a tie.
Presiding Over Sessions:
The Speaker is responsible for opening and closing the sessions of the Lok Sabha.
They maintain order during debates, decide who may speak, and have the authority to adjourn the House in case of disorder.
The Speaker can also suspend sitting for a short period if necessary.
Deciding on Points of Order:
Members can raise points of order during debates, seeking the Speaker's ruling on the interpretation or application of parliamentary rules.
The Speaker's decisions on points of order are considered final, and members are expected to abide by them.
Casting Vote:
In the event of a tie on a vote, the Speaker has a casting vote.
The casting vote is generally used to maintain the status quo rather than to influence the outcome of the vote.
Representative Role:
The Speaker represents the Lok Sabha in its relations with the President of India.

They play a significant role in diplomatic and international matters concerning the Lok Sabha, acting as a representative of the parliamentary body.
Committee on Office of Profit:
The Speaker chairs the Committee on Office of Profit.
This committee examines cases related to the disqualification of Members of Parliament for holding an office of profit under the government.
Resignation and Removal:
The Speaker can resign by submitting their resignation to the Deputy Speaker.
Removal is possible through a resolution passed by a simple majority in the Lok Sabha. This may happen if the Speaker loses the confidence of the majority of members.
Salary and Allowances:
The Speaker is entitled to receive a salary and allowances as determined by Parliament.
This provision is in place to ensure that the Speaker is financially independent and can discharge their duties without external pressures.

Q 66: Answer : D
Explanation:
The correct code is: D) 1 - A, 2 - B, 3 - D, 4 - C.
1. Bernoulli's Principle: The Science of Lift
Airfoil Design: The key to lift generation in aeroplanes lies in the design of their wings. Airfoils, as they are called, are shaped in a way that creates a pressure difference between the top and bottom surfaces when air flows over them. The curved upper surface forces air to travel a longer distance compared to the flatter bottom surface in the same amount of time. According to Bernoulli's principle, faster-moving air experiences lower pressure. This pressure difference, with lower pressure above the wing and higher pressure below, creates an upward lift force that keeps the aeroplane airborne.
Factors Affecting Lift: Several factors can influence the amount of lift generated by an aeroplane wing. These include the angle of attack (the angle between the wing and the oncoming airflow), airspeed, wing size and shape, and air density. By adjusting the angle of attack using control surfaces like ailerons, pilots can control the amount of lift generated.
2. Archimedes' Principle: Understanding Buoyancy
Buoyant Force and Density: Archimedes' principle explains how buoyancy allows objects to float or sink in fluids. The buoyant force acting on an object submerged in a fluid is equal to the weight of the fluid displaced by the object. Objects with a density lower than the fluid (like a boat) experience a buoyant force greater than their weight, causing them to float. Conversely, objects denser than the fluid (like a rock) experience a buoyant force less than their weight, resulting in them sinking.
Applications of Buoyancy: Archimedes' principle has numerous applications beyond everyday observations of floating and sinking objects. Submarines use adjustable ballast tanks to control their buoyancy, allowing them to dive and surface. Hot air balloons rely on the buoyant force of heated air, which is less dense than the surrounding cooler air, to achieve flight.
3. Newton's Third Law: The Power of Reaction
Recoil in Firearms: When a gun is fired, the ignited gunpowder rapidly expands and propels itself out of the barrel at high velocity (action). According to Newton's third law, this action creates an equal and opposite reaction force. This reaction force pushes the gun backwards in the shooter's hand, causing the recoil we experience when firing a gun.
Rocket Propulsion: Rockets utilize Newton's third law for propulsion. The hot gases and propellant products from burning fuel are expelled at high velocity out of the rocket engine's nozzle (reaction mass). This rapid expulsion creates a forward thrust (reaction force) on the rocket body in accordance with the law of conservation of momentum, propelling the rocket forward.
4. Conservation of Momentum: The Engine of Rocketry
Isolated System: The principle of conservation of momentum applies to an isolated system, meaning the total momentum (mass times velocity) of all objects within the system remains constant, even if there are internal interactions. In a rocket, the hot gases expelled from the engine and the rocket itself constitute the isolated system.
The Physics of Thrust: As the rocket expels reaction mass (hot gases) at high velocity backwards, the rocket itself gains momentum in the opposite direction (forward thrust). The mass of the rocket is typically much larger than the mass of the expelled gases; however, the gases' much higher velocity compensates for their lower mass, ensuring the total momentum remains constant. This principle allows rockets to achieve incredible speeds in space.
By understanding these fundamental mechanical principles and their applications, we gain a deeper appreciation for the forces that govern the world around us, from the flight of aeroplanes to the propulsion of rockets.

Q 67: Answer B
Explanation
The correct answer is B) Spontaneous heat transfer from a hot object to a cold object.
A) Reversible expansion of a gas in a piston-cylinder system: This statement is incorrect. A reversible process, by definition, can be reversed without any change in the system or the surroundings. While a gas can be expanded reversibly in a piston-cylinder system by maintaining a very small pressure difference between the gas and the surroundings, it's incredibly challenging and often impractical to achieve perfect reversibility.
B) Spontaneous heat transfer from a hot object to a cold object: This statement is correct. Heat naturally flows from a hot object (high temperature) to a cold object (low temperature) due to the second law of thermodynamics. This process is irreversible because it increases the total entropy (a measure of disorder) in the universe. Once heat transfer occurs, it cannot be spontaneously reversed without external work input.
C) Isothermal compression of an ideal gas in a closed container: This statement is incorrect. An isothermal process occurs at a constant temperature. In a closed container, compressing an ideal gas would require work input, leading to an increase in temperature. Maintaining a constant temperature during compression requires removing the heat generated by the compression process. This removal of heat

can be achieved through external heat exchange, making the process theoretically reversible.
D) Adiabatic expansion of a gas without friction: This statement is incorrect. An adiabatic process occurs without heat exchange between the system and the surroundings. Friction can be present in an adiabatic process. While friction can affect the efficiency of the process, it doesn't inherently make it irreversible. The system can still regain its original state, at least in principle, by applying an equal amount of work input to counteract the work done against friction during expansion.
Therefore, the only option that represents an irreversible thermodynamic process is B) Spontaneous heat transfer from a hot object to a cold object. This process exemplifies the natural tendency for systems to move towards a state of higher entropy, a principle governing the directionality of many natural phenomena.

