

Q.1)

Ans) d

Exp) Option d is the correct answer.

Recently, the Cabinet has cleared a ₹30,600-crore guarantee programme for securities to be issued by the National Asset Reconstruction Company Limited (NARCL) for taking over and resolving non-performing assets (NPAs).

Statement 1 is correct: National Asset Reconstruction Company Limited (NARCL) is India's first-ever "Bad Bank". It has been incorporated as an Asset Reconstruction Company (ARC) under the Companies Act of 2013. A bad bank is an asset reconstruction company (ARC), involved in the management and recovery of bad loans or NPAs of other banks.

Statement 2 is incorrect: National Asset Reconstruction Company Limited has been set up to acquire and consolidate stressed assets for their subsequent resolution. **Public Sector Banks (not RBI) will maintain 51% ownership in the NARCL** and private lenders will hold the rest.

India Debt Resolution Company Ltd (IDRCL) is an operational entity of NARCL. It will manage the stressed assets acquired by NARCL and try to raise their value for final resolution.

Statement 3 is correct: Like any other asset reconstruction company, the NARCL will buy bad assets from banks. What sets it apart is that it has a **provision of a government guarantee** worth Rs 30,600 crore.

If NARCL-IDRCL is **unable to sell** the stressed assets or has to sell it at a loss, then the **government guarantee will be invoked**. Under this, the difference between what the commercial bank was supposed to get and what they were able to raise will be paid from the Rs 30,600 crore that has been provided by the government.

Source: NARCL: Need and Challenges - Explained, pointwise -ForumIAS Blog

Q.2)

Ans) b

Exp) Option b is the correct answer.

Fixed Term contract employment is a type of arrangement that **lasts for a specific period of time**. Arrangements of this nature typically have a **start and finish date specified on the contract**. A **Casual contract employment** generally refers to an employee that is employed by the hour and called in as needed. Casual employees are **not guaranteed work**, often **work irregular hours**, and don't receive annual or personal leave entitlements.

Statement 1 is incorrect: Both **casual and fixed-term Employment are not permanent in nature**. Fixed-term contracts last for a set period of time. Casual contracts have no set commitment from employers on the amount of work offered or the duration of employment.

Statement 2 is correct: Fixed term employees **work regular hours as outlined in their contract** but it's **not defined with respect to casual employees**. Fixed-term employees have an expectation of continued employment over a prescribed period. They work regular hours as outlined in their contract, which is generally equivalent to permanent part-time or full-time hours.

Casual employees do not have a commitment to a **minimum level of employment** over any time period. Employers have no obligation to commit to any set amount of work in advance. Employees also don't have an obligation to commit to all work that an employee offers them.

Statement 3 is incorrect: Retrenchment benefit is given to employees to compensate them for the loss of employment. **Neither fixed-term employees nor contractual workers get retrenchment benefits**. Though, fixed-term employees are ensured of the same work hours, wages, allowances and statutory benefits that permanent workers in the establishment are entitled to, they are **not provided retrenchment benefits**. They are also **not entitled to any termination notice or payment in lieu of services terminated** as a result of non-renewal of the contract of employment. This imparts flexibility to the enterprises to adjust their workforce as per their requirements and at the same time, offers workers some amount of job security.

Knowledge Base:

Different types of Employment at a Glance:

Permanent employment:

1) It covers both full-time and part-time employees.

- 2) Agreement in advance to employment conditions that they will work certain days and hours for the company on an ongoing basis until their employment is terminated.
- 3) Expect to work regular hours each week for an indefinite period of time.
- 4) Entitled to various entitlements including, but not limited to, paid annual leave, paid sick leave, paid long service leave and notice of termination

Fixed-Term contract Employment:

- 1) **Not permanent** in nature.
- 2) Fixed-term employees are hired for a set amount of time with **guaranteed hours** and employee entitlements.
- 3) Fixed-term contract employee **rights** are largely the **same as those of permanent staff**. This includes annual leave, sick leave, and personal or carer's leave.
- 4) Fixed-term employees have an expectation of continued employment over a prescribed period. They work regular hours as outlined in their contract, which is generally equivalent to permanent part-time or full-time hours.

Casual Employment:

- 1) **Not permanent** in nature.
- 2) Casual contracts have no set commitment from employers on the amount of work offered or the duration of employment.
- 3) Casual employment has no end date and can be **terminated with no notice** from either party.
- 4) Unlike permanent or fixed-term staff, casual employees have fewer entitlements and benefits.

Source: Fixed-term vs casual contract employment arrangements (businessaustralia.com)

Difference Between Fixed Term, Casual And Permanent | Employsure Blog

Q.3)

Ans) b

Exp) Option b is the correct answer.

Statement 1 is incorrect. The Finance Act 2020 amended the Finance Act 2016, introducing a new **Equalisation Levy at 2% on the online sale of goods and provision of services by a non-resident e-commerce company.**

Statement 2 is correct. Equalisation levy was introduced **to tax the online advertising revenue that overseas companies earn from India.** An Equalisation levy of 6% was introduced in 2016 on payment exceeding Rs 1 lakh a year to a non-resident service provider for online advertisements. It is direct tax.

The tax will be levied irrespective of whether the e-commerce operator owns goods/ services it is supplying to any user in India. The equalization levy will apply to both B2B as well as B2C transactions.

Source) <https://blog.forumias.com/ustr-slams-indias-equalisation-levy/>

Q.4)

Ans) c

Exp) Option c is the correct answer.

Statement 1 is incorrect. LTRO is a tool that allows banks to borrow one to three-year funds from the central bank at the prevailing repo rate. **Under LTRO, banks are required to provide government securities with similar or higher tenure as collateral.**

It is a measure that market participants expect will bring down short-term rates and also boost investment in corporate bonds. LTRO is also likely to lower corporate bond yields, deposit rates and lending rates.

Statement 2 is correct. LTRO is aimed at **injecting more liquidity in the banking system.** Thus, more funds with longer tenure will be available for banks to borrow at repo rates. As a result, the commercial banks will have more money to lend.

LTRO aims at assuring banks about the availability of durable liquidity at reasonable cost relative to prevailing market conditions. This should encourage banks to undertake maturity transformation smoothly and seamlessly so as to augment credit flows to productive sectors.

Statement 3 is correct. The Reserve Bank of India (RBI) introduced the long-term repo operations (LTRO) **to facilitate the transmission of monetary policy actions and flow of credit to the economy.**

The RBI had earlier decided to conduct special three-year long-term repo operations (SLTRO) of ₹10,000 crore at the repo rate for Small Finance Banks. The SFBs would be able to deploy these funds for fresh lending of up to ₹10 lakh per borrower. This facility was available till December 2021.

Source) <https://www.ndtv.com/business/rbi-extends-long-term-lending-facility-for-banks-till-december-31-2021-2572019>

<https://epaper.thehindu.com/Home/ShareArticle?OrgId=GSO8IACU6.1&imageview=0>

Q.5)

Ans) d

Exp) Option d is the correct answer.

The **debt-service coverage ratio (DSCR)** shows investors whether a company has enough income to pay its debts.

Statement 1 is correct: The debt-service coverage ratio (DSCR) is a **measure of the cash flow available to pay current debt obligations**. DSCR is used to analyse firms, projects, or individual borrowers. The minimum DSCR that a lender demands depends on macroeconomic conditions. If the economy is growing, lenders may lend even in case the ratio is low of a firm.

Statement 2 is correct: Debt service coverage ratio takes into consideration all expenses related to debt, including **interest expense and other obligations like pension and sinking fund obligation** (a sinking fund is made up of sums of money set aside at intervals, usually invested at interest, to meet a certain future obligation.) In this way, the DSCR is more indicative of a company's ability to pay its debt than just the debt ratio.

$$\text{DSCR} = \frac{\text{Net Operating Income}}{\text{Total Debt Service}}$$

where:

Net Operating Income = Revenue – COE

COE = Certain operating expenses

Total Debt Service = Current debt obligations

Statement 3 is correct: Debt service coverage ratio is used by the banks as a benchmark to measure the cash-producing ability of a business entity to cover its debt payments. **Lenders** not only wish to know the **cash position and cash flow** of a company but also how much **debt it currently has and its available cash to pay the current and future debt**.

Source: Debt-Service Coverage Ratio (DSCR) Definition (investopedia.com)

Importance Of Debt Service Coverage Ratio For Banks (makaan.com)

Q.6)

Ans) b

Exp) Option b is the correct answer.

US federal reserve interest rate is the interest rate that is adjusted by the **central bank of the United States**—the Federal Reserve (“the Fed”)—to conduct **monetary policy**. The decision of U.S federal reserve to increase interest rates by 2023 will have a significant impact on India.

Statement 1 is incorrect: The **US interest rate** hikes result in foreign investors **cashing out from the Indian stock markets**, as Indian markets would be far less attractive for them. The rate hike positively impacts **US treasuries’ yield**, which motivates foreign investors to pull their money out of the Indian markets and invest it in their own country.

Statement 2 is correct: An increase in interest rates would result in a **weaker rupee in comparison to the dollar (depreciation)**. This would again bring foreign investors lower returns on their investments. FPIs pulling money out of the equity and bond markets could weaken the rupee even as the dollar gets stronger with the rate hikes.

Statement 3 is correct: The hike in interest rates in US could lead to **global funds pulling out money from Indian government securities**. This could result in the Indian central bank raising interest rates to prevent FPI outflows from the Indian bond market.

Statement 4 is incorrect: The hike in interest rates in US will **not impact India's current Special Drawing Rights quota** in the IMF. International Monetary Fund (IMF) has made an allocation of Special Drawing Rights (SDR) **12.57 billion** (equivalent to around USD 17.86 billion at the latest exchange rate) to India on August 23, 2021.

Source: Explained: How US Fed Rate Hikes Could Impact Indian Markets (cnbctv18.com)

What is the Effect of Changes of US Fed rates on Indian stock market (groww.in)

Impact of Fed's Policy changes on the Indian Economy (forumias.com)

Q.7)

Ans) b

Exp) Option b is the correct answer.

Both **mutual funds** and **hedge funds** are **managed portfolios** built from **pooled funds** with the goal of achieving returns through diversification.

A **mutual fund** is a company that pools money from many investors and invests the money in securities such as stocks, bonds, and short-term debt. The combined holdings of the mutual fund are known as its portfolio. Investors buy shares in mutual funds.

A **hedge fund** is a pooled investment fund that trades in relatively liquid assets and is able to make extensive use of more complex trading, portfolio-construction, and risk management techniques in an attempt to improve performance, such as short selling, leverage, and derivatives.

Statement 1 is correct: Mutual fund investors can redeem their units on any given business day and receive the NAV (net asset value) of that day. Hedge funds, on the other hand, tend to be much less liquid as they typically require investors to lock up money for a period of years.

Statement 2 is incorrect: **Mutual funds** are offered by **institutional fund managers** with a variety of options for retail and institutional investors. Hedge funds target **high-net-worth investors**. Hedge funds require that investors meet specific accredited characteristics.

Statement 3 is correct: **Hedge Funds** are believed to generate greater returns than extensively accepted benchmarks. There is an increased dangers and risk as a result of **using derivatives and unorthodox methods**. **With respect to Mutual Funds**, there is decrease danger as a result of regulation, diversification, and dependable administration.

Source: Mutual Funds vs. Hedge Funds: What's the Difference? (investopedia.com)

Hedge Funds vs. Mutual Funds - My Blog (loansfit.com)

Q.8)

Ans) a

Exp) Option a is the correct answer.

Currency convertibility refers to the freedom to convert the domestic currency into other internationally accepted currencies and vice versa at the market determined exchange rate. Current account convertibility means freedom to convert domestic currency into foreign currency and vice versa to execute trade in goods and invisibles. On the other hand, **capital account convertibility** implies freedom of currency conversion related to capital inflows and outflows.

Statement 1 is correct: Capital Account Convertibility refers to the freedom to **convert local financial assets into foreign financial assets** and vice versa at market determined rates of exchange. It is associated with changes of ownership in foreign/domestic financial assets and liabilities and embodies the creation and liquidation of claims on, or by, the rest of the world.

Statement 2 is correct: **Full capital account convertibility** opens up the country's markets to global players including investors, businesses, and trade partners. This allows easy access to capital for different businesses and sectors, positively impacting a nation's economy.

Under CAC, local businesses can benefit from **easy access to foreign loans at comparatively lower costs—lower interest rates**. Indian companies currently have to take the ADR/GDR route to list on foreign exchanges. After full convertibility, they will be able to directly raise equity capital from overseas markets.

Statement 3 is incorrect: Capital account convertibility is thus the freedom of foreign investors to purchase Indian financial assets (shares, bonds etc.) and that of the domestic citizens to purchase foreign financial assets. It provides **rights for firms and residents to freely buy into overseas assets** such as

equity, bonds, property and acquire ownership of overseas firms besides free repatriation of proceeds by foreign investors.

Statement 4 is incorrect: There is **partial capital account convertibility** in India. Though tremendous capital account liberalisation measures were taken place since the launch of economic reforms, introduction of full capital account convertibility is yet to be implemented. In the case of current account there is full convertibility.

Source: What is Capital Account Convertibility? Is India ready for it yet? | Business Standard News (business-standard.com)

Capital Account Convertibility -ForumIAS Blog

The Pros and Cons of a Fully Convertible Rupee (investopedia.com)

Q.9)

Ans) b

Exp) Option b is the correct answer.

Option a is incorrect: **Surcharge** is an additional charge or tax. In simple words, a surcharge is a tax on tax. It is levied as a percentage on the income tax payable as per normal rates. In case no tax is due for a financial year, then no surcharge is levied. **Unlike a cess**, which is meant to raise revenue for a temporary need, **surcharge is usually permanent in nature**.

Option b is correct: Parliament can impose a surcharge for 'the purposes of the Union'. The exact import of this phrase is not clear, but it is logical that the Union can impose a surcharge only on its tax base. Unlike a cess, in the case of a surcharge, there is **no need to stipulate the purpose at the time of levy and it is the discretion of the Union** to utilise the proceeds of the surcharges for whichever purpose it deems fit.

Option c is incorrect: Pursuant to Constitution (One Hundred and First Amendment) Act, 2016, a surcharge **cannot ordinarily be imposed over and above the Goods and Service Tax**.

Option d is incorrect: The proceeds from surcharges **need not be shared with State Governments**. The concept of surcharge and the language for 'purposes of the Union' in Article 271 was interpreted to mean that surcharge proceeds are **separate from income tax proceeds** for the purposes of distribution and therefore it is not the obligation of Union to share proceeds from surcharge with the states.

Source: Microsoft Word – Vidhi Cess Surcharge Finance Commission_Final.docx (fincomindia.nic.in)

All you wanted to know about... surcharge - The Hindu BusinessLine

What is Cess, Cess News, Cess Definition | Business Standard (business-standard.com)

Q.10)

Ans) c

Exp) Option c is the correct answer.

Inflation is **the rate of increase in prices over a given period of time**. Inflation is typically a broad measure, such as the overall increase in prices or the increase in the cost of living in a country.

Statement a is correct: The consumers are appealed to **cut back the consumption of the items** which show higher inflation (called austerity). This can reduce the demand and thus lead to lowering of prices due to low reduced demand.

Statement b is correct: Government may **tighten flow of money in the system** (known as monetary measure)—central bank making money costlier (by increasing repo rate, increasing CRR, etc. in case of India). This step also has its own limitations—it is not effective if the items showing inflation are essential ones (such as wheat, rice, onion, potato, etc. because consumers don't borrow money from banks to buy them).

Statement c is incorrect: Inflation can be controlled by **increasing the supply** (decreasing the supply will further fuel inflation due to shortage of the product and increasing the demand simultaneously) of the items showing inflation, the government may go in for upscaling the production or import of the items.

Statement d is correct: The Cost side measure to control inflation includes **cutting indirect taxes which can bring in comfort and in the long-run cutting cost of production** (by scaling up technology).

Source: Ramesh Singh CHAPTER 7 INFLATION AND BUSINESS CYCLE

Q.11)

Ans) b

Exp) Option b is the correct answer.

Entry and exit of new firms in the market has a definite impact on supply and demand relationship. The implication of the entry and exit assumption considers that no firm earns supernormal profit or incurs loss by remaining in production; in other words, the equilibrium price will be equal to the minimum average cost of the firms.

As **new firms enter the market** supply curve shifts rightward, meaning the **supply increases** with more players to produce. However, demand remains unchanged. This causes the **market price to fall**.

Suppose when all the firms in the market are earning normal profit, no more firms will have the incentive to enter. Similarly, if the firms are earning less than normal profit at the prevailing price, some firms will exit which will lead to an increase in price, and with sufficient number of firms, the profits of each firm will increase to the level of normal profit. At this point, no more firm will want to leave since they will be earning normal profit here. Thus, with free entry and exit, each firm will always earn normal profit at the prevailing market price.

Source: Chapter 5.PMD (ncert.nic.in)

micro3.PDF (csun.edu)

Q.12)

Ans) a

Exp) Option a is the correct answer.