Q 68: Answer : C
Explanation:
Corrected Code: The correct code is C) 1 - C, 2 - A, 3 - B, 4 - D.
Chemical bonds are interactions between atoms that result from the sharing or transfer of electrons. The bonding between atoms is essential for the formation and stability of molecules and compounds.
Ionic Bonds:
Description: Involve the complete transfer of electrons from one atom (usually a metal) to another (usually a non-metal), resulting in the formation of oppositely charged ions (cations and anions). These oppositely charged ions then attract each other due to electrostatic forces, forming a stable bond.
Example: Sodium chloride (NaCl). Sodium readily loses an electron (forming Na^+) and chlorine gains an electron (forming Cl^-). The attraction between Na^+ and Cl^- forms the ionic bond in table salt.
Properties: Ionic compounds are typically hard, brittle, and good conductors of electricity when dissolved in water (aqueous solutions).
Covalent Bonds:
Description: Involve the sharing of electrons between two atoms, typically non-metals. Both atoms contribute one or more electrons to form a stable electron pair, creating a strong bond. The number of electron pairs shared determines the bond order (single, double, triple).
Example: Water molecule (H_2O). Each oxygen atom shares two electrons with two hydrogen atoms, forming single covalent bonds. The sharing results in a stable molecule with unique properties.
Properties: Covalent compounds can be solids, liquids, or gases depending on the molecule. They can be good or poor conductors of electricity, and their properties vary widely.
Metallic Bonds:
Description: Occur in metals, where delocalized electrons (not bound to specific atoms) are free to move throughout the metal lattice. These electrons are attracted to the positively charged metal nuclei, creating a "sea of electrons" that holds the metal atoms together.
Example: Iron (Fe). The electrons from the outer shells of iron atoms are delocalized and contribute to the metallic bond, giving iron its characteristic strength and malleability.
Properties: Metals are typically shiny, ductile (can be drawn into wires), malleable (can be hammered into sheets), and good conductors of heat and electricity.
A Special Case: Hydrogen Bonding
Hydrogen bonding is a special type of weak bond that forms between a hydrogen atom bonded to a highly electronegative atom (like oxygen, nitrogen, or fluorine) and another electronegative atom in a nearby molecule. This attraction arises due to the uneven sharing of electrons in the covalent bond between hydrogen and the electronegative atom, resulting in a partially positive charge on the hydrogen and a partially negative charge on the electronegative atom.
Example: Water molecules exhibit hydrogen bonding. The partially positive hydrogen atom of one molecule is attracted to the oxygen atom of another water molecule, forming a hydrogen bond. This network of hydrogen bonds contributes to the unique properties of water, such as its high surface tension and specific heat capacity.
Bond Strength and Properties:
The strength of a chemical bond significantly influences the properties of the resulting molecule or material. Ionic bonds are generally the strongest, followed by covalent bonds and metallic bonds. Hydrogen bonds are weaker but can play a crucial role in determining the three-dimensional structure and properties of molecules, especially in biological systems.
Some additional points to consider:
Electronegativity: This concept describes the tendency of an atom to attract electrons towards itself in a bond. The difference in electronegativity between atoms influences the type of bond formed (ionic vs. covalent).
Lewis Structures: These diagrams help visualize the arrangement of atoms and electrons in a molecule, providing insights into bond formation and molecular geometry.
Valence Electrons: The outermost electrons of an atom are the ones involved in bonding. The number of valence electrons an atom possesses dictates its potential to form bonds with other atoms.
Understanding chemical bonds is fundamental to various scientific disciplines, including chemistry, physics, materials science, and biology. By delving deeper into this fascinating realm, you gain a greater appreciation for the intricate dance of atoms that shapes the world around us.

Q 69: Answer : B
Explanation:
Statement 1 is incorrect:
Desertification refers to the process by which fertile land becomes increasingly arid and unproductive, often leading to the formation of deserts. While natural climate variations play a role in shaping ecosystems, human activities are major contributors to desertification. Deforestation, overgrazing by livestock, improper irrigation practices, and unsustainable agricultural methods strip the land of vegetation, reduce soil fertility, and enhance vulnerability to erosion. Human-induced changes significantly amplify the effects of natural climate variations, making this statement incorrect.
Statement 2 is incorrect:
Livestock grazing, when not managed sustainably, can contribute to desertification through a process known as overgrazing. Overgrazing occurs when animals consume

vegetation faster than it can regenerate. This leads to the degradation of plant cover, soil erosion, and the exposure of bare soil. The compacted soil resulting from trampling by livestock can impede water infiltration and nutrient cycling, exacerbating desertification. Therefore, this statement is incorrect.

Statement 3 is incorrect:

Planting trees, when done properly, can combat desertification. Trees play a crucial role in stabilizing soil through their root systems, preventing erosion. Additionally, trees contribute to the improvement of soil fertility by promoting nutrient cycling. The roots of trees enhance microbial activity in the soil, leading to increased nutrient availability. Therefore, tree planting is considered a valuable strategy for preventing and mitigating desertification.

Statement 4 is correct:

Climate change influences desertification by altering temperature and precipitation patterns. Rising temperatures contribute to increased evaporation, leading to drier soils and reduced water availability for plants. Changes in precipitation can result in more frequent and severe droughts, further stressing ecosystems. These climate-induced factors can accelerate the process of desertification, making the statement accurate.

Statement 5 is correct:

Desertification is a widespread problem with global implications. It affects around one-sixth of the world's population and a significant percentage of drylands. The consequences of desertification, such as soil degradation, loss of biodiversity, and reduced agricultural productivity, are not confined to specific regions or economic statuses. Both developed and developing nations can experience the socio-economic and environmental impacts of desertification.

Q 70: Answer B

Explanation:

Statement 1 is incorrect:

Agroecology takes a holistic approach to agriculture, emphasizing ecological principles to achieve sustainable and resilient food systems. Unlike conventional agriculture, which often relies heavily on synthetic inputs like fertilizers and pesticides, agroecology seeks to minimize external inputs. Instead, it emphasizes practices such as crop diversification, agroforestry, and integrated pest management to optimize productivity while promoting environmental health and biodiversity.

Statement 2 is correct:

Agroecology integrates ecological principles into farming systems to enhance productivity and sustainability. It recognizes the interconnectedness of ecological processes and aims to mimic natural ecosystems to create resilient and productive agricultural systems. By understanding and applying ecological principles, agroecology seeks to optimize resource use, reduce environmental impact, and enhance overall agricultural productivity.

Statement 3 is correct:

Agroecology is not only concerned with ecological aspects but also considers the social and economic dimensions of food systems. It emphasizes creating farming systems that are socially just, economically viable, and environmentally sustainable. Agroecological practices aim to empower local communities, enhance food sovereignty, and build resilient agricultural systems that benefit both farmers and consumers.

Statement 4 is incorrect:

Agroecology opposes monoculture and instead promotes agricultural diversity. Monoculture, the cultivation of a single crop over large areas, can lead to issues such as soil degradation, increased susceptibility to pests and diseases, and loss of biodiversity. Agroecological principles advocate for diversified farming systems, including intercropping, polyculture, and agroforestry, which enhance ecological resilience and contribute to sustainable agriculture.

Q 71: Answer : A

Explanation:

The most likely meteorological conditions to lead to intense lake-effect snow events are A) Warm lake temperatures and cold air aloft.

Warm lake temperatures: Large unfrozen lakes act as a reservoir of heat and moisture. During cold air outbreaks, the relatively warm lake water warms the air passing over it.

Cold air aloft: As the warmed air rises due to the temperature difference, it encounters the colder air masses above, causing condensation and precipitation.

High-temperature difference: The greater the difference between the warm lake water and the cold air aloft, the more intense the instability and the heavier the snowfall can be.

Why other options are not ideal:

B) Cold lake temperatures and warm air aloft: This scenario wouldn't create the necessary temperature contrast for significant lake-effect snow. Even if the air rises, it won't reach a cold enough temperature to condense and fall as snow.

C) High wind speeds and dry atmospheric conditions: While wind can sometimes enhance lake-effect snow by creating bands of heavier snowfall, calm winds are generally more favourable for sustained lake-effect because the air mass spends more time over the warm water, picking up more moisture. Dry air holds less moisture, limiting the potential for heavy snowfall.

D) Low wind speeds and high humidity: While low wind speeds can favour the formation of lake-effect snow, high humidity in the air aloft can limit further condensation and snowfall formation. When the air is already saturated, reaching the point of saturation due to rising becomes less likely.

Therefore, the combination of warm lake temperatures and cold air aloft provides the ideal conditions for intense lake-effect snow events to occur.

Lake-effect snow

Lake-effect snow is a fascinating winter phenomenon that can dump incredible amounts of snow in localized areas downwind of large bodies of water.

Key Ingredients:

Warm Lake Water: Large, unfrozen lakes act as a giant heat source compared to the cold air sweeping in from Canada during winter. This warm water plays a crucial role in fueling the lake-effect snow machine.

Cold Air Aloft: The air above the lake needs to be significantly colder than the lake water. This temperature difference creates instability in the atmosphere, driving the rising motion needed for snow formation.

Moisture: The air passing over the lake needs to have some moisture content for it to condense and precipitate as snow. However, extremely dry air also limits the potential snowfall.
The Upward Journey:
Warm Air Pickup: As cold air masses move across the relatively warm lake surface, the lower layer of air gets warmed by contact. This warmed air becomes less dense and begins to rise due to buoyancy.
Increased Instability: The rising air encounters colder air masses above, leading to further cooling and condensation of the moisture it carries. The greater the temperature difference between the warm lake water and the cold air aloft, the more intense the instability and the more vigorous the rising motion becomes.
Snowfall Production: As the rising air cools and condenses, tiny water droplets form. These droplets continue to cool and eventually freeze into ice crystals, which collide and grow into snowflakes. Eventually, these snowflakes become heavy enough to fall as snow.
Factors Influencing Intensity:
Wind Speed: While some wind can help channel and concentrate lake-effect snow in narrow bands, calm winds are generally more favourable. This allows the air mass to spend more time over the warm water, picking up more moisture and fueling heavier snowfall.
Atmospheric Humidity: Moderately moist air is ideal. Extremely dry air limits the amount of moisture available for condensation, while very humid air may already be close to saturation, reducing the potential for further condensation and snowfall.
When warm lake temperatures, cold air aloft, and moderate moisture levels come together with calm winds, the stage is set for an intense lake-effect snow event. The warm lake water acts as a giant heat source, fueling instability and driving the rising air. As this air cools and condenses, it produces copious amounts of snow that fall heavily downwind of the lake. Understanding these meteorological ingredients allows us to predict and prepare for these powerful winter storms.

Q 72: Answer : A
Explanation:
A) A charging pad transmits electricity wirelessly through radio waves. (Incorrect)
The inaccuracy here lies in the use of radio waves. Traditional wireless charging, such as that used in smartphones and other devices, does not utilize radio waves for power transmission. Radio waves are not efficient for short-range power transfer due to their weak coupling with the receiving device.
B) A charging pad creates a magnetic field that induces a current in a receiving coil within the device. (Correct)
This statement accurately describes the core principle of inductive charging. Wireless charging pads, based on inductive charging technology, consist of a transmitting coil in the charging pad and a receiving coil in the device to be charged. When an electric current flows through the transmitting coil, it creates a magnetic field. This magnetic field, in turn, induces an electric current in the receiving coil within the device, effectively transferring power without the need for physical connections.
C) The distance between the device and the charging pad has no impact on charging efficiency. (Incorrect)
This statement is incorrect. The efficiency of inductive charging decreases as the distance between the charging pad and the device increases. The strength of the magnetic field diminishes with distance, leading to reduced power transfer efficiency. This is why most wireless charging systems require relatively close proximity between the charging pad and the device being charged.

D) Wireless charging utilizes high-voltage AC for faster charging. (Incorrect)
Wireless charging typically involves the use of lower voltage DC (direct current) for safety reasons. Inductive charging systems commonly use low-frequency alternating current (AC) to create the magnetic field, but the actual power transferred to the device is converted to DC before being used for charging. Lower voltage is preferred for safety and to minimize heat generation during the charging process.
Wireless charging, also known as inductive charging, offers a cable-free method for powering your electronic devices. Let's delve into the nitty-gritty of this technology, exploring its inner workings, advantages, and limitations.
At the heart of wireless charging lies a principle called electromagnetic induction.
The Charging Pad: It houses a coil of wire. When an alternating current (AC) flows through this coil, it generates a fluctuating magnetic field. Imagine an invisible field rippling outwards from the pad.
The Receiver Coil: Your device (smartphone, smartwatch, etc.) also has a built-in coil. This coil is designed to interact with the magnetic field from the charging pad.
Induction in Action: As your device comes close to the pad and enters the magnetic field, something fascinating happens. The changing magnetic field from the pad's coil induces an electric current in your device's receiver coil according to Faraday's Law of electromagnetic induction.
Rectification and Charging: The induced current is alternating current (AC), but most devices use direct current (DC) for charging. The receiver coil in your device has a rectifier circuit that converts the AC to DC. This rectified DC is then used to juice up your device's battery.
Advantages of Wireless Charging:
Convenience Unmatched: No more fumbling with cables! Simply place your device on the charging pad, and voila, charging commences. It's effortless and perfect for multitaskers.
Reduced Wear and Tear: Those days of constantly plugging and unplugging cables, potentially causing damage to your device's charging port, are over. Wireless charging eliminates this physical stress.
Water Resistance: Some wireless chargers boast water resistance. This allows you to charge your device in places where traditional chargers might not be ideal, like the kitchen or bathroom.
Futuristic Appeal: Wireless charging offers a clean, cable-free aesthetic that blends seamlessly with modern environments.
Limitations to Consider:
Speed Bumps: While wireless charging is becoming increasingly efficient, it generally charges slower than wired

charging. This is because some energy is lost during the wireless transfer process.
Compatibility Check: Not all devices are created equal. Ensure your device supports wireless charging (usually indicated by the Qi symbol) before investing in a wireless charger.
Cost Factor: Wireless chargers can be more expensive than traditional cable chargers, especially for high-power models.
The true principle behind wireless charging, especially in the context of inductive charging, involves the creation of a magnetic field that induces an electric current in a receiving coil within the device. The efficiency is affected by the distance between the charging pad and the device, and a lower voltage DC is typically used for safety during the charging process.

Q 73: Answer : C
Explanation:
Trichoglossum Shyam Viswanathi, a recently identified fungus species, was discovered in the bamboo forest at the Forest Research Institute's Palapilli Field Research Centre in Thrissur, Kerala. Its habitat in bamboo forests signifies its ecological importance and role in nutrient cycling within this specific ecosystem.
The fungus is named after Dr. Shyam Viswanath, former director of the Kerala Forest Research Centre, as a tribute to his significant contributions to forest research. The naming reflects a common practice in taxonomy where species are named to honour individuals who have played crucial roles in related fields.
Trichoglossum Shyam Viswanathi, belonging to the Geoglossaceae family (Ascomycota), contributes to soil fertility by decomposing organic matter, particularly decayed plants in bamboo forests. The dissolution of decayed plants by this fungus showcases its role in nutrient recycling, which is essential for maintaining soil health and supporting plant growth in the ecosystem.