The GDP deflator is a measure of inflation. It is the ratio of the value of goods and services an economy produces in a particular year at current prices to that of prices that prevailed during the base year.

Statement 1 is correct: The GDP deflator underestimates true inflation. The reason is that the **GDP deflator** reflects the prices of all goods and services produced **domestically in the country**, whereas the CPI reflects the prices of all goods and services bought by domestic consumers.

For example, suppose the price of an airplane produced by an Indian company which is sold to the Indian Air Force rises. Although the plane is a part of GDP it is not the part of the basket of goods and services purchased by an Indian consumer. Thus, the price increase shows up in the GDP deflator, but not in the CPI.

Now suppose the Toyota raises the price of its cars. Since Toyota cars are made in the Japan, they are not a part of India's GDP. But Indian consumers buy Toyotas and so the car is part of Indian consumers' basket of goods. Hence a price increase of an imported consumer good, such as Toyota, gets reflected in the CPI, but not in the GDP deflator.

Statement 2 is incorrect: GDP deflator is available only on a **quarterly basis** (not only on annual basis) along with GDP estimates, whereas CPI and WPI data are released every month.

Source: What is the GDP deflator? - The Hindu

Underestimation of Inflation by GDP Deflator (With Calculation) (economicdiscussion.net)

Q.13)

Ans) d

Exp) Option d is the correct answer.

Statement 1 is correct: A Government Security(G-Sec) is a tradable instrument issued by the Central Government or the State Governments. It **acknowledges the Government's debt obligation**. G-Secs carry practically no risk of default and, hence, are called **risk-free gilt-edged** instruments.

Statement 2 is incorrect: Treasury bills or T-bills are **short term debt instruments** issued by the Government of India and are presently issued in three tenors, namely, 91-day, 182 day and 364 days. Treasury bills are **zero coupon securities and pay no interest**. Instead, they are issued at a discount and redeemed at the face value at maturity. For example, a 91-day Treasury bill of ₹100/- (face value) may be issued at say ₹ 98.20, that is, at a discount of say, ₹1.80 and would be redeemed at the face value of ₹100/-

Statement 3 is correct: State Development Loans (SDLs) are dated securities issued by states for meeting their **borrowings requirements**. In effect, the SDL are similar to the dated securities issued by

the central government. Purpose of issuing State Development Loans is to meet the budgetary needs of state governments. Each state can borrow upto a set limit through State Development Loans.

One remarkable feature of SDL is that it is a **market-oriented instrument** for states to mobilise funds **from the open market**. Higher the fiscal strength of a state, lower will be the interest rate (yield) it has to pay for the SDL borrowings.

Source: Reserve Bank of India - Frequently Asked Questions (rbi.org.in)

What are State Development Loans (SDLs)? (indianeconomy.net)

G-secs: RBI unveils Retail Direct Scheme -ForumIAS Blog

Q.14)

Ans) a

Exp) Option a is the correct answer.

Statement 1 is correct: **Gross Ecosystem/Environment Product'** is the total value of final ecosystem of **goods and services** supplied for **human well-being** in a region **annually**. Ecosystems that can be measured include **natural ecosystems** such as forests, grassland, wetland, desert, freshwater and ocean, and artificial systems that are based on natural processes like farmland, pastures, aquaculture farms and urban green land, etc.

Statement 2 is incorrect: Gross Ecosystem/Environment Product' can be measured in in terms of **biophysical value and monetary value**. Gross Ecosystem Product (GEP) aims to measure the **total economic value of all ecosystem products** and services.

Statement 3 is incorrect: Recently, **Uttarakhand government (not Sikkim)** may introduce a well-defined concept of ecosystem services Gross Environment Product' (GEP) its objectives.

Uttarakhand holds a distinct position historically on social awareness towards the importance of ecosystems. Therefore, Uttarakhand government has announced that it will **initiate valuation of its natural resources in the form of 'Gross Environment Product' (GEP)**, along the lines of Gross Domestic Product (GDP).

Source: Introducing Gross Environment Product in Uttarakhand: A jargon or reality? -ForumIAS Blog

Introducing Gross Environment Product in Uttarakhand: A jargon or reality? (downtoearth.org.in)

Gross Ecosystem Product (GEP) | IUCN

Q.15)

Ans) a

Exp) Option a is the correct answer.

Non-fungible tokens are unique digital items stored on a blockchain, the same network that runs cryptocurrencies. Anything digital – images, videos, music, online version of various articles – can be converted into an NFT and monetised.

Statement 1 is correct: **Cryptocurrency** is a currency and is fungible, meaning that it is interchangeable. For instance, if **you hold one crypto token, say one Ethereum, the next Ethereum that you hold will also be of the same value**. But Non-Fungible Tokens are non-fungible, that means the **value of one NFT is not equal to another**. Every art is different from other, making it non fungible, and unique.

Statement 2 is incorrect: **Both NFTs and crypto are built on blockchain**, using the same technology and the same principles. As a result, they tend to attract the same players. NFTs can be thought of as a subset of the crypto culture, and we generally need cryptocurrency to buy and sell NFTs. Both exists on a **decentralized digital platform** that's based on blockchain technology.

Statement 3 is incorrect: Several incidents of **NFT scams** have been reported including: **emergence of fake marketplaces**, unverified sellers often impersonating real artists and selling copies of their artworks for half prices. **Both, NFT and Crypto** Currency are often in news due to **security concerns**.

Source: NFT: How crypto tech made it possible to own, trade digital art -ForumIAS Blog

What Is An NFT? Non-Fungible Tokens Explained, Here's all you need to know about NFTs (indianexpress.com)

NFTs VS Cryptocurrencies: What is the Difference between the Two? (analyticsinsight.net)

NFTs vs. Crypto: What's the Difference? (defianceetfs.com)

Q.16)

Ans) c

Exp) Option c is the correct answer.

Statement a is correct. Primary succession always occurs on barren terrain. In Primary succession plants and animals first essentially **colonize a barren** and lifeless habitat. Species that arrive first in the newly created environment are called pioneer species.

Statement b is correct. Primary succession occurs in regions where the **substrate lacks soil**. Examples of Primary succession include areas where lava recently flowed, **a glacier retreated**, or a sand dune formed.

Statement c is incorrect. There is presence of **both plant and animal species** in primary succession. The pioneers through their death any decay leave patches of organic matter in which small animals can live.

Statement d is correct. The **rate of transformation** of vegetation is **very slow** in primary succession. It is very rapid in secondary succession.

Source:

Fundamental of environmental studies by Mahua Basu (Cambridge publication) chapter 4, page 137.
6TH edition ENVIRONMENT SHANKAR page 21

Q.17)

Ans) c

Exp) Option c is the correct answer.

Statement 1 is correct: The **longevity of the Antarctic vortex** is the factor enhancing favourable conditions for the **depletion of ozone**. The vortex remains, in fact, throughout the polar winter, well into midspring whereas the vortex in the Arctic disintegrates by the time the polar spring (March-April) arrives.

Statement 2 is incorrect: Halogen gases like **chlorine plays an important role in depletion of Ozone in Antarctica**. They are emitted at Earth's surface and have lifetimes longer than about 1 year. They are present in comparable abundances throughout the stratosphere in both hemispheres, even though most of the emissions occur in the Northern Hemisphere. Halogen gases enter the stratosphere primarily from the tropical upper troposphere. Stratospheric air motions then **transport these gases upward and toward the pole in both hemispheres (not towards equator)**.

Statement 3 is correct: The severe **ozone destruction** that leads to the ozone hole **requires low temperatures** to be present over a range of stratospheric altitudes, over large geographical regions, and for extended time periods. Low temperatures are important because they **allow liquid and solid Polar Stratospheric Clouds (PSCs) to form that enhances ozone destruction**. Reactions on the surfaces of these PSCs initiate a remarkable increase in the most reactive chlorine gas, chlorine monoxide. **Stratospheric temperatures are lowest in the polar regions in winter**. In the Antarctic, **minimum daily temperatures are generally much lower and less variable** than those in the other parts of the world.

Source: SHANKAR IAS Chapter 19

University of Reading (noaa.gov)

Q&As (noaa.gov)

Q.18)

Ans) b

Exp) Option b is the correct answer.

Gases that **trap heat** in the atmosphere are called **greenhouse gases**. Larger emissions of greenhouse gases lead to higher concentrations in the atmosphere. For each greenhouse gas, a **Global Warming Potential (GWP)** has been calculated to reflect how long it remains in the atmosphere, on average, and how strongly it absorbs energy. Gases with a higher GWP absorb more energy, per pound, than gases with a lower GWP, and thus contribute more to warming Earth.

Statement 1 is correct: **Methane's lifetime** in the atmosphere is much shorter than carbon dioxide (CO₂). The lifetime of methane in **atmosphere is 12 years**. Nitrous oxide is naturally present in the atmosphere as part of the Earth's nitrogen cycle, and has a variety of natural sources. **Nitrous oxide** molecules stay in the atmosphere for an **average of 114 years** before being removed by a sink or destroyed through chemical reactions.

Statement 2 is incorrect: The global warming potential of Nitrous oxide is higher than Methane. The impact of 1 pound of N_2O on warming the atmosphere is almost 300 times that of 1 pound of carbon dioxide. The Global Warming Potential of Nitrous oxide for 100-year is 298.

The comparative impact of methane is 25 times greater than CO_2 over a 100-year period. The Global Warming Potential of Methane for 100-year is 25.

Statement 3 is correct: Globally, 50-65 percent of total CH_4 emissions come from human activities. Methane is emitted from energy, industry, agriculture, land use, and waste management activities. Globally, about 40 percent of total N_2O emissions come from human activities. Nitrous oxide is emitted from agriculture, land use, transportation, industry, and other activities.

For example- Nitrous oxide can result from various agricultural soil management activities, such as application of synthetic and organic fertilizers and other cropping practices, the management of manure, or burning of agricultural residues.

Source: Overview of Greenhouse Gases | US EPA

Q.19)

Ans) a

Exp) Option a is the correct answer.

Statement 1 is correct. Ethanol is a biofuel and a common by-product of biomass left by agricultural feedstock such as corn, sugarcane, hemp, potato, etc. Blending of ethanol with gasoline as an automobile fuel will help in reducing vehicular emissions and emissions of carbon dioxide, hydrocarbons, etc. It will help reduce the oil import bill, thereby saving foreign exchange and boosting energy security.

Ethanol is greener than gasoline because the corn and crop plantations absorb carbon dioxide from the atmosphere as they grow. While the fuel still releases CO_2 when you burn it, the net increase is comparatively lower.

Statement 2 is correct. Ethanol is less efficient as a fuel. It has a lower energy content than energy-rich gasoline and diesel. The rule delivers less power when burned, which in return results in more fuel consumption and lower mileage.

Statement 3 is incorrect. Ethanol blends over 15% is highly corrosive for older vehicles as the alcohol can break down old rubber seals and can damage engines. Thus, it will reduce the longevity of automobiles.

Source) <https://www.financialexpress.com/auto/industry/indian-government-mulls-e20-ethanol-mixed-petrol-to-curb-vehicle-emissions-pros-and-cons-explained-bio-fuel-biofuel-for-cars-in-india-alcohol-ethanol-powered-cars-in-india-flexi-fuel-cars/2153563/>

Q.20)

Ans) c

Exp) Option c is the correct answer.

A coral reef is an underwater ecosystem characterized by reef-building corals. Reefs are formed of colonies of coral polyps held together by calcium carbonate. Most coral reefs are built from stony corals, whose polyps cluster in groups.

Statement 1 is correct: Cold-water coral reefs most commonly occur in continental slope settings, on deep shelves and along the flanks of oceanic banks and seamounts. They are distributed in all seas and at all latitudes. The warm water coral reefs are found in the tropics (between $30^\circ N$ and $30^\circ S$) in areas where the water is clear and over $18^\circ C$. The maximum depth for warm water corals is generally around 60 meters.

Statement 2 is incorrect: Warm water coral reef need specific environmental conditions to grow like Clear water, allowing light to reach the photosynthetic zooxanthellae; Light-absorbing adaptations enable some species to live in dim blue light. They are developed in symbiotic association with algae. But Cold-Water Coral reefs do not develop in association with symbiotic association with algae. Coldwater reefs survive by trapping plankton (small sea animals) and other tiny food particles in the water

Statement 3 is incorrect: Growth rate of Cold-Water Coral reefs is lower than the growth rate of Warm water coral reefs. The growth rate of Cold-water coral reefs is about 4-25mm per year and the growth rate of warm water coral reefs is 150mm per year.

Statement 4 is correct: Warm water reefs need the light from the sun to make food and grow. They are usually found in shallow waters where the sunlight can reach the reef. The sunlight also makes the water warm, giving it the name warm water reef. The **Great Barrier Reef is a warm water shallow reef**. The **Irish coral reefs are cold-water reefs**. They don't need the sunlight to make food so they are found much deeper in the sea. As there is no sunlight, the water is cold.

Knowledge Base: **Similarities and differences between cold-water and warm-water coral reefs:**

| | Cold-water coral reefs | Warm-water coral reefs |
|---|--|---|
| Distribution | Global – potentially in all seas and at all latitudes | Global – in subtropical and tropical seas between 30°N and 30°S |
| Number of states, countries and territories with corals | 41 so far | 109 |
| Coverage | Unknown – but studies to date indicate global coverage could equal, or even exceed, that of warm-water reefs | 284 300 km ² |
| Country with highest coral reef coverage | Unknown – at least 2 000 km ² in Norwegian waters alone, according to a rough estimate | Indonesia (51 020 km ²) |
| Largest reef complex | Unknown – Røst Reef (100 km ²) discovered in 2002 in northern Norway is so far regarded as the largest | Great Barrier Reef (more than 30 000 km ²), Australia |
| Temperature range | 4°-13°C | 20°-29°C |
| Salinity range | 32-38.8‰ | 33-36‰ |
| Depth range | 39-1 000+ m | 0-100 m |
| Nutrition | Uncertain, but probably suspended organic matter and zooplankton | Suspended organic matter and photosynthesis |
| Symbiotic algae | No | Yes |
| Growth rate | 4-25 mm/year | Up to 150 mm/year |
| Number of reef-building coral species | Few – only 6 primary species | Around 800 |
| Reef composition | Mostly composed of one or a few species | Mostly composed of numerous species |
| Age of living reefs | Up to 8 000 years | 6 000-9 000 years |
| Status | Unknown – most reefs studied show signs of physical damage; some reefs in NE Atlantic completely lost due to bottom trawling | 30% irreversibly damaged; another 30% at severe risk of being lost in the next 30 years |
| Rate of regeneration/ | Unknown – slow growth rate indicates that if | Slow (years to decades) – in most cases, |

Source: Warm & Cold Coral Reefs (askaboutireland.ie)

Coral reefs – Coastal Wiki

Similarities and differences between cold-water and warm-water coral reefs | Download Table (researchgate.net)

Q.21)

Ans) c

Exp) Option c is the correct answer.

Option a is correct: Kuno Palpur National Park of Madhya Pradesh has been designated as a potential site for Cheetah reintroduction in India. This is because of its suitable habitat and adequate prey base. KNP is 748 sq. km. in area, devoid of human settlements, forms part of Sheopur-Shivpuri deciduous open forest landscape and is estimated to have a capacity to sustain 21 cheetahs.

The other sites recommended for holding and conservation breeding of cheetah in India, in controlled wild conditions are:

- 1) Nauradehi Wildlife Sanctuary (1,197 sq. km, habitat 5,500 sq.km), Madhya Pradesh
- 2) Gandhi Sagar Wildlife Sanctuary – Bhainsrorgarh Wildlife Sanctuary complex (~2500 sq.km), Madhya Pradesh
- 3) Shahgarh bulge in Jaisalmer, Rajasthan (4,220 sq.km)
- 4) Mukundara Tiger Reserve as fenced enclosure (~80 sq.km), Rajasthan

Option b is correct: Kaziranga National Park houses the **world's largest population of Great One-horned Rhinoceros** (IUCN Status- Vulnerable).

Kaziranga National Park is located in the State of Assam. The park was declared as a National Park in 1974 and was also declared as a Tiger Reserve in 2006. In 1985, the park was designated as a **World Heritage Site by UNESCO**. It is also **recognized as an Important Bird Area** by BirdLife International for the conservation of avifaunal species.

Option c is incorrect: Haryana has two national parks - Kalesar National Park and Sultanpur National Park.

Sultanpur National Park is situated in the Gurgaon district of Haryana. It supports more than 220 species of resident, winter migratory and local migratory water birds, including the critically endangered sociable lapwing. It has been included in the Ramsar list.

Kalesar National Park is situated in the foot hills of Shiwalik ranges. It falls under Yamunanagar District of Haryana. It is named after the Kalesar (shiva) temple located in a protected area. The whole area is full of bio-diversity having dense Sal forests, Khair forests and patches of grasslands.

Option d is correct: Gir National Park and Wildlife Sanctuary (Gujarat) is the only place in the world where Asiatic lions are found. The Gir National Park and Wildlife Sanctuary is located in the Junagadh district of Gujarat. The Gir Forests is the only natural habitat of Asiatic lions. It was declared as a sanctuary in 1965 and a national park in 1975.