Q 74: Answer D
Explanation:
The Gulf of Guinea is a part of the Atlantic Ocean that lies near the western coast of Africa. It covers an area of 2.3 million square kilometres and has a coastline of 6,000 kilometres. The Gulf of Guinea is located at the intersection of the Equator and the Prime Meridian, making it the most northeastern part of the tropical Atlantic Ocean. The Gulf of Guinea has warm and low-salinity waters due to the heavy rainfall and the rivers that flow into it, such as the Volta and the Niger. The Gulf of Guinea is surrounded by 16 coastal countries, including Angola, Benin, Cameroon, Cote d'Ivoire, Democratic Republic of Congo, Republic of Congo, Guinea, Equatorial Guinea, Guinea-Bissau, Gabon, Nigeria, Ghana, So Tomé and Principe, Togo, and Sierra Leone.
The coastline of the Gulf of Guinea is mostly flat and swampy, with mangroves, marshes, and lagoons. The coastline also resembles the continental margin of South America, which supports the theory of continental drift. The Gulf of Guinea is rich in oil and gas resources, accounting for more than 35% of the world's petroleum and 7% of the world's gas reserves. However, the Gulf of Guinea is also one of the most dangerous gulfs in the world, due to the high incidence of piracy and armed robbery at sea. The Gulf of Guinea is important for the trade and development of many landlocked countries in Africa, such as Burkina Faso, Central African Republic, Chad, and Mali.

Q 75: Answer : D
Explanation:
2 Indians 'Vir Das and Ekta Kapoor' made history at the 51st International Emmy Awards, where they received the highest honours for their work in comedy and television. Vir Das won the Best Comedy award for his stand-up special "Vir Das: Landing", which was filmed in 13 cities across the world. Ekta Kapoor received the Directorate Award for her outstanding contributions to international television, as the producer of popular shows like "Naagin", "KasautiiZindagii Kay", and "The Test Case". Their achievements showcase their immense talent and impact on the global TV industry.
The Emmy Awards are the most prestigious awards for television and emerging media, celebrating excellence in various sectors and genres. The first Emmy Awards were held in 1949, and since then, they have expanded to include different categories such as Primetime, International, Daytime, Sports, News, Documentary, Technology, Engineering, and Regional. The Emmy Awards are distinct from film-focused awards like the Oscars and Golden Globes, as they honour the best of television.

Q 76: Answer : A
Explanation:
Statement 1 is correct because glaciers do have a high albedo, which means they reflect a significant amount of incoming solar radiation. Statement 2 is also correct because as glaciers melt, their surface area decreases, exposing darker surfaces like rock and sediment. These darker surfaces have a lower albedo and absorb more sunlight, leading to further warming and increased melting. Statement 2 provides a logical explanation for Statement 1, making option A the correct answer.
Glaciers have a high albedo, reflecting much solar radiation. Melting reduces their surface area, exposing darker rock and sediment beneath. These dark surfaces absorb more sunlight, causing further warming. Increased warmth accelerates glacier melting, creating a feedback loop. As glaciers shrink, more dark surfaces are revealed, amplifying the effect. This positive feedback intensifies climate change's impact. Melting glaciers contribute to rising sea levels and disrupt ecosystems. The loss of glaciers affects water resources and weather patterns globally. Addressing this feedback loop is crucial in climate change mitigation efforts. Understanding the albedo effect highlights the urgency of preserving glaciers for a balanced climate system.

Q 77: Answer : D
Explanation:
Statement 1 is correct:
Natural gas power plants are a significant source of carbon dioxide (CO_2) emissions. When natural gas is burned for electricity generation, it produces CO_2, contributing to climate change. Although natural gas is often considered cleaner than coal and oil due to lower emissions of pollutants like sulfur dioxide and particulates, its CO_2 emissions remain a concern. The combustion process in gas power plants releases CO_2 into

the atmosphere, adding to the greenhouse effect. Efforts to mitigate these emissions include transitioning to renewable energy sources like wind, solar, and hydropower. Carbon capture and storage (CCS) technologies are also being explored to trap and store CO2 emissions from natural gas plants. Despite its lower emissions compared to other fossil fuels, reducing reliance on natural gas and advancing towards cleaner, sustainable energy alternatives is crucial to combating climate change effectively. Policymakers and industries are increasingly focusing on transitioning away from fossil fuels to curb CO2 emissions and achieve climate-related goals. Public awareness and support for renewable energy initiatives play a vital role in accelerating the shift away from natural gas and other fossil fuels to create a more sustainable energy future.

Statement 2 is correct:

Cement manufacturing is a carbon-intensive process that begins with the heating of limestone (calcium carbonate) to create lime (calcium oxide). This chemical transformation, known as the calcination process, releases carbon dioxide (CO2) as a significant byproduct. Additionally, fossil fuels, such as coal, are frequently burned to provide the high temperatures necessary in cement kilns. This combustion of fossil fuels further releases CO2 emissions into the atmosphere. Cement production is a substantial global source of CO2 emissions, contributing to climate change. Efforts are being made to reduce emissions through various means, including the use of alternative, lower-carbon raw materials, energy-efficient technologies, and carbon capture and utilization. Sustainable practices in the cement industry are vital to mitigate its environmental impact and address climate-related concerns. Public awareness and industry innovation play crucial roles in the transition to more eco-friendly cement production methods.

Statement 3 is correct:

Livestock, particularly cows, are significant sources of methane emissions due to a natural digestive process called enteric fermentation. During digestion, microbes in the stomachs of livestock produce methane, which is then released into the atmosphere. Additionally, when livestock manure decomposes in anaerobic (low oxygen) conditions, it generates methane emissions. These methane emissions contribute significantly to global greenhouse gas concentrations, exacerbating climate change. Livestock farming, including cattle, sheep, and goats, accounts for a substantial portion of total methane emissions worldwide. Efforts to reduce these emissions include implementing dietary changes for livestock, improving manure management techniques, and promoting sustainable agricultural practices. Addressing methane emissions from livestock is essential in mitigating climate change and achieving international climate goals. Public awareness and policy initiatives play a crucial role in promoting sustainable farming practices to minimize the environmental impact of livestock-related methane emissions.

Statement 4 is correct:

Organic waste in landfills undergoes anaerobic decomposition, a process that occurs without oxygen. During this decomposition process, microorganisms break down organic materials like food scraps and yard waste, producing methane gas as a byproduct. Methane is a potent greenhouse gas with a significant impact on climate change. Landfills are a major source of anthropogenic methane emissions globally. To mitigate these emissions, some landfills have implemented methane capture systems, which collect and utilize the methane for energy production. Proper waste management practices, such as composting organic waste, can help reduce the amount of organic material sent to landfills, thereby decreasing methane emissions. Efforts to promote recycling, composting, and waste-to-energy technologies are crucial in addressing the environmental impact of organic waste decomposition in landfills. Public awareness and support for sustainable waste management practices are essential in minimizing methane emissions from organic waste decomposition.

Q 78: Answer : C

Explanation:

Statement 1 is correct:

The Wildlife (Protection) Act, 1972, allows for the Chief Wildlife Warden to issue permits for the hunting of a wild animal specified in Schedule I of the Act in exceptional cases. This permission is granted when the animal is deemed to have become dangerous to human life or is so disabled or diseased that it is beyond recovery. These permits are granted under exceptional circumstances and are subject to strict regulations to ensure that they are not misused and that conservation efforts are not compromised. The Act aims to strike a balance between wildlife conservation and human safety in such situations.

Statement 2 is correct:

The Wildlife (Protection) Act 1972, recognizes the right to self-defence and provides provisions to safeguard individuals in situations where they may need to protect themselves or others from wild animals. According to the Act, the killing or wounding of any wild animal in good faith in defence of oneself or another person is not considered an offence. This provision acknowledges the need to balance wildlife conservation efforts with the safety of human lives when encounters with wild animals pose a threat.

Statement 3 is incorrect:

Schedule V of the Act contains a list of animals that are considered as vermin. These animals are typically small wild animals that are perceived to be pests because they can carry diseases, damage crops, or destroy plants and food. As a result, they can be hunted without legal restrictions.

The four species of wild animals included in Schedule V are Common Crows, Fruit Bats, Rats, and Mice. These animals are not afforded the same level of protection as species listed in other schedules, as they are seen as posing a potential threat to agriculture and public health. However, it's important to note that hunting these animals must still be conducted in accordance with any relevant state or local regulations to ensure responsible and ethical hunting practices.

Statement 4 is correct:

Schedule VI of the Act pertains to specified plants and provides for the regulation of their cultivation, possession, sale, and transportation. Under this schedule, both the cultivation and trade of these specified plants can only be carried out with the prior permission of the competent authority.

Plants protected under Schedule VI include various species, some of which are native to India. Examples of plants listed under this schedule include Beddome's Cycad (a species native to India), Blue Vanda (Blue Orchid), Red Vanda (Red Orchid), Kuth (Saussurealappa), Slipper Orchids (Paphiopedilum spp.), and Pitcher Plant (Nepenthes khasiana).
The inclusion of these plants in Schedule VI reflects the need to conserve certain plant species that may be vulnerable or threatened due to overexploitation or habitat destruction. The Act seeks to regulate their use and trade to ensure their conservation.

Q 79: Answer : D
Explanation:
National Forest Policy of India
India is a country with rich and diverse forest resources, covering about 24.62% of its geographical area. Forests play a vital role in maintaining the ecological balance, conserving biodiversity, providing livelihoods, and meeting the socio-economic needs of the people. However, forests are also under threat from various factors such as deforestation, degradation, fragmentation, encroachment, over-exploitation, climate change, and forest fires. To address these challenges and to ensure the sustainable management of forests, India adopted a National Forest Policy (NFP) in 1988, which replaced the earlier policy of 1952.
The NFP of 1988 is based on the following principles:
- The derivation of direct economic benefit must be subordinated to the principal aim of ensuring environmental stability and maintenance of ecological balance.
- The life-supporting systems of forests must be protected and enhanced through massive afforestation and social forestry programs.
- The forest cover must be increased to at least one-third of the total land area of the country, with a minimum of two-thirds under natural forests.
- The rights and concessions enjoyed by tribals and other communities living in and around forests must be fully protected and their participation in the protection and development of forests must be ensured.
- The productivity of forests must be improved through scientific management, research, extension, and education.
- The forest-based industries must be rationalized and modernized to reduce wastage and enhance efficiency.
- The wildlife and natural heritage of the country must be preserved and protected from poaching and illegal trade.
- The international cooperation and assistance in forestry must be sought and utilized for mutual benefit.
The NFP of 1988 also lays down specific objectives and strategies for different aspects of forest management such as conservation, social forestry, tribal development, forest research, education and extension, wildlife management, forest administration, legislation, finance, monitoring and evaluation. The NFP of 1988 is considered to be a progressive and visionary policy that reflects the changing needs and aspirations of the country. It has been instrumental in guiding the formulation and implementation of various plans, programs, projects, and schemes related to forestry in India.

Q 80: Answer : D
Explanation:
Wetlands are ecosystems that are inundated or saturated by water, either permanently or seasonally, and support a variety of plant and animal life. Wetlands provide many ecosystem services such as water purification, flood control, carbon sequestration, biodiversity conservation and climate regulation. Wetlands also have socio-cultural and economic value for human well-being. However, wetlands are facing many threats such as pollution, encroachment, drainage, over-exploitation and climate change. To protect and conserve these vital ecosystems, the Ministry of Environment, Forest and Climate Change (MoEFCC) has notified the Wetland (Conservation and Management) Rules, 2017 under the provisions of the Environment (Protection) Act, 1986.
The Wetland Rules 2017 aim to establish a regulatory framework for the conservation and management of wetlands in India without restricting their wise use. The rules apply to all wetlands in the country, except those that are covered under other legislations such as forest, wildlife and coastal regulation zones.
The Wetland Rules 2017 have the following salient features:
- The rules empower the state governments and union territories to identify and notify wetlands within their jurisdictions and prepare a list of activities to be regulated and permitted within the notified wetlands.
- The rules mandate the constitution of State Wetland Authorities (SWAs) in each state and union territory to ensure enforcement of the rules and integrated management of wetlands. The SWAs will be headed by the state environment minister and include officials from various departments and experts from relevant fields.
- The rules also provide for the establishment of a National Wetland Committee (NWC) at the central level to advise the central government and SWAs on various aspects of wetland conservation and management, such as criteria for identification and notification, delineation of wetland boundaries, preparation of brief documents, development of a national wetland inventory, monitoring and assessment of wetland status and trends, etc.
- The rules prohibit certain activities in the notified wetlands that are detrimental to their ecological character, such as reclamation, diversion or interruption of water sources, conversion to non-wetland use, disposal of waste or effluents, any construction except for boat jetties or platforms for tourism purposes, etc. The rules also specify certain activities that may be allowed in the notified wetlands with prior approval of the SWAs, such as fishing, agriculture, aquaculture, tourism, etc.
- The rules require the SWAs to prepare a comprehensive list of all wetlands within their jurisdiction within six months of their constitution and notify them within a year. The SWAs are also required to prepare brief documents for each notified wetland describing its ecological features, ecosystem services, threats and management plan.
- The rules stipulate that the SWAs shall submit a report on the implementation status of the rules to the MoEFCC every six months. The MoEFCC shall review the reports and take appropriate action as per the provisions of the Environment (Protection) Act, 1986.

The Wetland Rules 2017 are expected to enhance the conservation and management of wetlands in India by strengthening the institutional framework at both central and state levels. The rules also aim to promote the wise use of wetlands by balancing their ecological functions with human needs.

Q 81: Answer : D

Explanation:

Coastal Regulation Zone (CRZ) is a term that refers to the area along the coast of India, where the government regulates various activities to protect and conserve the coastal environment and ecology. The CRZ was first notified in 1991 under the Environment Protection Act 1986 and has been revised several times since then. The latest notification was issued in 2019, with some major changes and reforms.

According to the CRZ notification, the coastal land up to 500 metres from the High Tide Line (HTL) and a stage of 100 metres along banks of creeks, estuaries, backwaters and rivers subject to tidal fluctuations, is called the Coastal Regulation Zone. The HTL is defined as the line on the land up to which the highest water line reaches during the spring tides, which occur twice a month when the sun, moon and earth are in a straight line. The Low Tide Line (LTL) is defined as the line on the land up to which the lowest water line reaches during the spring tides.