Source: <https://blog.forumias.com/kaziranga-national-park/>

<https://blog.forumias.com/jim-corbett-national-park/>

<https://blog.forumias.com/rare-pygmy-hogs-released-in-assams-manas-national-park/>

<https://blog.forumias.com/sultanpur-bhindawas-wetlands-near-delhi-get-ramsar-tag/>

<https://haryanaforest.gov.in/centers/kalesar-national-park-district-yamunanagar/>

Q.22)

Ans) c

Exp) Option c is the correct answer.

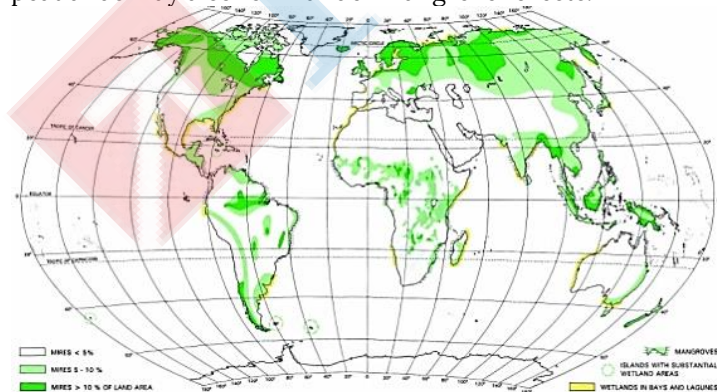
Peatland stores the carbon the plants absorbed from the atmosphere within peat soils, providing a net-cooling effect and helping to mitigate the climate crisis.

Statement 1 is correct: Peatlands are a type of wetland. The term 'peatland' refers to the peat soil and the wetland habitats growing on the surface. In peatlands, **year-round water-logged conditions** slow plant decomposition to such an extent that dead plants accumulate to form peat.

Statement 2 is incorrect: Peatland landscapes are varied: from temperate blanket mires with open, treeless vegetation such as the Flow Country of Scotland to swamp forests in Southeast Asia.

The majority of the world's peatlands occur in boreal and **temperate parts of the Northern Hemisphere**, especially, Europe, North America and Russia where they have formed under high precipitation-low temperature climatic regimes.

In the **humid tropics**, regional environmental and topographic conditions enable peat to form under conditions of high precipitation and high temperature in Southeast Asia, mainland East Asia, the Caribbean, Central America, South America, Africa, parts of Australasia and a few Pacific Islands. Tropical peatlands may also form under mangrove forests.



Statement 3 is correct: Peatlands are a type of wetland which is critical for preventing and mitigating the effects of climate change. Peatlands are the **largest natural terrestrial carbon store**. They store more carbon than all other vegetation types in the world combined.

Knowledge Base: New areas are still being discovered. The world's largest tropical peatland was identified beneath the forests of the Congo Basin in 2017. The new study found that the Cuvette Centrale peatlands in the central Congo Basin, which were unknown to exist five years ago, cover 145,500 square kilometres – an area larger than England.

In many parts of the world, peatlands supply food, fibre and other local products that sustain economies. They also preserve important ecological and archaeological information such as pollen records and human artifacts.

Damage to peatlands causes biodiversity loss. For example, the decline of the Bornean orangutan population by 60% within 60 years is largely attributed to the loss of peat swamp habitat.

Source: <https://www.leeds.ac.uk/news-environment/news/article/3969/world-s-largest-tropical-peatland-discovered-in-congo-swamps#:~:text=A%20vast%20peatland%20in%20the,an%20area%20larger%20than%20England.>

<https://www.iucn.org/resources/issues-briefs/peatlands-and-climate-change#:~:text=Peatlands%20are%20a%20type%20of%20wetland%20which%20occur%20in%20almost,of%20peatlands%20Photo%3A%20C%2%A9%20IUCN>

Q.23)

Ans) b

Exp) Option b is the correct answer.

Four species of fauna and 18 species of flora have gone extinct in India in the past few centuries, according to wildlife survey organizations.

Statement 1 is incorrect. The Malabar Civet (*Viverra civettina*) is considered to be one of the world's rarest mammals. It is endemic to India and was first reported from Travancore, Kerala. It is nocturnal in nature and found exclusively in the Western Ghats. It is listed as **Critically Endangered** on the IUCN Red List.

Statement 2 and 4 is correct: Among mammals, the **cheetah** (*Acionyx jubatus*) and the **Sumatran rhinoceros** (*Dicerorhinus sumatrensis*) are considered extinct in India.

The **pink-headed duck** (*Rhodonessa caryophyllacei*) is feared extinct since 1950 and the **Himalayan quail** (*Ophrysia supercilios*) was last reported in 1876.

As per information given by the Botanical Survey of India, 18 species of plants – four non-flowering and 14 flowering – have gone extinct. The notable among them are *Lastreopsis wattii*, a fern in Manipur discovered by George Watt in 1882 and three species from the genus *Ophiorrhiza*, all discovered from peninsular India. *Corypha taliera* Roxb, a palm species discovered in Myanmar and the Bengal region by William Roxburgh is also extinct.

Factors like competition, predation, natural selection, and human induced factors like hunting, habitat degradation are some of the important reasons that have led to these extinctions.

Statement 3 is incorrect: **Jerdon's Courser** is a **Critically Endangered species**. It is threatened by the exploitation of scrub-forest, livestock grazing, disturbance and quarrying. There have been no confirmed sightings since 2009. It is a restricted-range endemic found locally in India in the Eastern Ghats of Andhra Pradesh. It is currently known only from Sri Lankamalleswara Wildlife Sanctuary, where it inhabits sparse scrub forest with patches of bare ground.



Source: <https://www.thehindu.com/news/national/vanishing-wildlife-22-species-have-gone-extinct-in-india/article61589898.ece>

<http://datazone.birdlife.org/species/factsheet/22694103>

Q.24)

Ans) b

Exp) Option b is the correct answer.

Stockholm Convention is an international environmental treaty, signed in 2001 and effective from 2004.

Statement 1 is incorrect: The Rotterdam Convention is a multilateral treaty to promote shared responsibilities in relation to importation of **hazardous chemicals**.

Stockholm Convention aims to eliminate or restrict the **production and use of persistent organic pollutants (POPs)**. These 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 humans and wildlife.

Statement 2 is correct: The Global Environmental Facility (GEF) is the designated financial mechanism for the Stockholm Convention.

Statement 3 is incorrect: India signed this Stockholm Convention in 2002. Later, India **ratified it in 2006**. The Union Cabinet has approved the Ratification of seven chemicals listed under the Stockholm Convention on Persistent Organic Pollutants (POPs). The seven POPs prohibited from manufacturing, trading using, importing and exporting are:

- 1) Chlordecone
- 2) Hexabromobiphenyl
- 3) Hexabromodiphenyl ether and Hepta Bromodiphenyl Ether
- 4) Tetrabromodiphenyl ether and Pentabromodiphenyl ether
- 5) Pentachlorobenzene
- 6) Hexabromocyclododecane and
- 7) Hexachlorobutadiene.

The ratification process would enable India to access the Global Environment Facility (GEF) financial resources.

Knowledge Base:

Initially, twelve POPs have been recognized as causing adverse effects on humans and the ecosystem and these can be placed in 3 categories:

- 1) Pesticides: aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, toxaphene;
- 2) Industrial chemicals: hexachlorobenzene, polychlorinated biphenyls (PCBs); and
- 3) By-products: hexachlorobenzene; polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDF), and PCBs.

Stockholm Convention calls for international action on three categories of POPs: pesticides, industrial chemicals and unintentionally produced POPs.

- 1) POPs under Annex A of the Convention are to be eliminated.
- 2) POPs under Annex B of the Convention are to be restricted.
- 3) Unintentionally produced POPs under Annex C of the Convention are to be restricted or eliminated.

Source: <https://blog.forumias.com/ratification-of-seven-7-chemicals-listed-under-stockholm-convention-on-pops/>

<http://www.pops.int/Home/tabid/2121/Default.aspx>

https://blog.forumias.com/international-conventions-and-organizations/#917_Rotterdam_Convention

Q.25)

Ans) a

Exp) Option a is the correct answer.

Stubble burning refers to the practice of farmers setting fire to plant debris that remain in farms after harvest. In Punjab and Haryana, the menace of rice straw had led to burning the stubble to quickly eliminate the paddy stubble. This has contributed significantly to the national capital's notorious wintertime air pollution.

Statement 1 is correct: Super SMS (Straw Management System): It cuts and spreads the straw in uniform manner in the field at the time of harvesting of paddy. It is one of the technological interventions to control stubble burning in India.

Statement 2 is incorrect: Genetically engineered (GE) crops provide protection against insects and diseases, or tolerance to herbicides and pesticides apart from giving increased yield to the farmers. **They have no role in producing less stubble** after harvesting.

Statement 3 is correct: Happy Seeder is a tractor-mounted device. It **cuts and lifts the residue** of previous crop (in this case **the rice straw**) and **sows a new crop (wheat)** in its place. It is a direct sowing machine that is capable of seeding for the new wheat crop even in presence of the rice straw residues on the soil surface without any tillage.

Statement 4 is incorrect: A long term solution to reduce stubble burning is to **replace long-duration paddy varieties with shorter duration (not long duration) varieties like Pusa Basmati-1509 and PR-126**. They can be harvested in the third week of September itself. This will widen the window between the end of the rice season and start of the wheat season, allowing enough time for the paddy stubble to decompose, and eliminate the need for stubble-burning.

Knowledge Base:

Another machine is the paddy straw chopper-cum-spreader – to chop paddy straw left behind on mechanically harvested paddy fields. It chops the straw into pieces and spreads it around the field in a single operation, so wheat-sowing becomes easy.

A machine called a straw baler compress the crop residue into compact bales.

Source: <https://science.thewire.in/environment/stubble-burning-punjab-haryana-rice-harvesting-wheat-sowing-delhi-air-pollution/>

<https://www.downtoearth.org.in/news/agriculture/here-is-a-solution-for-crop-residue-burning-problem-66149>

Q.26)

Ans) a

Exp) Option a is the correct answer.

India is a biodiversity rich country which is also one of the mega hotspots of biodiversity. However increasing economic and developmental activities have posed a risk to many key animals in this list, which is often reflected in their distribution.

Statement 1 is correct: The **Dugong** is found on **both the eastern as well as the western coasts** of India. On the **eastern coast** it is found in **Gulf of Mannar, Palk Bay** and around **Andaman & Nicobar islands**. On the **western coast**, the Dugongs are found in the **Gulf of Kutch**.

Statement 2 is incorrect: The Indian **Star Tortoise** is found in **only 6 states** in **India** in the **northwestern and southern region** of India (and an **occasional pocket in Central India**). It is found distributed in **Gujarat and Punjab** in the Northwest; in **Karnataka, Kerala and Tamil Nadu** in Southern India, and in some **patches in Odisha** in Central India.

Statement 3 is correct: The **Great Indian Bustard** was initially found all over India, but in recent years its distribution has **become limited to two areas in India** – one of them being the **semi-arid and sub-humid grasslands of Deccan** (in states like **Maharashtra, Karnataka and Andhra Pradesh and Telangana**). The other region, where the **majority** of present day population is present is the **northwestern** part of India (in states like **Gujarat and Rajasthan**).

Statement 4 is incorrect: This statement is **incorrect** as the **Red Panda** is found **distributed in not one but multiple states** in **North East India**. It is distributed in **Sikkim, Darjeeling** (in West Bengal), **western Arunachal Pradesh and parts of Meghalaya**.

Knowledge Base:

DUGONG:

IUCN STATUS: Vulnerable

Protected under – Wildlife Protection Act, 1972 Schedule I; CITES Appendix I

Distributed along 30 countries in tropical Indo-Pacific waters.

State animal of Andaman & Nicobar islands

Flagship species. It is a mammal. Also called sea cow; herbivorous; feeds on seagrass

Reasons for loss: The loss of seagrass habitats, water pollution and degradation of the coastal ecosystem due to developmental activities, accidental entanglement in fishing nets and collision with boats, trawlers. STAR TORTOISE:

IUCN STATUS: Vulnerable

Protected under: Wildlife Protection Act, 1972 Schedule IV, CITES Appendix I

Found in Pakistan, India and Sri Lanka.

India has largest wild population of star tortoises

Dangers: Poaching for meat, pet keeping, Habitat destruction

GREAT INDIAN BUSTARD:

IUCN Status: Critically Endangered

Protected Under: Schedule I of Wildlife Protection Act, 1972; Appendix I of CITES, CMS convention

Flightless birds; One of the heaviest birds, that cannot fly,

Prefer open short grassland as habitat

Dangers: Poaching for meat and eggs, collisions with high tension electric wires, fast moving vehicles and free-ranging dogs in villages, habitat loss

RED PANDA:

IUCN Status: Endangered

Protected under: Schedule I of Wildlife Protection Act, 1972.

Distributed globally in India, Nepal, Bhutan, southern China and Myanmar

Preferes mixed deciduous and conifer forests with dense understories of bamboo at altitudes between 2200-4800 m as its habitat

India has both subtypes of Red Panda - Himalayan and Chinese (east of River Siang in Arunachal Pradesh)

Threats: Habitat fragmentation & loss; occasional poaching, attack by feral dogs.

Source: <https://indianexpress.com/article/technology/science/indias-first-dugong-conservation-reserve-7494506/>

<https://science.thewire.in/environment/indian-star-tortoises-are-slowly-and-steadily-losing-the-race-for-survival/#:~:text=These%20reptiles%E2%80%99%20natural,-range%20encompasses,-India%2C%20Pakistan%20and>

https://www.wwfindia.org/about_wwf/priority_species/threatened_species/great_indian_bustard/

https://www.wwfindia.org/about_wwf/priority_species/red_panda/about_red_panda

Q.27)

Ans) c

Exp) Option c is the correct answer.

This question is based on the article “**World freed from toxic leaded petrol: A global win**” published in the Down to Earth on 31st August 2021. Globally, automotive fuel is completely lead-free now. Not a single fuel outlet sells leaded petrol any more anywhere. It was announced formally by the **United Nations Programme on Environment (UNEP)** at a press event August 30, 2021. It has taken 100 years to stop the use of leaded fuel finally.

Statement 1 is incorrect: Lead is a naturally occurring toxic metal found in the Earth’s crust. Important sources of environmental contamination include **mining, smelting, manufacturing and recycling activities**, and, in some countries, the continued use of leaded paint and leaded aviation fuel. More than **three quarters of global lead consumption** is for the manufacture of **lead-acid batteries for motor vehicles**.

Statement 2 is incorrect: According to the WHO, there is **no known safe level of lead exposure**. Relatively low levels of lead exposure that were previously considered 'safe' have been shown to damage children's health and impair their cognitive development. Lead is a **potent neurotoxin** that, with even low-level exposure, is associated with a **reduction in IQ scores, shortened attention spans and potentially violent** and even criminal behaviour later in life. Lead in the body is distributed to the brain, liver, kidney and bones. It is stored in the teeth and bones, where it accumulates over time. Human exposure is usually assessed through the measurement of lead in blood. Lead in bone is released into blood during pregnancy and becomes a source of exposure to the developing foetus.

Statement 3 is correct: Tetraethyl lead” was used in early model cars to help reduce engine knocking, boost octane ratings, and help with wear and tear on valve seats within the motor. However, lead has

damaging impact on the **emissions control systems of vehicles**. Evidence suggests that lead in petrol **damages the catalytic converters**.

Statement 4 is correct: UN Environment Programme (UNEP) began its campaign to eliminate lead in petrol in 2002. While all countries have followed different timelines for the lead phaseout, developing countries, especially those in Africa and a few in Asia, have taken the longest time. **Algeria** was the last country in 2021 to phaseout lead from petrol.

India was among those countries that took early action to phase out leaded petrol. Initially, low-leaded petrol was introduced in Delhi, Mumbai, Calcutta and Madras in 1994, followed by unleaded petrol in 1995. The **entire country got low-leaded petrol in 1997** while leaded fuel was banned in the National Capital Territory of Delhi. The **final introduction of unleaded petrol in the entire country was mandated in April 2000**.

Source: World freed from toxic leaded petrol: A global win -ForumIAS Blog

Era of leaded petrol over, eliminating a major threat to human and planetary health (unep.org)

The-toxic-truth-children's-exposure-to-lead-pollution-2020.pdf (unicef.org)

Lead poisoning (who.int)

Q.28)

Ans) d

Exp) Option d is the correct answer.

Lichens are composite organisms that are formed as a result of the association of fungi and algae. They are also found in nearly all the ecosystems.

Statement 1 is correct: Lichens are excellent **indicator of the air quality**. Because lichens have no roots or protective surface, they cannot filter what they absorb, so whatever is in the air is taken straight inside. If there are pollutants, it can accumulate in the lichen and can become toxic very quickly.

Statement 2 is correct: Lichens play an important role in the **formation of soil** and as primary succession pioneers. They are often the first line of biological invasion on bare rock and recent lava flows. In addition to forming soil, lichens act as intersystem nutrient sinks, contributing to the enrichment of a landscape with minerals and nutrients.

Statement 3 is correct: Lichen plays an important role in **fixing nitrogen**. They are capable of converting nitrogen from the air into nitrate. This conversion of nitrogen impacts the ecosystem because when it rains, nitrates are leached from lichens and is used by soil-based plants. E.g. Cyanobacteria in cyanolichens can fix nitrogen for their nutrition.

Statement 4 is correct: Humans use some lichens for food. E.g. Parmelia. Its species are used as curry powder in India. But some can be poisonous.

Knowledge Base:

Other benefits of Lichens:

- 1) Litmus which is a dye used as an indicator of acid and base, is obtained from lichens *Rocella tinctoria* and *Lasallia pustulata*.
- 2) They are used as a source of medicines. For example, usnic acid which is obtained from *Usnea*, is an antibiotic used in the treatment of various infections.
- 3) Some lichens are used in the production of perfume and essential oils.

Source: <https://pubmed.ncbi.nlm.nih.gov/17301502/>

<https://www.nhm.ac.uk/discover/nature-and-pollution-what-lichens-tell-us-about-toxic-air.html#:~:text=Lichens%20love%20clean%20air%20too,the%20air%20we%20are%20breathing.>

<https://digitalcommons.humboldt.edu/cgi/viewcontent.cgi?article=1078&context=ideafest#:~:text=The%20are%20two%20primary%20types,to%20where%20they%20are%20carried.>

<https://owlcation.com/stem/Lichens-and-People-Surprising-Interesting-and-Helpful-Uses#:~:text=Lichens%20perform%20useful%20functions%20in,rock%20breakdown%20and%20soil%20formation.>

Q.29)

Ans) d

Exp) Option d is the correct answer.

The Clydebank Declaration is an initiative to support the establishment of green shipping corridors – zero-emission shipping routes between 2 ports.

The Clydebank Declaration is a decarbonisation initiative based on the Zero Emissions Shipping Mission started by Denmark, Norway and the US in July 2021. It was proposed by the UK.

Currently there are a total of 19 signatories including Australia, Belgium, Canada, Chile, Costa Rica, Denmark, Fiji, Finland, France, Germany, Republic of Ireland, Japan, Marshall Islands, Netherlands, New Zealand, Norway and Sweden.

It aims at decarbonising and reducing emissions from global shipping activities. It is not related to land degradation prevention efforts.

It was announced at the recent CoP 26 of the UNFCCC held in Glasgow in 2021.

India has so far not signed on to the Clydebank Declaration.

Source: <https://www.wfw.com/articles/the-clydebank-declaration-green-corridors-kickstarting-the-adoption-of-long-term-solutions/#:~:text=Zero%2DEmissions%20Shipping%20Mission>

<https://timesofindia.indiatimes.com/world/europe/countries-at-cop26-launch-plan-for-net-zero-shipping-lanes/articleshow/87631345.cms>

<https://www.gov.uk/government/publications/cop-26-clydebank-declaration-for-green-shipping-corridors>

Q.30)

Ans) a

Exp) Option a is the correct answer.

Aestivation is a state of animal dormancy that is exhibited by certain animal species in response to high temperatures and arid conditions. Invertebrate and vertebrate animals are known to enter this state to avoid damage from high temperatures and the risk of desiccation. Both terrestrial and aquatic animals undergo aestivation.

Statement 1, 2 and 3 is correct: Aestivation takes place in cold-blooded animals like snails, earthworms, frogs, reptiles (salamander) and fish (African lungfish), etc.

Statement 4 is incorrect: Bats show hibernation and not aestivation. Hibernation takes place in warm and cold-blooded animals like bats, mammals, birds, etc. It prevents any internal body damage due to low temperatures.

Knowledge Base: Aestivation is characterized by inactivity and a lowered metabolic rate. The primary physiological and biochemical concerns for an aestivating animal are to –

- 1) conserve energy.
- 2) retain water in the body
- 3) ration the use of stored energy
- 4) handle the nitrogenous end products.
- 5) stabilise body organs, cells, and macromolecules.

Source: <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/aestivation>

Q.31)

Ans) c

Exp) Option c is the correct answer.

Recently, Odisha government has decided to give a facelift to the 11th century Lingaraj Temple, akin to its pre-350-year structural status. **Lingaraj Temple** is a Hindu temple dedicated to Shiva and is one of the oldest temples in Bhubaneswar, Odisha.

Statement 1 is correct: The temple is believed to be built by the kings from the Somavamsi dynasty, with later additions from the Ganga rulers. The Somavamshi dynasty ruled parts of present-day Odisha in eastern India between the 9th and the 12th centuries.

Statement 2 is incorrect: The Lingaraj temple is a classic example of Kalinga style of architecture and is not built in Panchayatana style. It is a style of Hindu architecture which flourished in the ancient Kalinga previously known as Utkal and in present eastern Indian state of Odisha. The style consists of three distinct types of temples: Rekha Deula, Pidha Deula and Khakhara Deula.

Statement 3 is correct: The Lingaraja temple faces east and is built of sandstone and laterite. The main entrance is located in the east, while there are small entrances in the north and south. The temple is built

in the **Deula style** that has four components namely, **vimana (structure containing the sanctum)**, **jagamohana (assembly hall)**, **natamandira (festival hall)** and **bhoga-mandapa (hall of offerings)**, with all four in axial alignment with descending height.

Source: Odisha to give facelift to 11th century Lingaraj Temple -ForumIAS Blog

Q.32)

Ans) a

Exp) Option a is the correct answer.

The Indian legal and judicial system originated during the period of Buddha. Formerly people were governed by the tribal law, which did not recognize any class distinction. However, by now the tribal community had been clearly divided into four orders: brahmanas, kshatriyas, vaishyas, and shudras.

Option a is incorrect: The **civil and criminal law were set out in the Dharmashastras**. They were **administered by royal agents** (not by priests) who inflicted rough and ready punishments such as scourging, beheading, and tearing out of the tongue.

Option b is correct: In many instances, **punishments for criminal offences** were governed by the **idea of revenge**, that is, a tooth for a tooth and an eye for an eye.

Option c is correct: The Dharmasutras set out the duties of each of the four varnas, and the civil and criminal law came to be **based on the varna division**. The higher the varna, the purer it was, and the higher the level of moral conduct expected of the upper varna by civil and criminal law. Crimes committed by them against the brahmanas and others were severely punished, but those committed against the shudras were lightly treated.

Option d is correct: Although the brahmanical law-books took into account the social status of the different varnas in framing their laws, they did not ignore the customs of the non-Vedic tribal groups. Some of these **indigenous tribals** were given fictitious social origins and allowed to be **governed by their own customs**.

Source: India's Ancient Past by RS Sharma – Chapter 17 State Structure and the Varna System in the Age of the Buddha.

Q.33)

Ans) d

Exp) Option d is the correct answer.

Statement 1 is correct: The British government's attitude changed after the World War 2. In September 1945, it was announced that a constituent assembly would be convened after the elections and that the government was working according to the spirit of the Cripps Offer. **This was due to the support for INA trials**. Demands of leniency for INA prisoners from within the Army had raised fears that the **armed forces may not be as reliable** if the Congress started a 1942-type mass movement, this time aided by the provincial ministries.

Statement 2 is correct: In 1943, Subash Bose formed a **women's regiment** in the INA. It was named as the Rani of Jhansi Regiment commanded by Captain Lakshmi Swaminathan (Sahgal after marriage). While those less suited to combat duties were employed as nurses and in other support roles, the majority **were trained as soldiers**. They were given the **same treatment as the men** and received no special privileges.

Statement 3 is correct: The high pitch and intensity at which the campaign for the release of INA prisoners was conducted was unprecedented. The campaign spread over a wide area of the country and witnessed the participation of diverse social groups and political parties. Pro-INA sentiments surfaced in traditional bulwarks of the British Raj **government employees collected funds**. The loyalists appealed to the government to abandon the trials for good Indo-British relations.

Knowledge Base: Defence of INA prisoners in the court was organized by Bhulabhai Desai, Tej Bahadur Sapru, Kailash Nath Katju, Jawaharlal Nehru and Asaf Ali.

Source: A Brief History of Modern India by Rajiv Ahir 2019 Edition – Chapter 24 Post-War National Scenario – P 465-466.

Q.34)

Ans) a

Exp) Option a is the correct answer

Statement 1 is correct: At the siteof the Sannati major rock inscription in Gulbarga district of Karnataka, a nearby Stupa contains the only surviving engraved rock **portrait of Asoka**. It shows Asoka sitting on his throne.**Statement 2 is incorrect:** Two other major rock edicts - at Mansehra in Khyber-Pakhtunkhwa, Pakistan and in Kandahar, Afghanistan, are also present outside the international boundary of modern day India. However, these were included in the peripheral areas under Mauryan control in ancient times.**Statement 3 is incorrect.** Most Asokan inscriptions were **written in the Prakrit language and not in Pali**. Most of the Prakrit inscriptions were written in the Brahmi script. However, **in the north-western part of the empire, the Kharoshthi script was used**, which was derived from the Aramaic script then prevalent in Iran.

Source: Themes in Indian History I, NCERT XII, Chapter-2, Pg. 32

Q.35)

Ans) a

Exp) Option a is the correct answer.

The Kakatiya dynasty was a South Indian dynasty that ruled most of eastern Deccan region comprising present day Telangana and Andhra Pradesh, and parts of eastern Karnataka and southern Odisha between 12th and 14th centuries.

Statement 1 is correct: Early Kakatiya rulers served as **feudatories to Rashtrakutas and Western Chalukyas** for more than two centuries. They assumed sovereignty under Prataparudra I in 1163 CE by suppressing other Chalukya subordinates in the Telangana region. The Western Chalukya was also called **Kalyani Chalukya** after its regal capital at Kalyani.**Statement 2 is correct:** The **capital of Kakatiya** was at '**Orugallu**' or 'Ekasilanagaram' (presently Warangal). The term Orugallu indicates a city carved out of a single large rock. Orugallu was the capital of the Kakatiya dynasty from the 12th century until it was defeated by the Delhi Sultanate in the 14th century.**Statement 3 is incorrect:** **Ramappa (Rudreswara) Temple** is also known as the Ramalingeswara (Lord Siva) temple. The temple is located in the Palampet village of Venkatapur Mandal in Telangana's Mulugu (old Warangal) district. The temple was constructed in 1213 AD during the reign of the **Kakatiya Empire by Recherla Rudra**, a general of **Kakatiya king Ganapati Deva**.The presiding deity of the temple is Ramalingeswara Swamy. The temple is known as the Ramappa temple after the sculptor who executed the work in the temple for 40 years. The United Nations Educational, Scientific and Cultural Organization (UNESCO) have inscribed the Ramappa Temple as a UNESCO '**World Heritage Site**'.Source: <https://whc.unesco.org/en/list/1570/><https://blog.forumias.com/telanganas-ramappa-temple-inscribed-as-unesco-world-heritage-site/><https://www.thehindu.com/features/metroplus/the-natural-historical-and-architectural-glory-of-warangal-captivates-historians-filmmakers-and-the-regular-tourist/article8004749.ece>https://en.wikipedia.org/wiki/Kakatiya_dynasty

Q.36)

Ans) b

Exp) Option b is the correct answer

The Indian capitalist class remained broadly within the nationalist camp particularly since the 1920s. It gradually came to believe that only a national government could bring about economic development in India.

Statement a is correct: During the Rowlatt Satyagraha and the Non-cooperation movement very few capitalists made donations for the Congress. **No industrialist signed the satyagraha pledge** against the Rowlatt Bills in 1919. The big industrialists did not come out in support of the national movement during the anti-Rowlatt agitations, though the small traders were fully supportive and active.

Statement b is incorrect: Some industrialists such as **Purshottamdas Thakurdas, Jamnadas Dwarkadas, Cowasji Jahangir** and C. Setalvad openly **opposed the Non-Cooperation movement**. For this purpose, they formed an **Anti-Non-cooperation Society in Bombay**.

Statement c is correct: In the initial phase of the movement, the business groups suffering from Depression and irked by governmental apathy, extended support to the movement. The **Indian business class initially supported the Civil Disobedience Movement** launched by Gandhi to get concessions from the British government. The Federation of Indian Chambers of Commerce & Industry (FICCI) restrained the industrialists from participating in the Round Table Conference as a mark of solidarity with the Congress. Thakurdas was persuaded to resign his seat in the central legislative assembly.

Statement d is correct: The **Bombay Plan** was devised by the Indian capitalists in 1944. It proposed the **role of a national state in promotion of industrialisation**, particularly in the areas of heavy and capital goods industries as well as in developing infrastructure. It backed the idea of long-term economic planning and **state control of certain industries**, particularly heavy industries. The Indian capitalist class realised that it was not strong enough to undertake investment in such core areas of economy.

Source: <https://egyankosh.ac.in/bitstream/123456789/44331/1/Unit-27.pdf>

Q.37)

Ans) c

Exp) Option c is the correct answer

Pair 1 is incorrect: Ashvagosha wrote **Buddhacharita**. It elucidates the biography of Buddha. It is written in Sanskrit.

Pair 2 is correct: Ashvagosha composed **Saundarananda** and is one of the best examples of his **poems**. It is a story of how Buddha converted his half-brother Nanda, who was deeply in love with his wife, Sundari.

Pair 3 is incorrect: The oldest text that formed the basis of Vedanta philosophy was **Brahmasutra of Badarayana** that was written and compiled in 2nd century BCE. The philosophy propounds that Brahma is the reality of life and everything else is unreal or Maya.

Nimbarka (around 13th Century) was the founder of 'Dvaitadvaita' i.e., dualistic monoism. He wrote **Vedanta-Parijata-Saurabha**, a **commentary on Brahmasutras**. He was a Radha-Krishna devotee and settled down in Mathura. He referred to five methods of salvation-Karma, Vidya, Dhyana, Prapatti (devotion) and Gurupasatti (devotion and self-surrender to guru).

Pair 4 is correct: The earliest book on mathematics was **Sulvasutra written by Baudhayana** in the 6th century BC. There is a mention of 'Pi' and even some concepts very similar to Pythagoras theorem in the Sulvasutra. Pi is presently used to calculate the area and circumference of the circle.

Source: Indian Art and Culture by Nitin Singhania 2nd Edition – Chapter 11 LANGUAGES IN INDIA and Chapter 13 INDIAN LITERATURE.

Q.38)

Ans) d

Exp) Option d is the correct answer.

Guru Nanak was founder of the Sikh religion. Guru Nanak did not merely denounce or condemn the existing social order but he gave an alternative to it. He regulated the community life of his followers by bringing in congregational worship in a dharamsala and dining together to bring people together.

Statement 1 is correct: Guru Nanak (1469-1539) was **contemporary** to the Lodi dynasty rulers (Bahlul Lodi (1451- 1489), Sikandar Lodi (1489-1517) and **Ibrahim Lodi** (1517-1526)) and Mughal rulers – Babur and Humayun.

Statement 2 is correct: Guru Nanak's religion is a very practical one, he **does not ask for ascetism** as a means to achieve salvation. He asked his followers to live like an ideal man who runs his household on the basis of his own **labor**. He emphasized on attending the **sangat** (community gatherings) and **kirtan** (community singing of songs for praising god) at the Gurudwaras.

Statement 3 is correct: According to **Guru Nanak**, the supreme purpose of human existence was **salvation** that can be attained by getting relieved from the endless cycles of birth and rebirth. This salvation could not be achieved by worshipping idols or the book as mediated by the **pandits** and the **maulavis**. Nor could it be achieved through renunciation of one's worldly possessions and of one's home. It would be **achieved by right belief, right worship and right conduct** which are all taught by the guru. Source: Indian Art and Culture by Nitin Singhania 2nd Edition – Chapter 12 RELIGIONS IN INDIA.

Q.39)

Ans) c

Exp) Option c is the correct answer.

Digambara Terapanth is one of the sects of Digambara Jainism, the other being the Bispanthi sect.

Statement 1 is correct: Terapanthi pray to **saints rather than to an idol** in a temple, like Sthanakavasi. Terapanthi saints also wear a muhapatti near their mouth to cover it.

Statement 2 is incorrect: Digambara Tera Panthi sect **opposes Bhattarakas** and worship only tirthankaras. Tera Panthis formed out of strong opposition to the religious domination of traditional religious leaders called bhattarakas during the 12-16th century A.D, for the bhattarakas starting deviating from the original/Mula jain customs. They **oppose the worship of various minor gods** and goddesses.

Statement 3 is correct: As mentioned in **Buddhivilas (1770) of Bakhtaram** the Terapanthis rejected the following practices:

- 1) **Authority of Bhattarakas**
- 2) Use of **flowers, cooked food or lamps**
- 3) Abhisheka (panchamrita)
- 4) consecration of images without supervision by the representatives of Bhattarakas.