The CRZ is divided into four categories, based on the nature and extent of development in the coastal areas. They are:

- CRZ-I: These are ecologically sensitive areas that are essential for maintaining the coastal ecosystem. They include areas between the LTL and HTL, mangroves, coral reefs, dunes, salt marshes, turtle nesting grounds, national parks, marine parks, sanctuaries, reserve forests, wildlife habitats and heritage sites. No new construction or development is allowed in these areas, except for some activities related to defence, security, disaster management, fishing, salt extraction and natural gas exploration.
- CRZ-II: These are urban areas that are already substantially developed up to or close to the shoreline. They include municipal limits of cities and towns with existing roads, buildings and other infrastructure. The floor space index (FSI) or floor area ratio (FAR) norms have been unfrozen in these areas, allowing for the redevelopment of existing buildings as per the local town planning rules. However, no new construction is allowed on the seaward side of the existing road or building.
- CRZ-III: These are rural and urban localities that fall outside CRZ-I and CRZ-II. They include coastal villages, panchayats and other settlements that are not substantially developed. These areas have been further sub-divided into two categories: CRZ-III A and CRZ-III B. CRZ-III A are areas with a population density of more than 2161 persons per square kilometre as per the 2011 census. These areas have a No Development Zone (NDZ) of 50 metres from the HTL, within which only some agriculture-related and public facilities are allowed. CRZ-III B are areas with a population density of less than 2161 persons per square kilometre as per the 2011 census. These areas have an NDZ of 200 metres from the HTL, within which only some tourism-related and public facilities are allowed.
- CRZ-IV: These are aquatic areas up to the territorial limits of India. They include coastal waters, tidal waters, islands, backwaters and lagoons. Fishing and allied activities are permitted in these areas. No solid waste or sewage should be discharged or dumped in these areas. Special provisions have been made for the islands of Andaman and Nicobar and Lakshadweep for their sustainable development.

Q 82: Answer : A

Explanation

1.Schulze method: Voting system based on ranking preferences of candidates (1-B).

2.Additional Member System (AMS): Voting system combining proportional representation with single-member districts (2-C).

3.Borda count: Voting system where voters give scores to candidates in order of preference (3-A).

4.Approval voting: Voting system where voters select any number of candidates they approve (4-D).

Q 83: Answer A

Explanation

Statement 1 is correct: Arbitration is a form of ADR where parties agree to submit their dispute to a neutral third party (an arbitrator or panel) who renders a binding decision. Statement 1 accurately describes arbitration, stating that Sarah and David choose arbitration, which involves a third party making a binding decision.

Statement 2 is correct: In mediation, a neutral third party (mediator) assists disputing parties in reaching a mutually acceptable agreement. However, the mediator does not impose a decision but facilitates discussions. Statement 2 accurately describes mediation, stating that Sarah and David decide to mediate their disagreement.

Statement 3 is correct: Conciliation is similar to mediation but involves a more proactive role by the conciliator in suggesting solutions and proposals. The conciliator does not have the power to impose a decision, similar to a mediator. Statement 3 accurately describes conciliation, stating that Sarah and David choose conciliation with a conciliator assisting in finding common ground.

Q 84: Answer : B

Explanation

Statement 1 is correct: Under Article 75 of the constitution, asking questions in parliament is a constitutional right of a member of the House.

Statement 2 is incorrect: In Lok Sabha, once the notice for questions is received, ballots determine priority. Questions that are not admitted include: those that are repetitive or have been answered previously; and matters that are pending for judgment before any court of law or under consideration before a Parliamentary Committee.

Q 85: Answer : B

Explanation

1. Additional Grant - B. Granted for additional expenditure upon a new service not contemplated in the budget for that year.

2. Excess Grant - D. Granted when money has been spent on a service during a financial year in excess of the amount granted for that service in the budget.
3. Vote of Credit - A. Granted for meeting an unexpected demand upon the resources of India, like a blank cheque given to the Executive.
4. Exceptional Grant - C. Granted for a special purpose and does not form part of the current service of any financial year.
5. Token Grant - E. Granted when funds for a new proposed expenditure can be made available by reappropriation, involving a token sum.

Q 86: Answer C
Explanation
Overview of the 14 traditions and rituals from India included on the 'Intangible Cultural Heritage of India' list:
o Ramlila (2008): Traditional performance of the Ramayana during the Autumn festival of Dussehra, recounting episodes from the epic through dialogue, narration, recital, and song.
o Tradition of Vedic chanting (2008): Recitation of Sanskrit Vedas, symbolizing ancient cultural traditions and the foundation of Hinduism, practiced with specific tonal accents and pronunciation.
o Kutiyattam, Sanskrit theatre (2008): A 2,000-year-old theatrical tradition from Kerala, combining Sanskrit classicism with local elements, featuring extensive training for performers.
o Ramman, religious festival and ritual theatre of the Garhwal Himalayas (2009): Celebrating the guardian god BhumiyalDevta through music, theatre, and historical reconstructions in the villages of Saloor-Dungra, Uttarakhand.
o Mudiyettu, ritual theatre and dance drama of Kerala (2010): An annual ritual dance drama performed in Kerala villages based on the battle between the goddess Kali and the demon Darika.
o Kalbelia folk songs and dances of Rajasthan (2010): Expressive dances by the Kalbelia tribe from the Thar Desert, symbolizing their traditional way of life and adapting to socio-economic changes.
o Chhau dance (2010): Traditional dance form from eastern India, enacting local folklore, epics, and featuring distinct styles from different regions.
o Buddhist chanting of Ladakh (2012): Recitation of sacred Buddhist texts in the Ladakh region, representing different sects and forms of Buddhism.
o Sankirtana, ritual singing, drumming, and dancing of Manipur (2013): Art forms celebrating religious occasions and life stages of the Vaishnava people, promoting community bonding.
o Traditional brass and copper craft of utensil making among the Thatheras of Jandiala Guru, Punjab (2014): Skilled craftsmen practicing traditional brass and copper utensil-making techniques, defining their livelihood and community status.
o Yoga (2016): An ancient practice involving postures, meditation, controlled breathing, and chanting for holistic well-being, influencing Indian society's health, education, and arts.
o Traditions of Nawruz (Parsi New Year) (2016): Celebrations marking the Parsi New Year with rituals, ceremonies, and cultural events symbolizing brightness, purity, and livelihood.
o Kumbh Mela, North India (2017): The world's largest spiritual congregation held every four years, where devotees bathe in holy rivers to absolve sins and gain spiritual freedom.
o Durga Puja, Kolkata (2021): Annual festival in honor of the Hindu goddess Durga, celebrated with sculpting figurines, rituals, and immersion of the goddess in rivers.

Q 87: Answer: B
Explanation
The Copyright Act of 1957 has a provision called Section 38 which recognizes "Performer's Rights" for artists, including singers and actors, for their performances in literary works, movies, and songs. These rights protect the artist's work for 50 years after the performance. This amendment was made in 2012 to protect artists and ensure they receive royalties for their work. These rights cannot be transferred or sold through an agreement, and production houses cannot buy them out. This ensures that the artist retains ownership of their work and receives fair compensation for it.