Source: Nitin Singhania

Q.40)

Ans) d

Exp) Option d is the correct answer.

Statement 1 is incorrect: Features of agriculture during Indus Valley Civilization:

- 1) The Harappans probably used wooden plough drawn by oxen and camels.
- 2) Stone sickles may have been used for harvesting the crops.
- 3) Gabarbands or nalas enclosed by dams for storing water were a feature in parts of Baluchistan and Afghanistan.
- 4) The channel or **canal irrigation** was probably **not practised widely. However, traces of canals have been found** at the Harappan site of Shortughai in Afghanistan, but not in Punjab or Sind.
- 5) They practiced rain water harvesting. Their style of irrigation would simply control the water from heavy rainfalls.

Statement 2 is incorrect: The Harappans had commercial links with Afghanistan and Iran. They set up a trading colony in northern Afghanistan which evidently facilitated trade with Central Asia. Many Harappan seals have been discovered in Mesopotamia. They **did not use metal money**, and in all probability carried exchanges through a **barter system**. In return for finished goods and possibly food grains, they procured metals from the neighboring areas by boat and bullock-cart. They were aware of the use of the wheel, and carts with solid wheels were in use in Harappa.

Statement 3 is incorrect: Harappan Civilization is known as the first urbanization in India, and the Harappan urban culture belongs to the **Bronze Age**. Ordinarily bronze was made by mixing tin with copper. As **neither tin nor copper was easily available** to the Harappans, **bronze tools do not abound in**

the region. The copper was obtained from the Khetri copper mines of Rajasthan and Baluchistan. Tin was possibly brought from Afghanistan.

Source: India's Ancient Past by RS Sharma – Chapter 10 Harappan Culture: Bronze Age Urbanization in the Indus Valley.

Q.41)

Ans) b

Exp) Option b is the correct answer.

The Home Rule Movement was the Indian response to the First World War in a less charged but a more effective way with the main objective of **demanding self-government or home rule for all of India** within the British Commonwealth.

Option a is correct: It was felt by a section of the nationalists that **popular pressure was required** to attain concessions from the government. Thus, it was right time to start the movement.

Option b is incorrect: The reforms proposed in the Indian Councils Act, 1909 were **extremely limited in nature**. It did **not satisfy any group of Indians**. Thus, the **moderate leaders were also disillusioned** with the Morley Minto reforms as it did not provide for any responsible government. Nationalist leaders did, however, take advantage of the limited opportunities offered by the state. **It was not one of the factors that lead to the formation of Home Rule Movement.**

Gopal Krishna Gokhale served in the Poona Municipal Council, the Bombay Legislative Council and, finally, in the Imperial Legislative Council between 1902 and 1915. He spoke critically in the interest of a good government and insisted on the need for universal primary education, greater Indian representation in government and greater opportunities of employment.

Option c is correct: People were feeling the burden of **miseries caused by high taxation and a rise in prices** during the First World War (1914-1918), and were ready to participate in any aggressive movement of protest.

Option d is correct: The **First World War** being fought among the major imperialist powers of the day and backed by naked propaganda against each other, exposed the **myth of white superiority**.

Source: Modern History, Spectrum, 6th Edition, Chapter-14, First World War and Nationalist Response, Pg. 295-296

A History of Modern India, Ishita Banerjee-Dube, Chapter-6, Challenge and Rupture, Pg. 253

Q.42)

Ans) b

Exp) Option b is the correct answer.

The Battle of Plassey was fought in 1757 between the troops of the British East India Company, led by Robert Clive and forces of Siraj-ud-Daulah, the last independent Nawab of Bengal, and his French allies. It was fought in the Plassey region of West Bengal, on the east of Bhagirathi River.

Statement 1 is correct: After his victory at Plassey, Clive was appointed Governor of Bengal. The Battle of Plassey had political significance for it laid the foundation of the British empire in India. It has been rightly regarded as the **starting point of British rule in India**. As a result of this victory, **Mir Jafar** became the Nawab of Bengal. He **gave large sums of money plus the zamindari of 24 parganas** to the English. The battle also **established the military supremacy of the English** in Bengal. Their main rivals, the French, were ousted.

Statement 2 is incorrect: The British did obtain a grant of territories for the maintenance of a properly equipped military force, and their prestige increased manifold. However, there was **no apparent change in the form of government**. Mir Jafar was appointed by the British as the new Nawab. Thus, the supreme control of affairs passed to Clive, on whose support the Mir Jafar was entirely dependent for maintaining his newly acquired position. The sovereignty of the English over Calcutta was recognised, and the **English posted a Resident at the nawab's court**.

Statement 3 is incorrect: Shah Alam II issued a farman granting the diwani of Bengal, Bihar and Orissa to the East India Company in lieu of an annual payment of Rs 26 lakh as part of the treaty signed with Robert Clive in August 1765 **as a result of Battle of Buxar (and not the Battle of Plassey)**. He also agreed to reside at Allahabad, to be ceded to him by the Nawab of Awadh, under the Company's protection and

make a provision of Rs 53 lakh to the Company in return for nizamat functions (military defence, police, and administration of justice) of the said provinces.

Source: Modern History, Spectrum, 6th Edition, Chapter-5, Expansion and Consolidation of British Power in India, Pg. 88-89, 93

Q.43)

Ans) d

Exp) Option d is the correct answer

The first Round Table Conference was held in London between November 1930 and January 1931. It was chaired by Ramsay MacDonald. This was the first conference arranged between the British and the Indians as equals.

Option a is incorrect: The Congress boycotted the First Round Table Conference; it was attended by various Muslim groups, members of the Hindu Mahasabha, Sikhs and a large contingent of Indian princes. The discussions did not amount to much— the representatives **failed to come to an agreement over the allocation of seats** in provincial legislatures.

Option b and c are incorrect: Both these outcomes were the **result of Second Round Table Conference** held in London in September-December, 1931. The session ended with MacDonald's announcement of:

1) Two Muslim majority provinces—North-West Frontier Province (NWFP) and Sindh;

2) Setting up of an Indian Consultative Committee;

3) Setting up of three expert committees—finance, franchise and states; and

4) Prospect of a unilateral British Communal Award if Indians failed to agree.

Option d is correct: As stated earlier, nothing much was achieved at the First Round Table Conference. It was generally agreed that **India was to develop into a federation**, there were to be **safeguards regarding defence and finance**, while other departments were to be transferred. But little was done to implement these recommendations and civil disobedience continued in India.

Source: Modern History, Spectrum, 6th Edition, Chapter-19, CDM and Round Table Conference, Pg. 383-387

A History of Modern India, Ishita Banerjee-Dube, Chapter-8, Difficulties and Initiatives, Pg. 337

Q.44)

Ans) b

Exp) Option b is the correct answer.

Ilbert Bill controversy is also known as the White Mutiny. It was introduced in the year 1883, under the reign of Viceroy Lord Ripon. According to this law, the Indian judges and magistrates were given the jurisdiction to try British offenders in criminal cases at the district level. However, the introduction of the Ilbert Bill led to intense opposition in Britain and from British settlers in India. The controversy made it crystal clear to the educated Indians that they could not expect racial equality from the present regime. This became evident when Lord Ripon ultimately succumbed to pressure and ultimately withdrew the bill.

Source: https://www.indianetzone.com/47/ilbert_bill.htm

Q.45)

Ans) c

Exp) Option c is the correct answer.

Buranjis, written in Ahom dialect (later the record is penned down in Assamese language), are **records of Assamese kings, priests and nobles and events of their times**. Assam history cannot be understood without the study of Buranji literature of Assam. Buranji literature throws light on the **developments in Jantia, Cachar and Kooch Bihar regions**. It also delves into the **accounts of the Ahom conflicts with those of the Naras, Chutias, Morans, Borahis, Koches and Mughals** during the reigns of Jayadhvaj and Chakradhvaj's reigns.

Kshemendra's **Lokaprakasha delves into the administrative structure and socioeconomic conditions of Kashmir**. Similarly, Kalhana's Rajatarangini which deals with the history of Kashmir upto 1459 and Srivijaya's Rajatarangini is an account of Kashmir rulers till 1486 are of utmost importance to understand the political and socio-economic history of the period.

Source: <https://www.egyankosh.ac.in/bitstream/123456789/68905/3/Unit-1.pdf>

<https://egyankosh.ac.in/bitstream/123456789/82876/2/Theme-1.pdf>

Q.46)

Ans) c

Exp) Option c is the correct answer.

In March 1942, a mission headed by **Stafford Cripps** was sent to India with **constitutional proposals** to seek Indian support for the war. Stafford Cripps was a left-wing Labourite, the leader of the House of Commons and a member of the British War Cabinet who had actively supported the **Indian national movement**.

Statement a, b and d are correct: The main proposals of the Cripps mission were as follows:

- 1) After the end of the war, a **constituent assembly** would be convened to frame a **new constitution**. Members of this assembly would be partly elected by the provincial assemblies through proportional representation and partly nominated by the princes.
- 2) The British government would accept the new constitution subject to two conditions: (i) **any province** not willing to join the Union **could have a separate constitution** and form a separate Union, and (ii) the **new constitution making body** and the **British government** would **negotiate a treaty to affect the transfer of power** and to safeguard racial and religious minorities.
- 3) In the meantime, defence of India would remain in British hands and the governor-general's powers would remain intact.

Statement c is incorrect: The Cripps Mission **did not propose a separate Union of India and Pakistan**. It proposed an **Indian Union with a dominion status**; it would be free to decide its relations with the Commonwealth and free to participate in the United Nations and other international bodies.

Q.47)

Ans) a

Exp) Option a is the correct answer.

Malabar rebellion, also known as the Moplah (Muslim) or Mappila riots, had been an uprising of Muslim tenants against British rulers and local Hindu landlords.

Option a is incorrect: It was a revolt **against Hindu landlords** (not against British). The Mappilas were the Muslim tenants inhabiting the Malabar region where most of the landlords were Hindus. The Mappilas had expressed their resentment against the oppression of the landlords during the nineteenth century also. Their grievances centred around **lack of security of tenure, high rents, renewal fees and other oppressive exactions**. It was not due to hike in land revenue by 50%.

Option b is correct: The Mappila tenants were particularly encouraged by the demand of the local Congress body for a government legislation regulating tenant-landlord relations. Soon, the Mappila movement **merged with the ongoing Khilafat agitation**. The leaders of the Khilafat-Non-Cooperation Movement like **Mahatma Gandhi, Shaikat Ali and Maulana Azad addressed Mappila meetings**. After the arrest of national leaders, the leadership passed into the hands of local Mappila leaders.

Option c is correct: The revolt became communal and violent in nature in later stages. The character of the revolt changed when British government declared martial law. **Many Hindus were seen by the Mappilas to be helping the authorities**. It began as an anti-government and anti-landlord affair, later **acquired communal overtones**. The communalisation of the rebellion completed the isolation of the Mappilas from the Khilafat Non-cooperation Movement. By December 1921, all resistance had come to a stop.

Option d is correct: The Mappila revolt turned violent in August 1921 upon the arrest of a respected priest leader, Ali Musaliar. Initially, the symbols of British authority—courts, police stations, treasuries and offices— and unpopular landlords (jenmies who were mostly Hindus) were the targets. The British **declared martial law** and repression began in earnest.

Source: Modern History, Spectrum, 6th Edition, Chapter-31, Peasant Movements 1857-1947, Pg. 579-580

Q.48)

Ans) d

Exp) Option d is the correct answer.

The mansabdars were an integral part of the Mughal bureaucracy and held the important offices of wazir, bakshi, faujdar and the subadar, etc. They were appointed in all government departments except the judiciary.

Statement 1 is incorrect: **Zat** (and not sawar) determined the **mansabdar's personal pay** (talab-khassa) and his **rank** in the organisation. Zat placed the mansabdar in the appropriate position among the officials of the state and, accordingly, the salary of the mansabdar was determined.

Statement 2 is incorrect: Sawar (and not Zat) determined the number of **horses and horsemen** to be maintained by the mansabdar and, accordingly, the amount he would receive for his **contingent** (tabinan). Under Akbar, for the maintenance of his contingent, the mansabdar was paid at the **average rate** of Rs 240 per annum per sawar. Later, in the time of Jahangir it was reduced to Rs 200 per annum. The mansabdar was allowed to retain 5% of the total salary bill of the sawars in order to **meet various contingent expenses**.

Statement 3 is correct: For purposes of assigning jagirs to mansabdars, the revenue department had to maintain a register indicating the assessed income (jama) of various areas. The account, however, was not indicated in rupees but in dams which was calculated at the rate of 40 dams to a rupee. This document was called the **jama-dami or assessed income based on dams**.

Statement 4 is correct: Although the salaries of the mansabdars were stated in rupees, they were **generally not paid in cash, but by assigning them a jagir**. Mansabdars preferred a jagir because cash payments were likely to be delayed and sometimes entailed a lot of harassment. Also, control over land was a mark of social prestige. Thus, the Mughals bureaucratized the nobility by devising a careful scale of gradations and laying down meticulous rules of business.

Source: Medieval History, NCERT XI, Chapter-15, India in the First Half of 17th Century

<https://egyankosh.ac.in/bitstream/123456789/20234/1/Unit-15.pdf>

Q.49)

Ans) c

Exp) Option c is the correct answer.

Lodi dynasty (1451-1526) AD was founded by Bahalul Lodi in 1451. Important rulers included Sikandar Lodi, Ibrahim Lodi.

Statement a is correct: Under the Lodi dynasty, architecture took a back seat. Tombs were commissioned during this period.

Statement b is correct: An important feature of architecture during Lodi period was the introduction of **double domes**. It consisted of a hollow dome inside the top dome. The reasons for the use of double domes were:

- 1) To give strength to the structure, and
- 2) To lower the inner height of the dome.

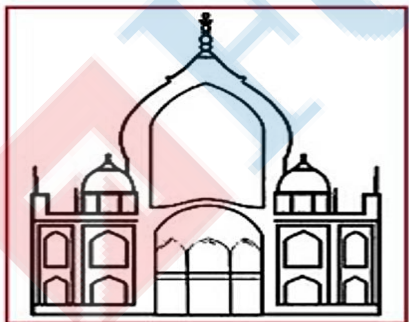


Fig. 1.41: Double Dome Architecture

Statement c is incorrect: Mortar began to be used prominently in all the constructions as a cementing agent during the **Khilji dynasty (1290 AD to 1320 AD)**, and not **Lodi dynasty**. They established the **Seljuk style of architecture**. The constructions of this period were marked by the use of red sandstone. Also, the prominence of **Arcuade style** begun from this period. Examples: Alai Darwaza by Ala-ud-din Khilji, Siri Fort, etc.

Statement d is correct: The tombs built during Lodi dynasty phase were **hard and bare, without any lavish decorations**. They were **built in octagonal shapes**, with a diameter of roughly 15 metres. They were supported by a sloping verandah. Example: Lodi Gardens, the city of Agra was established by Sikandar Lodi, etc.






Source: Indian Culture, Nitin Singhanian, 3rd Edition, Chapter-1, Indian Architecture, Sculpture & Pottery

Q.50)

Ans) d

Exp) Option d is the correct answer.

Statement 1 is correct: According to UNESCO, any language that is spoken by **less than 10,000** people is potentially endangered. The UNESCO has categorized languages on basis of endangerment as follows:

| Degree of endangerment | Intergenerational Language Transmission |
|---|---|
| safe | language is spoken by all generations; intergenerational transmission is uninterrupted >> not included in the Atlas |
|  vulnerable | most children speak the language, but it may be restricted to certain domains (e.g., home) |
|  definitely endangered | children no longer learn the language as mother tongue in the home |
|  severely endangered | language is spoken by grandparents and older generations; while the parent generation may understand it, they do not speak it to children or among themselves |
|  critically endangered | the youngest speakers are grandparents and older, and they speak the language partially and infrequently |
|  extinct | there are no speakers left >> included in the Atlas if presumably extinct since the 1950s |

Statement 2 is correct: In India, after the 1971 census, the government decided that **any language spoken by less than 10,000 people need not be included in the official list of languages**. Thus, only languages that have more than 10,000 speakers will be **counted**. It resulted in a decline in the list of languages to 108 languages in the 1971 Census, as against 1,652 a decade ago.

Statement 3 is correct: The Government of India currently defines **a language as one that is marked by a script**. Thus, effectively neutering oral languages. India's official number of languages, 122, is far lower than the 780 counted by the People's Linguistic Survey of India (along with a further 100 suspected to exist). This discrepancy is caused primarily because the government **doesn't recognise any language with less than 10,000 speakers**. Of the 197 endangered languages, **only Boro and Meitei have official status in India**, as they have a writing system.

Source: <https://pib.gov.in/PressReleaseDetail.aspx?PRID=1777333>

<https://www.downtoearth.org.in/blog/governance/seven-decades-after-independence-many-tribal-languages-in-india-face-extinction-threat-73071>

<https://blog.forumias.com/nepals-seke-near-extinct-the-six-degrees-of-endangerment-of-a-language/>

<https://economictimes.indiatimes.com/blogs/et-commentary/preserving-indias-endangered-languages/>

Q.51)

Ans) a

Exp) Option a is the correct answer.