Q 88: Answer : C
Explanation
Statement 1 is correct because All individuals, irrespective of race, occupation, position, or sex, are eligible except government servants (except doctors and scientists) working with PSUs. Statements 2 is correct, emphasizing the diverse categories of Padma Awards. Statement 3 is incorrect as awards are presented by the President of India, usually in March or April, comprising a certificate (Sanad) signed by the President and a medallion.
Summary of key aspects related to these awards:
• Categories: The awards are presented in three categories:
o Padma Vibhushan: For exceptional and distinguished service.
o Padma Bhushan: Recognizes distinguished service of a high order.
o Padma Shri: Honors distinguished service in any field.
• Purpose: These awards aim to acknowledge outstanding achievements across various fields that involve an element of public service.
• Disciplines: Awards are granted in diverse areas like art, social work, public affairs, science and engineering, trade and industry, medicine, literature, education, sports, civil service, etc.
• Selection Committee: The Padma Awards Committee, constituted annually by the Prime Minister, recommends the awardees.
• Nomination Process: The nomination process is open to the public, including self-nomination.
• Eligibility: All individuals, irrespective of race, occupation, position, or sex, are eligible except government servants (except doctors and scientists) working with PSUs.

- Posthumous Awards: Normally, awards are not conferred posthumously, but in exceptional cases, the government may consider it for highly deserving candidates.
- Presentation: Awards are presented by the President of India, usually in March or April, comprising a certificate (Sanad) signed by the President and a medallion. A smaller replica of the medallion is also given to wear during ceremonial or state functions if desired by the awardee.
- Limitation: The total number of awards (excluding posthumous and to NRIs/foreigners/OCIs) in a year should not exceed 120.
- 2023 Awards: For 2023, 106 Padma Awards have been approved by the President, including 6 Padma Vibhushan, 9 Padma Bhushan, and 91 Padma Shri Awards. The list includes 19 female recipients, two foreigners, NRIs, PIOs, OCIs, and seven posthumous awardees.
- Usage of Award: The Padma Award doesn't confer a title and cannot be used as a suffix or prefix to the awardees' name.

Q 89: Answer : B

Explanation

Statement 1 is incorrect: It operates under the jurisdiction of the Department of Revenue, Ministry of Finance, Government of India.

Statement 2 is correct: There are five regional offices at Mumbai, Chennai, Chandigarh, Kolkata and Delhi headed by Special Directors of Enforcement.

Statement 3 is correct: The ED Director is appointed under Section 25 of the CVC Act, 2003. The Central Government appoints a Director of ED on the recommendation of a selection committee. The committee consists of the CVC Chairperson, Vigilance Commissioners, Secretaries to the Ministry of Home Affairs, the Ministry of Personnel and the Ministry of Finance in the Central Government.

Q 90: Answer : A

Explanation

Statement 1 is incorrect: Executive Magistrates primarily focus on maintaining law and order, administrative functions, and preventive actions rather than delivering judicial verdicts in criminal cases.

Statement 2 is correct: Section 107 of the CrPC indeed empowers Executive Magistrates to maintain public peace by ordering individuals to execute bonds.

Statement 3 is incorrect: Section 151 does not grant authority to Executive Magistrates for arrests without a warrant; it refers to the authority of police officers for preventive arrests.

Q 91: Answer: A

Explanation

- Relativistic Morality pertains to the belief that moral principles and values are context-dependent and may vary across cultures or individuals. Those advocating for inclusive language likely follow this viewpoint, emphasizing the importance of respecting diverse linguistic backgrounds and accommodating different cultural sensitivities.
- Absolutist Morality, on the other hand, adheres to fixed moral principles and standards that apply universally and should not be compromised. Those opposing the policy proposal might subscribe to this perspective, emphasizing the preservation of traditional language norms and cultural heritage as paramount.

The contrasting viewpoints in the scenario—favoring inclusive language versus upholding traditional language norms—reflect the clash between Relativistic Morality (valuing contextual sensitivity and diversity) and Absolutist Morality (adhering to fixed principles and cultural heritage). These differing moral outlooks underpin the debate regarding the proposed policy on language usage in public spaces.

Q 92: Answer : C

Explanation:

Answer. C) 1, 3 and 4 only

The peninsular plateau is a triangular-shaped tableland. It is part of an ancient land mass called the Gondwana level.

It covers an area of nearly 5 lakh sq. km. It is spread over the states of Gujarat, Maharashtra, Bihar, Karnataka and Andhra Pradesh.

River Narmada divides the peninsular plateau into two parts:

(i) The central highlands and

(ii) (ii)Deccan Plateau

(i) The Central Highlands:

- extends from the Narmada River and the northern plains.
- Aravallis is an important mountain which extends from Gujrat through Rajasthan to Delhi.
- The Malwa Plateau and Chhota Nagpur Plateau are parts of the central highlands. Hence, Statement 1 is correct.
- Important River Betwa, Chambal and Ken
- Mahadeo, Kaimur and Maikal are the important hills of the Chhota Nagpur plateau.
- The valley of Narmada lies between the Vindhyas and the Satpura which flows east to west and joins the Arabian Sea.

(ii) The Deccan Plateau:

- Deccan plateau is separated by a fault from the Chhota Nagpur plateau.
- The black soil area in the Deccan plateau is known as the Deccan trap.
- formed due to volcanic eruptions and good for cotton & and sugarcane cultivation. The Deccan Plateau is broadly divided into

(a) The Western Ghats

(b) The Eastern Ghats

(a) Western Ghats:

- runs parallel to the western coast for about 1600 km.
- The average elevation of the Western Ghats is 1000 metres.
- Peaks:Doda Betta, AnaimudiamdMakurti.
- Western ghats are continuous and can be crossed through passes like Pal Ghat, ThalGhot and BhorGhat.
- rivers: Godavari, Bhima and Krishna flow eastward while the river Tapti flows westward.

(b) The Eastern Ghats:

- discontinuous low belt.
- The elevation is 600 m.
- They run parallel to the east coast from south of Mahanadi Valley to the Nilgiri hills.
- The famous hills are Mahendragiri Hills, Nimaigiri Hills in Orissa, Nallamallai Hills in Southern Andhra Pradesh, Kollimalai and Pachaimalai in Tamilnadu.