Ratoon cropping or ratooning refers to raising a crop with re-growth coming out of roots or stalks after harvest of the crop.

A ratoon crop is the new cane which grows from the stubble left behind after harvesting. This enables the farmers to get three or four crops from these before they have to replant. It is used in field crops and fruits crops like **sugarcane, banana and pineapple**.

Corn is usually grown through a **relay cropping system** while tomato is generally cultivated by transplanting seedlings on **ridges and furrows**. Relay cropping is essentially a special version of double

cropping, where the second crop is planted into the first crop before harvest, rather than waiting until after harvest as in true double-cropping.

Knowledge Base:

Advantages of Ratoon cropping:

- 1) Reduced cost of production through savings in land preparation.
- 2) Reduced crop cycle
- 3) Better use of growing seasons.
- 4) Higher yield per unit area in a given period of time.
- 5) Ratoon crop use less irrigation and fertilizer than main crop because of shorter growing period.
- 6) Effective way to provide windbreaks for vegetable production.

Disadvantages of Ratoon Cropping:

- 1) Later crops have lower yield than first crop.
- 2) Build-up of insect pests and harmful weeds.
- 3) Decrease in crop density.

Source: Unit-3, Cropping Systems, eGyanKosh

http://www.agritech.tnau.ac.in/expert_system/sugar/ratoon.html

Q.52)

Ans) d

Exp) Option d is the correct answer.

Green-Ag project is aimed at helping people in taking the advantage of the rich agro-biodiversity present in their landscape for sustainability of agriculture and livestock production practices.

Statement 1 is incorrect: The Union government launched the Green-Ag Project in 2020 to reduce emissions from agriculture (not to promote organic farming) and ensure sustainable agricultural practices. The project is designed to achieve multiple global environmental benefits in at least 1.8 million hectares (ha) of land with mixed land use systems. It aims to bring at least 104,070 ha of farms under sustainable land and water management. The project will also ensure 49 million Carbon dioxide equivalent (CO₂eq) sequestered or reduced through sustainable land use and agricultural practices.

Statement 2 is incorrect: The project will be implemented in five states viz. Mizoram, Rajasthan, Madhya Pradesh, Odisha and Uttarakhand (and not all Himalayan and North-Eastern states).

Statement 3 is correct: The Green-Ag Project is funded by the Global Environment Facility, while the Department of Agriculture, Cooperation, and Farmers' Welfare (DAC&FW) is the national executing agency. Other key players involved in its implementation are Food and Agriculture Organization (FAO) and the Union Ministry of Environment, Forest and Climate Change (MoEF&CC).

Knowledge Base:

Global Environment Facility (GEF):

- 1) It is a trust fund established on the eve of the 1992 Rio Earth Summit.
- 2) It aims to help developing countries and countries with economies in transition to meet the objectives of the international environmental conventions and agreements.
- 3) World Bank serves as the GEF Trustee administering the GEF Trust Fund (contributions by donors).
- 4) GEF is a financial mechanism for five major international environmental conventions:
 - a. Minamata Convention on Mercury
 - b. Stockholm Convention on Persistent Organic Pollutants (POPs),
 - c. United Nations Convention on Biological Diversity (UNCBD),
 - d. United Nations Convention to Combat Desertification (UNCCD)
 - e. United Nations Framework Convention on Climate Change (UNFCCC).

Source: <https://www.downtoearth.org.in/news/agriculture/centre-launches-pilot-project-to-reduce-emissions-from-agriculture-72528>

<https://factly.forumias.com/centre-launches-pilot-project-to-reduce-emissions-from-agriculture/>

Q.53)

Ans) b

Exp) Option b is the correct answer.

Earth has seasons because our **planet's axis of rotation is tilted at an angle of 23.5 degrees relative to our orbital plane**, that is, the plane of Earth's orbit around the sun. When the **Northern Hemisphere is oriented toward the sun**, that region of **Earth warms** because of the corresponding increase in solar radiation. The sun's rays are striking that part of Earth at a more direct angle. It's summer. When the **Northern Hemisphere is oriented away from the sun**, the sun's rays are less direct, and that **part of Earth cools. It's winter.**

Our seasons change due to our planet's angle of tilt – 23.5 degrees – relative to our orbit around the sun. If Earth did not tilt at all, but instead orbited exactly upright with respect to our orbit around the sun, there would be minor variations in temperature throughout the year as Earth moved slightly closer to the sun and then slightly farther away. And there would be temperature differences from Earth's equatorial region to the poles. But, without Earth's tilt, we'd lack Earth's wonderful seasonal changes.

Source: Why the Earth has seasons | Earth | EarthSky

Q.54)

Ans) c

Exp) Option c is the correct answer.

Statement 1 is correct. The Himalayas in Arunachal and Sikkim are characterized by the absence of the Shiwalik formations, unlike other sections of Himalayas. Instead of this, duar formations are found here. They are used extensively for tea plantation.

Statement 2 is incorrect. Duar formations are a feature of Sikkim Himalayas. In Uttarakhand, there are Dun formations. Duns are longitudinal valleys formed as a result of folding when Eurasian plate and Indian plate collided. They are formed between the Lesser Himalayas and Shiwaliks.

Statement 3 is correct. Bugyals are summer grasslands in the higher reaches of the Great Himalayas in the Uttarakhand region. The nomadic groups like Bhotiyas, migrate to Bugyals during summer months and return to valleys during winters.

Source: NCERT, Indian physical environment, class XI, page no. 13.

Q.55)

Ans) a

Exp) Option a is the correct answer.

The Vindhyan range is bounded by the Satpura range on the south and the Aravalis on the northwest. The further westward extension gradually merges with the sandy and rocky desert of Rajasthan.

Option a is correct: Rivers like **Chambal, Betwa and Ken** rise from the Vindhya range. The flow of these rivers is from southwest to northeast, thus indicating the slope. **Banas** is the only significant tributary of the river Chambal that **originates from the Aravalli** in the west. The Vindhyan Hills comprise low mountains and plateaus that extend from Gujarat in the west to Bihar in the east. The average elevation is between 500 and 600 m though some peaks are as high as 900 m.

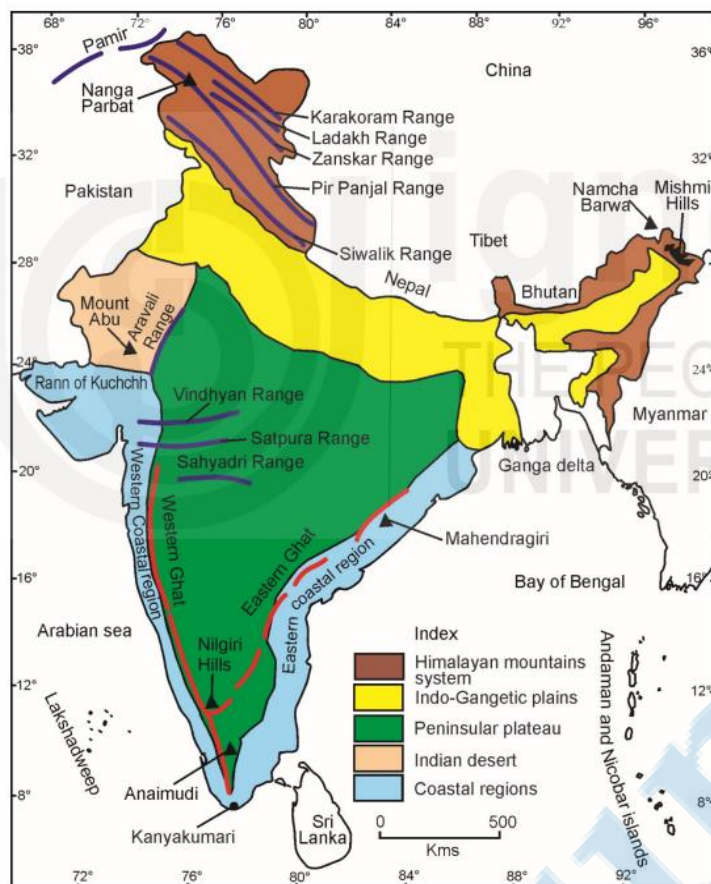


Fig. 3.1: Map showing physiographic divisions of India.

Source: Geography, NCERT IX, Chapter-2, Physical Features of India, Pg. 12

India Physical Environment, NCERT XI, Chapter-2, Structure & Physiography, Pg. 17

Q.56)

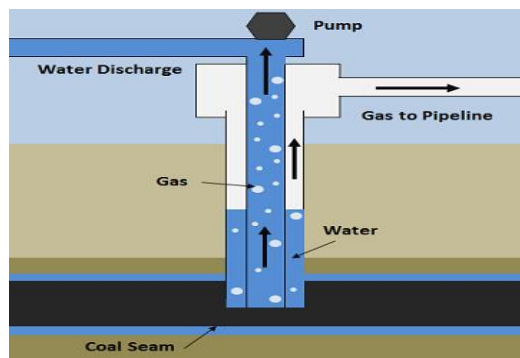
Ans) d

Exp) Option d is the correct answer.

Coal bed methane (CBM) is a form of natural gas which can be recovered from coal deposits or coal seams.

Statement 1 is correct. The gas is formed during the natural conversion of plant material into coal, known as coalification. When coalification occurs, the coal becomes saturated with water and methane gas is trapped within it. CBM can be recovered from coal deposits and seams through drilling and extraction. The composition of CBM in a sample of coal varies widely across several locations. Generally, it consists predominantly of methane gas (CH_4) although it can contain trace amounts of ethane (C_2H_6), carbon dioxide (CO_2) and water (H_2O).

Statement 2 is correct. Coal bed methane can be converted into other types of hydrocarbons like diesel and gasoline commonly used as fuel for automobiles.



Statement 3 is correct. The Gondwana sediments of eastern India host the bulk of India's coal reserves and all the current CBM producing blocks. India has the fifth largest proven coal reserves in the world and thus holds significant prospects for exploration and exploitation of CBM.

Q.57)

Ans) c

Exp) Option c is the correct answer.

Maize is a crop which is used both as food and fodder.

Statement a is correct. Maize is both a kharif and rabi crop. In some states like Bihar maize is grown in rabi season also. Use of modern inputs such as HYV seeds, fertilisers and irrigation have contributed to the increasing production of maize.

Statement b is correct. Maize is grown under semi-arid climatic conditions and over inferior soils. Yield level of maize is higher than other coarse cereals. It is high in southern states and declines towards central parts.

Option c is incorrect: Maize is a crop which requires temperature between 21°C to 27°C and grows well in old alluvial soil (and not only in red soil).

Option d is correct. Major maize-producing states are Karnataka, Uttar Pradesh, Bihar, Andhra Pradesh, Telangana and Madhya Pradesh. Maize cultivation is not concentrated in any specific region. It is sown all over India except Punjab and eastern and north-eastern regions.

Source: Geography, NCERT XII, Chapter-5, Land Resources and Agriculture, Pg. 47

Q.58)

Ans) c

Exp) Option c is the correct answer.

Mediterranean climate is confined to the western portion of continental masses, between 30° and 45° north and south of the equator. The basic cause of this type of climate is the shifting of the wind belts. The best developed form of this climatic type is found in central Chile.

Statement 1 is correct: Conditions in the Mediterranean do not suit grass, because most of the rain comes in the cool season when growth is slow. Slow-growing vegetation, which cannot replenish its foliage readily, and which is without deep-penetrating roots, is least suited here. These conditions are thus a constraint for animal husbandry. Animal fats are not important here and the chief cooking oil is obtained from olives. Dairy products are thus net import items.

Statement 2 is correct: This climate is characterized by autumn-spring rainfall with erratic distribution. Recurrent drought at the end of spring is responsible for discontinued forage production and frequently, for its low quality. Even if grasses do survive, they are so wiry and bunchy that they are not suitable for animal farming. Cattle rearing is thus unimportant in the Mediterranean.

Source: Geography, G. C Leong, Chapter-19, Mediterranean Climate, Pg. 144

<https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/mediterranean-climate>

Q.59)

Ans) b

Exp) Option b is the correct answer.

Hydroponics is the technique of growing plants without soil by using water solvent which consists of mineral nutrient. Hydroponic systems are engineered as a highly space and resource efficient form of farming and represent a considerable source of industrially grown produce. The method is suitable for growing greens and herbs as they don't have deep roots.

Option 1 is correct: Hydroponics provides **higher yield** and economic returns compared to traditional agricultural practices because of an **increase in harvest cycles and balanced nutrient supply**.

Option 2 is correct: Hydroponics system is less **affected by weather, wild animals** and any of the other external biotic or abiotic factors.

Option 3 is incorrect: It requires high technical knowledge and training before starting the process. A physical outer structure is required to grow the plants. This can be trays or tubes, which are typically made of food-grade plastic. The cost of this is typically Rs. 50,000-75,000 for 1,000 sq ft. **High costs is also required in plumbing system and automation** such as sensors, controller, water pump etc. and in maintaining ambient temperature and moisture. Thus, **power costs increase due to regular water supply, LED lights and climate control**. Also, without soil as a buffer, any failure to the hydroponic system leads to rapid plant death.

Option 4 is correct: The system of supported plastic trays in Hydroponics presents additional advantages, such as the **seedling development cycle is shorter, seedlings with better root system, easy removal of seedlings from the trays, better managing of the trays**, smaller storage space and bigger durability.

Source: <https://blog.forumias.com/hydroponics-may-provide-better-agriculture-solutions/>
<https://www.pressreader.com/india/the-hindu-business-line/20190415/281681141266785>

Q.60)

Ans) d

Exp) Option d is the correct answer.

The local cold winds originate in the snow-capped mountains during winter and move down the slopes towards the valleys.

Option a is incorrect: Foehn is strong, dusty, dry and warm local wind which develops on the leeward side of the **Alps Mountain ranges**. Regional pressure gradient forces the air to ascend and cross the barrier. Ascending air sometimes causes precipitation on the windward side of the mountains. After crossing the mountain crest, the Foehn winds starts descending on the leeward side or northern slopes of the mountain as warm and dry wind. The temperature of the winds **varies from 15°C to 20°C** which **help in melting snow**. Thus, it makes pasture land ready for animal grazing and help the grapes to ripe early.

Option b is incorrect: Chinook is the name of **hot and dry local wind** which moves down the eastern slopes of the Rockies in U.S.A. and Canada. The literal meaning of chinook is 'snow eater' as they **help in melting the snow earlier**. They keep the grasslands clear of snow. Hence, they are very **helpful to ranchers**.

Option c is incorrect: Sirocco is a **Mediterranean wind** that comes from the Sahara and reaches hurricane speeds in North Africa and Southern Europe. It **arises from a warm, dry, tropical air mass** that is pulled northward by low-pressure cells moving eastward across the Mediterranean Sea, with the wind originating in the Arabian or Sahara deserts. The hotter, drier continental air mixes with the cooler, wetter air of the maritime cyclone, and the counter clockwise circulation of the low propels the mixed air across the southern coasts of Europe. It **causes dusty dry conditions along the northern coast of Africa**, storms in the Mediterranean Sea, and cool wet weather in Europe.

Option d is correct: Mistral are most **common local cold winds**. They originate on the Alps and **move over France towards the Mediterranean Sea** through the Rhone valley. They are very cold, dry and high velocity winds. They **bring down temperature below freezing point** in areas of their influence. People in these areas protect their orchards and gardens by growing thick hedges and build their houses facing the Mediterranean Sea.

Source: <https://nios.ac.in/media/documents/316courseE/ch11.pdf>

Q.61)

Ans) c

Exp) Option c is the correct answer.

India's first **In Vitro Fertilization (IVF)** calf of **Banni breed of buffaloes** was born at a farmer's house in Gir Somnath district, Gujarat.

Option a is incorrect: Banni Buffaloes are also known as "Kutchi" or "Kundi". It is a breed of buffalo found primarily in the **Kutch district of Gujarat**.

Option b is incorrect: Banni breed of buffaloes is usually bred and preserved by a **local community** found in Kutch, called the '**Maldharis**'.

Option c is correct: Banni Buffaloes has **higher milk production** potentials and is also more **disease resilient** when compared to other common breeds. Hence, they were chosen to help the country to multiply the population of genetically superior buffaloes, resulting in higher milk yield.

Option d is incorrect: Banni Buffaloes are also well-adapted to survive **extreme weather conditions** such as water scarcity, frequent droughts, low humidity and high temperatures.

Source: Banni Buffalo -ForumIAS Blog

Q.62)

Ans) c

Exp) Option c is the correct answer.

The diastrophic forces can cause a component of the Earth's interior to **move vertically** or horizontally. The vertical movement is called epeirogenic movement and **horizontal movement** is called orogenic movement. Whereas sudden forces occur due to sudden and rapid movements that results a massive destruction in the interior of the Earth.