- The area is drained by the Mahanadi, Godavari, Krishna and Kaveri river systems. The Nilgiri hills join the Western & and Eastern Ghats in the south.
Peninsular River System: Nature and characteristics
much older than the Himalayan rivers.
mainly Concordant except for a few rivers in the upper peninsular region.
They are non-perennial rivers with a maximum discharge in the rainy season.
The peninsular rivers have reached the mature stage {Fluvial Landforms} and have almost
reached their base level. [Vertical downcutting is negligible].
The rivers are characterized by broad and shallow valleys.
banks have gentle slopes except for a limited tract where faulting forms steep sides.
The main water divide in peninsular rivers is formed by the Western Ghats, which run from north to south close to the western coast.
The velocity of water in the rivers and the load-carrying capacity of the streams is low due to low gradient. Hence, Statement 2 is incorrect.
Most of the major rivers of the peninsula such as the Mahanadi, the Godavari, the Krishna and the Cauvery flow eastwards and drain into the Bay of Bengal. These rivers make deltas at their mouths.
But the west-flowing rivers of Narmada and Tapi as well as those originating from the Western Ghats and falling in the Arabian Sea form estuaries in place of deltas.
The eastern coast runs along the Bay of Bengal.
It is wider than the western coastal plain.
Its average width is about 120 km.
The northern part of the coast is called Northern Circar and the southern part is called Coromandal Coast.
The eastern coastal plain is marked by Deltas made by the rivers Mahanadi, Godavari, Krishna and Kaveri.
The Chilka largest saltwater lake in India Odisha is located to the south of the Mahanadi Delta. Hence, Statement 3 is correct.
The coastal plains are belts for growing spices, rice, coconut, pepper etc. They are centres of trade & and commerce. The coastal areas are known for fishing activities, therefore large number of fishing villages have developed along the coasts. Vembanad is a famous lagoon which is located on the Malabar coast.
Nearly 33.3%the Indus basin is located in India in the states of Jammu and Kashmir, Himachal Pradesh and Punjab and 67% is in Pakistan. Hence, Statement 4 is correct.
According to the provision of the Indus Water Treaty (1960), India can use only 20% of the total water carried by the river system.
This water is used for irrigation in Punjab, Haryana, and western parts of Rajasthan.

Q 93: Answer : D
Explanation:
Answer. D) All the above
Kaziranga National Park Assam
Kaziranga National Park is a UNESCO world heritage forest established in 1985 in Assam. Karbi Anglong hills and the Brahmaputra river cover KazirangaRashtriya Udyan. It's well known for its flora and fauna.
The site used to be a designated hunting spot during the British era. The government changed the status in 1905, and the park was named Kaziranga Wildlife Sanctuary. Four vegetation types can be seen in this vast area:
Alluvial inundated grasslands
Alluvial savanna woodlands
Tropical moist mixed deciduous forests
Tropical semi-evergreen forests
Trees found in Kaziranga National Park are Kumbhi, Indian gooseberry, cotton tree, elephant apple, sugarcane, spear grass, and elephant grass.
Kaziranga National Park's famous animals
It's a tiger reserve under the forest department of the Government of Assam. The forest has many Royal Bengal Tigers, and there are currently 118 tigers in total.
Kaziranga National Park is also famous for its one-horned rhinoceros. As per the latest census, 1,641 rhinos were found, and the amount is almost two-thirds of the world's entire one-horned rhino population.
Other animals like Hoolock Gibbon, Leopard, Indian Elephant, Sloth Bear, Wild water buffalo, deer, etc., are also found here.
Kaziranga National Park is certified by BirdLife International as an Important Bird Area.

Q 94: Answer : A
Explanation:
Answer. A) 1 and 3 only
Barind Tract (alternately called the Varendra Tract in English and Borendro Bhumi in Bengali) is the largest Pleistocene-era physiographic unit in the Bengal Basin. It covers most of Dinajpur, Rangpur, Pabna, Rajshahi, Bogra, and Joypurhat districts of Rajshahi Division and Rangpur Division in Bangladesh as well as entirety of Uttar Dinajpur, Dakshin Dinajpur and most of Maldah districts in the West Bengal, India.

Q 95: Answer : B
Explanation:
Answer. B) "A" Horizon
HORIZONS/LAYERS OF SOIL
The soil profile is composed of a series of horizons or layers represented by capital letters O, A, E, B, and C. Let's see one by one.
"O" Horizon– This is the upper layer of the topsoil which is mainly composed of organic materials, hence also called organic horizon. It contains about 20 to 30% of organic matter. This horizon of soil is often black-brown or dark brown in colour, mainly because of the presence of organic content. Such a horizon is common in forest areas and visible in virgin soil.
"A" Horizon– This is the topmost mineral horizon and consists of both organic matter and other decomposed materials. It contains strong humified organic matter hence also called humus layer. And so the darker colour than others. In this layer, seed germination takes place; microorganisms are also found.
"E" Horizon– This layer is composed of nutrients leached from the O and A horizons i.e. horizon of maximum eluviation (Eluviation means removal of constituents in suspension or solution by the percolating water from upper layer to lower layer).

"B" Horizon– It is the subsurface horizon comparatively harder and more compact than topsoil and contains less humus, soluble minerals, and organic matter. it is a Horizon of maximum illuviation (illuviation means deposition or accumulation of soil materials in the lower layers) of Fe, Al oxide and silicate clays.
"C" Horizon– This is unconsolidated material beneath the solum. Accumulation of Ca, Mg, Carbonates and cementation takes place. This is the site of least weathering.
Parent material or bedrock– This is found below the "C" horizon, cemented layer, different types of rocks are present here.

Q 96: Answer : A
Explanation:
Answer. A) 6
If you travel by road from Itanagar to Bengaluru, you need to cross Itanagar, the capital of Arunachal Pradesh (origin), Assam, West Bengal, Odisha, Andhra Pradesh, and then Andhra Pradesh to Karnataka.
So, the minimum number of States within India through which you can travel, including the origin and the destination is six.

Q 97: Answer : B
Explanation:
A hawkish stance indicates that the central bank's top priority is to keep inflation low.
During such a phase, the central bank is willing to hike interest rates to curb the money supply and thus reduce demand.
A hawkish policy also indicates a tight monetary policy. When the central bank increases rates or 'tightens' the monetary policy, banks too increase their rate of interest on loans to end-borrowers, which, in turn, curbs demand in the financial system. Option B is correct.

Q 98: Answer : D
Explanation:
Stock markets are venues where buyers and sellers meet to exchange equity shares of public corporations. Stock markets are components of a Free-Market economy because they enable democratised access to investor trading and the exchange of capital.
Laws for Regulation: Securities and Exchange Board of India Act, 1992 (SEBI Act) Securities Contracts (Regulation) Act, 1956 (SCRA) Companies Act, 2013 Depositories Act, 1996 Insider Trading Regulations, 2015, Option D is correct.

Q 99: Answer : A
Explanation:
Nivesh Bandhu Portal
It is the investment portal under the Ministry of Food Processing Industries, India.
The portal provides a platform for all investors who are looking to invest in India in the food processing sector. Option A is correct.
The portal highlights the steps involved in doing business in India, the policies and facilities provided by the government, and the regulatory frameworks that are involved in setting up operations in India.
The aim of the Nivesh Bandhu Portal is:
Boost investments in the food processing sector of India.
To ease the handholding process for the investors
Tap the potential of all the subsectors in Food processing.
To guide and assist the investors with the major infrastructure available in India (Mega Food Parks, Cold Chains, and Agro-Processing Clusters),
Support investors and companies with the schemes, policies, and incentives given by the State and the Central governments.

Q 100: Answer : C
Explanation:
Fiscal Slipage: If the actual fiscal deficit is more than what was expected, it is called fiscal slippage.
Fiscal Stimulus: It consists of the attempts by Governments or Government agencies to financially stimulate an economy. A fiscal stimulus is the use of monetary or fiscal policy changes to kickstart economic growth during a recession. Government can accomplish this by using tactics such as lowering interest rates, increasing Government spending and quantitative easing, to name a few.
Fiscal Cliff: A sudden condition of availability of less cash with the public due to high taxes and reduced public expenditure after a long period of tax cuts and liberal public expenditure. It was experienced in the United States sometime back. Option C is correct.