Statement 1 is correct: **Diastrophic forces** include both vertical and horizontal movements. These are **constructive forces**, operate very slowly and are **responsible for the formation of primary landforms** such as mountain peaks, plateaus, valleys, plains, etc. Diastrophic forces can be classified into two types:

- 1) Epeirogenic movements and
- 2) Orogenic movements

Statement 2 is incorrect: **Orogenic movements (and not Epeirogenic)** occur mainly along the plate boundaries or plate margins that produce intense **folding and faulting**. The force is working on Earth's mantle in a horizontal manner cause to the orogenic movements.

Statement 3 is incorrect: **Epeirogenic movements (and not orogenic)** cause **upliftment and subsidence** of continental crust through **upward and downward movements**, respectively. Both upward and downward movements are in fact vertical movements caused by a set of forces acting along the Earth's radius. These affect the broad regions of the crust without causing significant folding or faulting. Epeirogenic movements are also known as **continent building movements** as these movements affect the large-scale land masses.

Source: <https://egyankosh.ac.in/bitstream/123456789/57485/1/Unit7.pdf>

Q.63)

Ans) c

Exp) Option c is the correct answer.

Wildlife Protection Act of 1972 provides for the protection of wild animals, birds and plants and for matters connected therewith or ancillary or incidental thereto with a view to ensuring the ecological and environmental security of the country.

Statement 1 is correct: The Wildlife (Protection) Act, 1972 has divided the protection status of various plants and animals in the six schedules. Schedule I covers endangered species that need rigorous protection. The species are granted protection from poaching, killing, trading etc. A person is liable to the harshest penalties for violation of the law under this Schedule. **Species under this Schedule are prohibited to be hunted throughout India**, except under **threat to human life** or in case of a disease that is beyond recovery.

Some of the animals granted protection under the Schedule I include:

- 1) The Black Buck
- 2) Bengal Tiger

- 3) Clouded Leopard
- 4) Snow Leopard
- 5) Swamp Deer

Statement 2 is correct: If any wild animal specified in Schedule I has become dangerous to human life or is so disabled or diseased as to be beyond recovery the Chief Wild Life Warden may permit any person to hunt such animal or cause such animal to be hunted.

Source:

[https://indiankanoon.org/doc/679716/#:~:text=\(a\)%20the%20Chief%20Wild%20Life,animal%20to%20be%20hunted%3A%201%5B](https://indiankanoon.org/doc/679716/#:~:text=(a)%20the%20Chief%20Wild%20Life,animal%20to%20be%20hunted%3A%201%5B)

https://legislative.gov.in/sites/default/files/A1972-53_0.pdf

Q.64)

Ans) c

Exp) Option c is the correct answer.

Statement 1 is incorrect. One of the reasons why tropical cyclones are more prone to the Bay of Bengal is that its surface temperature is more than that of the Arabian Sea. Tropical cyclones generally need a temperature of around 28 degrees Celsius. The Bay of Bengal is more conducive to this than the Arabian Sea.

Statement 2 is correct. The Bay of Bengal receives higher rainfall and constant inflow of fresh water from the Ganga and Brahmaputra rivers. This means that the Bay's surface water keeps getting refreshed, making it impossible for the warm water to mix with the cooler water below, making it ideal for depression.

Statement 3 is correct. Greater frequency of Bay of Bengal cyclones has a foreign source as well. Neighbouring Pacific Ocean seas are more prone to cyclones. Typhoons originating near Philippines, China, Thailand and Malaysia enter the Andaman Sea of Bay of Bengal after they weaken in their native regions. These typhoons led to an increase in the occurrence of cyclones in the Bay of Bengal. Most of these cyclones weaken considerably after encountering a big landmass. Therefore, these do not travel to the Arabian Sea side. In case of Arabian Sea, most of the cyclones are local.

Q.65)

Ans) b

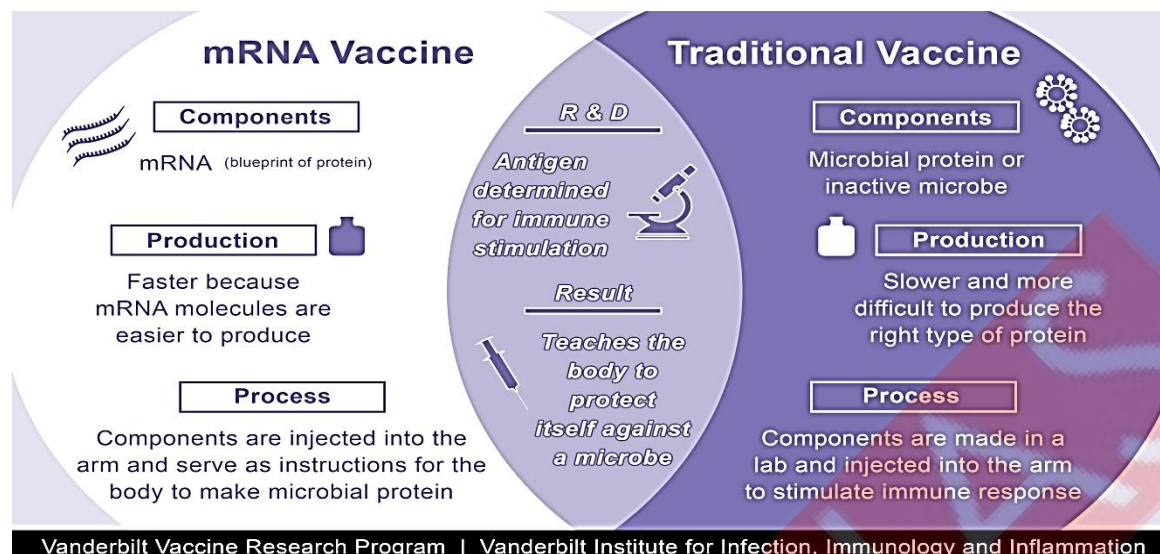
Exp) Option b is the correct answer.

Messenger RNA is a type of RNA that is necessary for protein production. In cells, mRNA uses the information in genes to create a blueprint for making proteins. Once cells finish making a protein, they quickly break down the mRNA. mRNA from vaccines does not enter the nucleus and does not alter DNA.

Statement 1 is incorrect: mRNA vaccines do not put a weakened or inactivated germ into our bodies. Instead, mRNA vaccines work by introducing a piece of mRNA that corresponds to a viral protein, usually a small piece of a protein found on the virus's outer membrane. (Individuals who get an mRNA vaccine are not exposed to the virus, nor can they become infected by the vaccine.) Using this mRNA blueprint, cells produce the viral protein. As part of a normal immune response, the immune system recognizes that the protein is foreign and produces specialized proteins called antibodies.

Statement 2 is correct: Unlike live-attenuated or viral-vectored vaccines, mRNA is non-infectious and poses no concern for DNA integration mainly because it cannot enter the nucleus which contains DNA. Other strategies such as protein-based or inactivated vaccines also require chemicals and cell cultures to produce. mRNA is made through a cell-independent process and does not require inactivation; thus, it poses no safety concerns due to contamination with toxic agents.

Statement 3 is correct: mRNA do not affect or interact with our DNA in any way. mRNA never enters the nucleus of the cell where our DNA (genetic material) is located, so it cannot change or influence our genes.



Source: <https://www.vumc.org/viii/infographics/how-does-mrna-vaccine-compare-traditional-vaccine>

<https://medlineplus.gov/genetics/understanding/therapy/mrnavaccines/>

Q.66)

Ans) c

Exp) Option c is the correct answer.

5G is the **next generation cellular technology** that will provide faster and more reliable communication with ultra-low latency. A government panel report points out that with 5G, the peak network data speeds are expected to be in the range of **2-20 Gigabit per second (Gbps)**. The primary use of the technology will go beyond delivery of services on personal mobiles devices.

Statement 1 is correct: 5G technology uses millimetre wave spectrum, which enables more devices to be used within the same geographic area. 4G can support about 4,000 devices per square kilometre, whereas **5G will support around one million**. This means more Netflix streaming, voice calls and You Tube carried, without interruption, over the limited air space.

Statement 2 is incorrect: Latency for 4G is around 20-30 milliseconds, but for 5G it will reach well below 10 milliseconds, and in best cases around 1 millisecond. **Therefore**, latency for 5G will be lower as compare to earlier technologies. **Latency** is a measure of delay. In a **network**, **latency** measures the time it takes for some data to get to its destination across the **network**.

Statement 3 is correct: 5G uses a new digital technology called Massive MIMO, which stands for **multiple input multiple output**, that uses multiple **targeted beams to spotlight** and follow users around a cell site, **improving coverage, speed and capacity**. Current network technologies operate like floodlights, illuminating an area but with lots of wastage of the light/signal. Part of the roll-out of 5G involves installing Massive MIMO and 5G New Radio to all mobile network base stations on top of the existing 4G infrastructure.

Source: 5G vs 4G: what is the real difference between them? (raconteur.net)

Q.67)

Ans) b

Exp) Option b is the correct answer.

In January 2022, in a medical first, doctors transplanted a pig heart into a patient to save his life in the US. The patient was deemed ineligible for a conventional heart transplant or an artificial heart by leading transplant centres after a review of his medical records.

Statement a is correct: Xenotransplantation is any procedure that involves the transplantation, implantation or infusion into a human recipient of either (a) live cells, tissues, or organs from a

nonhuman animal source, or (b) human body fluids, cells, tissues or organs that have had ex vivo contact with live nonhuman animal cells, tissues or organs.

- 1) One of the biggest obstacles to transplantation is organ rejection. In the above case, scientists have addressed the problem by genetically altering pigs' organs. The donor pig underwent 10 genetic modifications, by which the genes responsible for the rapid rejection of foreign organs by the human body were inactivated or knocked out.

Statement b is incorrect: Xenotransplantation targets pigs as source animals with the goal of transplanting pig solid organs, such as kidneys, hearts, and livers, into humans. In some cases, external (ex vivo) pig liver has been used for temporary perfusion for bridging acute liver failure. Among other goals are the use of encapsulated porcine islet cells for diabetes therapy and the use of fetal porcine neural stem cells for Parkinson cell therapy. The transplantation of inert animal material such as pig heart valves does not fall under this definition because they are no longer living tissues and are thus handled like inactive metal implants.

Statement c is correct: Xenotransplantation is the transplantation of living tissue or organs from one species to another. It has long been hoped to be a solution for the supply issues facing liver transplantation. At the same time, **xenotransplantation is associated** with a number of concerns, including **immunological problems and xenogeneic infections**, as well as **ethical, legal, and social** concerns. Regardless of these issues, it is not an area that has had great success.

Statement d is correct: Xenotransplantation involves the use of nonhuman animal sources for organs for transplantation into human beings and has been viewed as having the potential to address organ shortage. Attempts at **xenotransplantation are not new** but have **largely resulted in failure in the past due to high rejection rates in recipients**. The development of genetic engineering techniques led to renewed interest in the area because it was considered that such techniques could be used on nonhuman animals, such as pigs, in order to reduce, if not eliminate, problems of organ rejection or transmission of disease in the transplantation process.

Source: <https://www.sciencedirect.com/topics/nursing-and-health-professions/xenotransplantation>

Q.68)

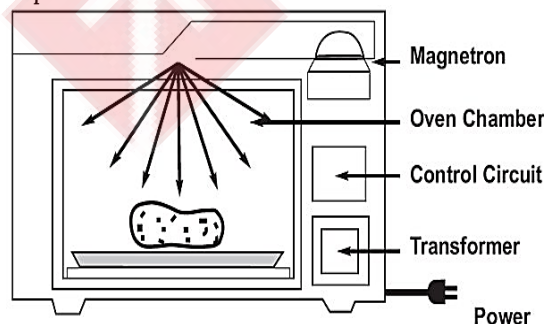
Ans) c

Exp) Option c is the correct answer.

Statement 1 is correct: Microwave ovens are so **quick and efficient** because they channel **heat energy directly to the molecules** (tiny particles) **inside food**. Microwaves heat food like the sun heats face by radiation. A microwave is much like the electromagnetic waves that zap through the air from TV and radio transmitters. It's an invisible up-and-down pattern of electricity and magnetism that races through the air at the speed of light (300,000 km or 186,000 miles per second).

Statement 2 is correct: When food absorbs microwaves, it causes the water molecules in the food to vibrate, which produces heat. **Microwaves do not use x-rays or gamma rays, and they do not make food radioactive.**

Microwaves are non-ionizing radiation, so they do not have the same risks as x-rays or other types of ionizing radiation. But microwave radiation can heat body tissues the same way it heats food. Exposure to high levels of microwaves can cause skin burns or cataracts. Less is known about what happens to people exposed to low levels of microwaves.



Source: <https://www.explainthatstuff.com/microwaveovens.html>

<https://www.fda.gov/radiation-emitting-products/home-business-and-entertainment-products/microwave-ovens>

Q.69)

Ans) c

Exp) Option c is the correct answer.

As **altitude increases** and atmospheric pressure decreases, **the boiling point of water decreases**. There's more air above a point at sea level, which means the atmospheric pressure is greater here **than** at higher altitudes where there's less air bearing down above. **At a higher elevation, the lower atmospheric pressure means heated water reaches its boiling point more quickly.** i.e., at a lower temperature.

Water at sea level boils at 100 degrees Celsius;

at 5,000 feet above sea level, the boiling point is 95 degrees Celsius;

up at 10,000 feet, water boils at 90 degrees Celsius.

Source: <https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/food-safety-basics/high-altitude-cooking>

Q.70)

Ans) d

Exp) Option d is the correct answer.

The emergence and spread of drug-resistant pathogens that have acquired new resistance mechanisms, leading to antimicrobial resistance, continues to threaten our ability to treat **common** infections.

Statement 1 is correct: Antimicrobial Resistance (AMR) occurs when **bacteria, viruses, fungi and parasites** change over time and no longer respond to **medicines making infections harder to treat** and increasing the risk of disease spread, severe illness and death. As a result of drug resistance, antibiotics and other antimicrobial medicines become ineffective and infections become increasingly difficult or impossible to treat.

Statement 2 is correct: Antimicrobial resistance occurs naturally over time, usually through genetic changes. Antimicrobial resistant organisms are found in people, animals, food, plants and the environment (in water, soil and air). Antibiotics have been misused and/or overused in humans and animals, which has accelerated dramatically the problem of antimicrobial resistance.

Statement 3 is correct: Antimicrobial resistance can spread from **person to person or between people and animals**, including from food of animal origin. The main drivers of antimicrobial resistance include the misuse and overuse of antimicrobials; lack of access to clean water, sanitation and hygiene (WASH) for both humans and animals; poor infection and disease prevention and control in health-care facilities and farms; poor access to quality, affordable medicines, vaccines and diagnostics; lack of awareness and knowledge; and lack of enforcement of legislation.

Source: <https://www.who.int/news-room/fact-sheets/detail/antimicrobial-resistance>

<https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/antimicrobial-resistance>

Q.71)

Ans) c

Exp) Option c is the correct answer

Conducting takes place due to the **movement of the electrons**. Most of the metals are considered as good **conductors** of electricity. This is because when metal atoms combine with each other, the **outermost electrons lose contact with their parent atoms**. The remaining positively charged atomic centers **form** an ordered structure while the outer electrons move freely around the whole sample.

On the other hand, in case of non-metals the conduction **electrons are held tightly** by the nucleus. So, they **cannot move easily** which means, **they do not have readily available free electrons**. Hence, the non-metals are not good conductors of electricity.

However, non-metals can also become good conductors of electricity if external energy is applied to them, which makes the conduction electrons feasible.

Therefore, Non-metals are **considered as insulators** because they have extremely high resistance to the flow of charge through them. The atoms hold onto their electrons tightly and so they cannot conduct electricity.

Source: <http://hyperphysics.phy-astr.gsu.edu/hbase/electric/conins.html>

Q.72)

Ans) b

Exp) Option b is the correct answer.

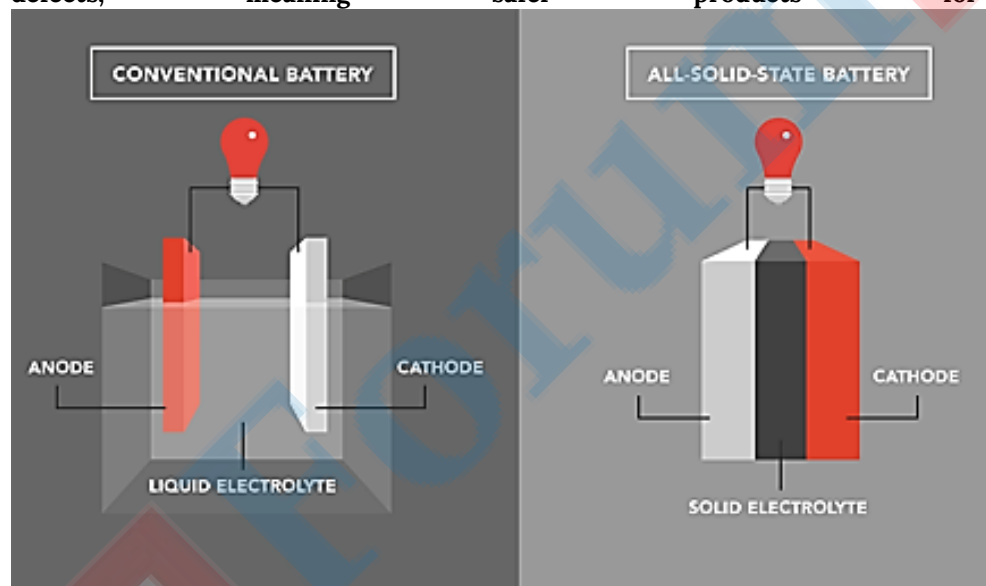
Lithium-Ion is a type of rechargeable battery. These batteries are commonly used for portable electronics and electric vehicles.

Solid-state batteries have solid elements. It provides several advantages: less fire-related safety issues, extended lifetime, decreased need for expensive cooling systems, and operability in an extended temperature range.

Statement 1 is incorrect: The main difference between the Solid-state batteries and Lithium-ion batteries lies in the state of the electrolyte. While **lithium-ion batteries use liquid electrolytes**, **solid-state batteries** feature thin layers of **solid electrolytes**. The electrolyte regulates the flow of the electric current between the negative and the positive sides of the battery.

Statement 2 is correct: **Solid state batteries have higher energy density** and faster charging times than the Lithium-ion batteries. Solid electrolytes are more stable. It means that solid-state batteries can hold up to 50% more energy than their lithium-ion counterparts, while they're expected to reach an 80% charge within 12 minutes.

Statement 3 is incorrect: Solid-state electrolytes are typically less reactive than today's liquid or gel, so they can be expected to last a lot longer and won't need replacing after just 2 or 3 years. This also means that **Solid state batteries won't explode or catch fire if they are damaged or suffer from manufacturing defects,** meaning safer products for consumers.



Knowledge Base: Solid electrolytes come with a handful of significant advantages.

1) Safety

Liquid electrolytes are volatile and flammable in high temperatures. In contrast, solid ones are more stable and reduce the risk of fire or explosion.

2) Smaller weight and size

While the liquid inside lithium-ion batteries makes them heavier, the compact structure of solid-state batteries allows them to increase energy density per unit area, which means that a smaller amount of batteries is needed.

| Liquid cell | Solid-state cell |
|--|---|
| Inexpensive processing | Expensive processing |
| Large format in production | Only small format in production |
| Flexible separator accommodates some mechanical stress | Ceramic separator. Rigid, may break with mechanical stress |
| Low interfacial impedance | Interfacial impedance can be a problem |
| Higher ionic conductivity near room temperature | High ionic conductivity over broader temperature range |
| High electrical resistance | High electrical resistance |
| Electrolyte flammable, combustion hazard | Electrolyte nonflammable, safer |
| SEI layer forms and degrades, affects cycle life | No SEI layer formation, longer cycle life |
| Electrolyte reactions limit cathode materials | Electrolyte nonvolatile, high-voltage cathode materials |
| Poor thermal stability | Excellent thermal stability |
| Self discharge limits shelf life | Far less self discharge, much longer shelf life |
| Sensitive to overcharge | Abuse tolerant |
| Flexible separator hosts formation of lithium dendrites, limits cycle life | Ceramic separator inhibits dendrite growth, extended cycle life |
| More inactive materials, reduces energy density, reduces specific energy | Less inactive materials increases energy density, increases specific energy |

Table 1 General comparison of liquid lithium-ion batteries with solid-state lithium-ion

Source: <https://thenextweb.com/news/why-solid-state-ev-batteries-are-better-than-lithium-ion-counterpart>

Q.73)

Ans) a

Exp) Option a is the correct answer.

The **new vaccine** “RTS, S/ASO1 (RTS.S)” with its trade name “Mosquirix” was endorsed by the World Health Organization (WHO) recently. This is the **first and only vaccine** shown to have the capability of significantly **reducing life-threatening severe malaria**.

Mosquirix has been developed by British pharmaceutical company **GlaxoSmithKline** in partnership with the PATH Malaria Vaccine Initiative. It was approved for the pilot programme in 2015.

The vaccine acts against **P. falciparum**, the deadliest malaria parasite globally, and the most prevalent in Africa.

The malaria vaccine should be provided in a schedule of **4 doses in children from 5 months of age** for the reduction of malaria disease and burden.

Knowledge Base:

Malaria is caused by the bite of the female Anopheles mosquito (vector) if the mosquito itself is infected with a malarial parasite. It is preventable and curable.

There are five kinds of malarial parasites – Plasmodium falciparum, Plasmodium vivax (the commonest ones), Plasmodium malariae, Plasmodium ovale, and Plasmodium knowlesi.

As per WHO, a country can be declared malaria-free when it reports zero indigenous cases of malaria for 3 or more years. Over the last two decades, 11 countries have been certified by the WHO as malaria-free. The latest one was El Salvador.

Source: <https://blog.forumias.com/explained-what-is-mosquirix-the-first-malaria-vaccine-to-get-the-whos-backing/>

Q.74)

Ans) d

Exp) Option d is the correct answer

The Western coastal plains extend from the Gujarat coast in the north to the Kerala coast in the south. It is divided into following divisions – the Kachchh and Kathiawar coast in Gujarat, Konkan coast in Maharashtra, Goan coast and Malabar coast in Karnataka and Kerala respectively.

Statement 1 is incorrect: The western coastal plains are an **example of submerged coastal plain**. In contrast, the **eastern coastal coast is an example of emergent coast (and not vice-versa)**. Because of this **submergence it is a narrow belt** and provides natural conditions for the development of ports and harbours. Kandla, Mazagaon, JLN port Navha Sheva, Marmagao, Mangalore, Cochin, etc. are some of the important natural ports located along the west coast.

Statement 2 is incorrect: The western coastal plains are **narrow in the middle and get broader towards north and south**. The rivers flowing through this coastal plain **do not form any delta**. The Malabar coast has got certain distinguishing features in the form of 'Kayals' (backwaters), which are used for fishing, inland navigation and also due to its special attraction for tourists. On the other hand, as compared to the western coastal plain, the **eastern coastal plain is broader** and there are **well-developed deltas here**, formed by the rivers flowing eastward in to the Bay of Bengal. These include the deltas of the Mahanadi, the Godavari, the Krishna and the Kaveri. Because of its emergent nature, it has less number of ports and harbours. The **continental shelf extends up to 500 km** into the sea, which makes it **difficult for the development of good ports and harbours**.

Geography, NCERT XI, Chapter-2, Structure & Physiography, Pg. 18

Q.75)

Ans) c

Exp) Option c is the correct answer.

When carbon dioxide (CO₂) is absorbed by seawater, chemical reactions occur that reduce seawater pH, carbonate ion concentration, and saturation states of biologically important calcium carbonate minerals. These chemical reactions are termed "**ocean acidification**"

Statement 1 is incorrect: Seawater absorbs CO₂ to produce **carbonic acid** (H₂CO₃), bicarbonate (HCO₃⁻) and carbonate ions (CO₃²⁻). However, increases in CO₂ levels lead to decrease in pH level, **increase in the concentration of carbonic acid and bicarbonate ions**, causing a **decrease in the concentration of carbonate ions**. Thus, carbonate ions are less available and calcification is therefore harder to achieve, and may be prevented altogether.

Statement 2 is correct: The oceans take up CO₂ from the atmosphere and are responsible for absorbing around a third of the CO₂ emitted by fossil fuel burning, deforestation, and cement production since the industrial revolution. Ocean acidification describes the **lowering of seawater pH and carbonate saturation** that result from increasing CO₂ concentrations.

Statement 3 is correct: The impacts of ocean acidification are not uniform across all species. Some **algae and seagrass may benefit from higher CO₂ concentrations** in the ocean, as they may **increase their photosynthetic and growth rates**. However, a more acidic environment will harm other marine species such as molluscs, corals and some varieties of plankton.

Source: Shankar IAS Chapter 18

Ocean acidification and its effects | CoastAdapt

Frontiers | Effects of Ocean Acidification on Marine Photosynthetic Organisms Under the Concurrent Influences of Warming, UV Radiation, and Deoxygenation | Marine Science (frontiersin.org)

Ocean acidification and its effects | CoastAdapt

Q.76)

Ans) c

Exp) Option c is the correct answer.

Option a is correct: The black hole is an object that is so dense that not even light can escape its surface. They are formed when **stars much more massive than the Sun** reach the end of their lives; and they **collapse under their own gravity**.

Option b is correct: A black hole has two parts:

- 1) **Singularity:** At the **core of a black hole** is a singularity. It is a point that is **infinitely dense**, as all the **remnant mass of the star** is compressed into this point.

2) Event horizon: It is an imaginary surface surrounding the singularity, and the gravity of the object is such that once anything enters this surface, it is trapped forever. Not even light can escape the pull of the singularity once it crosses the event horizon.

Option c is incorrect: A black hole is a place in space where gravity pulls so much that even light cannot get out. Because no light can get out, **people can't see black holes**. They are **invisible**. Space telescopes with special tools can help find black holes. The special tools can see how stars that are very close to black holes act differently than other stars.

Option d is correct: **Albert Einstein's theory of general relativity** predicted the existence of **black holes**. He stated that no matter what such an object "eats," black holes are characterized only by their mass, spin and electrical charge. In 2015, the first gravitational wave was detected that provided the proof. Gravitational waves are 'ripples' in space-time caused by some of the most violent and energetic processes in the Universe. They are formed when a star explodes in a supernova; when two big stars orbit each other; and when two black holes merge. He predicted the existence of gravitational waves in 1916 in his general theory of relativity.

Knowledge Base: Albert Einstein's General theory of relativity tries to explain how gravitational force acts instantaneously between massive stars and planets that are millions of miles away.

As per this theory, space and time form a continuum, like a fabric, and every object in the universe distorts this fabric, like a large ball distorts a tight trampoline sheet. This distortion is gravity. It produces two effects.

One, the fabric causes any other object in the vicinity to move towards the heavier object and this is why gravity causes an object to pull things towards it

Two, it bends light in the process of attracting it which is recently captured by LIGO observatory.

Source: <https://blog.forumias.com/celebrating-einsteins-century-on-100th-year-of-einstein-receiving-nobel-prize/>

<https://blog.forumias.com/gravitational-waves/>

<https://blog.forumias.com/explained-two-black-holes-merged-billions-of-years-ago-why-is-this-puzzling-scientists/>

Q.77)

Ans) b

Exp) Option b is the correct answer.

Lok Adalat is a forum where the cases (or disputes) which are pending in a court or which are at pre-litigation stage (not yet brought before a court) are compromised or settled in an amicable manner. **Gram Nyayalayas** are created to provide justice to the citizens at their doorsteps and to ensure that opportunities for securing justice are not denied to any citizen due to social, economic or other disabilities.

Statement 1 is incorrect: The **Gram Nyayalayas Act, 2008** has been enacted to provide for the establishment of the Gram Nyayalayas at the grass roots level for the purposes of providing access to justice to the citizens. The institution of **Lok Adalat** has been given statutory status under the **Legal Services Authorities Act, 1987**.

Statement 2 is correct: According to **Legal Services Authorities Act, 1987**, Every Lok Adalat organized for an area shall consist of such number of **serving or retired judicial officers** and other persons of the area as may be specified by the agency organizing such Lok Adalat. Generally, a Lok Adalat consists of a **judicial officer as the chairman and a lawyer (advocate) and a social worker as members**. According to **Gram Nyayalayas Act, 2008**, Nyayadhikaris who will preside over these Gram Nyayalayas are **strictly judicial officers** and will be drawing the same salary, deriving the same powers as First Class Magistrates working under High Court.

Statement 3 is correct: Gram Nyayalaya can try **criminal cases, civil suits, claims or disputes** which are specified in the First Schedule and the Second Schedule to the Act. The Gram Nyayalaya follow summary procedure in criminal trial.

However, Lok Adalat shall have **no jurisdiction in respect of any case or matter relating to an offence not compoundable under any law**. In other words, the offences which are non-compoundable under any law fall outside the purview of the Lok Adalat. **Its jurisdiction includes matters such as Matrimonial /**

Family Disputes, Criminal (Compoundable Offences) cases, Land Acquisition cases, Labour disputes, Workmen's compensation cases.

Statement 4 is incorrect: An award of a Lok Adalat shall be deemed to be a decree of a Civil Court or an order of any other court. Every award made by a Lok Adalat shall be final and binding on all the parties to the dispute. **No appeal shall lie to any court against the award of the Lok Adalat.**

With respect to award given by Gram Nyayalayas, appeal in criminal cases shall lie to the Court of Session and appeal in civil cases shall lie to the District Court.

Source: Laxmikanth Chapter 35 Subordinate Courts

Q.78)

Ans) b

Exp) Option b is the correct answer.

The Department of Investment and Public Asset Management (DIPAM) is under the control of the Ministry of Finance. The Four major areas of its work related to - Strategic Disinvestment, Minority Stake Sales, Asset Monetization and Capital Restructuring.

Statement 1 is incorrect: The Department of Investment and Public Asset Management is a department **under the Ministry of Finance**. Earlier, there was the Department of Disinvestment, which was one of the Departments under the Ministry of Finance. It was renamed Department of Investment and Public Asset Management (DIPAM) on 14th April, 2016.

Statement 2 is correct: As per the present Allocation of Business rules, the **mandate** of the Department of Investment and Public Asset Management (DIPAM) is as follows:

- 1) All matters relating to management of Central Government investments in equity including disinvestment of equity in Central Public Sector Undertakings.
- 2) All matters relating to sale of Central Government equity through offer for sale or private placement or any other mode in the erstwhile Central Public Sector Undertakings.
- 3) Decisions on the recommendations of Administrative Ministries, NITI Aayog, etc. for disinvestment including strategic disinvestment.
- 4) **Advise the Government in matters of financial restructuring of the Central Public Sector Enterprises** and for attracting investment in the said Enterprises through capital market.
- 5) The Unit Trust of India Act, 1963 (52 of 1963) along with subjects relating to Specified Undertaking of the Unit Trust of India (SUUTI).

Statement 3 is incorrect: The **Department of Public Enterprises** is the **nodal department** for all the Central Public Sector Enterprises (CPSEs) and **formulates policy** pertaining to CPSEs. It lays down policy guidelines on performance improvement and evaluation, autonomy and financial delegation and personnel management in CPSEs.

Source: <https://blog.forumias.com/department-of-investment-and-public-asset-management-dipam/>

<https://dipam.gov.in/vision-mission>

<https://dpe.gov.in/about-us/about-department>

Q.79)

Ans) c

Exp) Option c is the correct answer.

The **right to travel abroad** has been derived from the right to life and personal liberty provided under **Article 21**. In this article, life does not mean a mere individual physical existence but also the **quality of life**. On a similar note, personal liberty does not entail freedom from physical restraint or confinement but also **covers** various rights.

In the verdict of **Maneka Gandhi v. Union of India**, the Supreme Court said that the expression "personal liberty" mentioned in article 21 has a very wide range and it covers a plethora of rights which consist of the personal liberty of man and some of which have even been raised to the status of separate fundamental rights. One of them was the right to travel abroad.

The right to move freely throughout the territory of India is bestowed under Article 19 of the Indian constitution.

Source: <https://blog.ipleaders.in/need-know-right-travel-abroad/>

Q.80)

Ans) b

Exp) Option b is the correct answer.

Statement 1 is incorrect: Till the 2019 Lok Sabha election, female voter turnout was always less than male voter turnout. But in 2019 Lok Sabha election, the difference between female voter turnout has not only closed but **reversed** to 0.17 percentage points in 2019 Lok Sabha polls from minus-16.71 percentage points in the 1962 general election. **Women voter participation at 67.18% was greater than the male participation that stood at 67.01%, in 2019.**

In 2014 general elections, 65.5% women turned out to vote, and 67.3% men turned out.

Statement 2 is correct: The **highest-ever number of women** have been elected in the 17th Lok Sabha polls of 2019. Out of 542 MPs, **78 are women** with Uttar Pradesh and West Bengal leading at 11 each.

Statement 3 is correct: Jawaharlal Nehru's first cabinet had only one woman minister – **Rajkumari Amrit Kaur**. She was given the charge of **the Health Ministry**.

Contributions of Rajkumari Amrit Kaur:

- 1) She played an instrumental role in building the All-India Institute of Medical Sciences (AIIMS) in New Delhi.
- 2) Under her aegis, the Indian Red Cross contributed towards improving healthcare quality in the hinterlands of the country.
- 3) She is credited for the launching of Tuberculosis Association of India and the Central Leprosy Teaching and Research Institute, Chennai.

Source: <https://timesofindia.indiatimes.com/india/women-voter-participation-exceeds-that-of-men-in-2019-ls-polls-cec-chandra/articleshow/87936542.cms>

<https://economictimes.indiatimes.com/news/elections/lok-sabha/india/record-78-women-mps-in-new-lok-sabha/articleshow/69484777.cms?from=mdr>

<https://www.elections.in/political-corner/women-cabinet-ministers-india/>

Q.81)

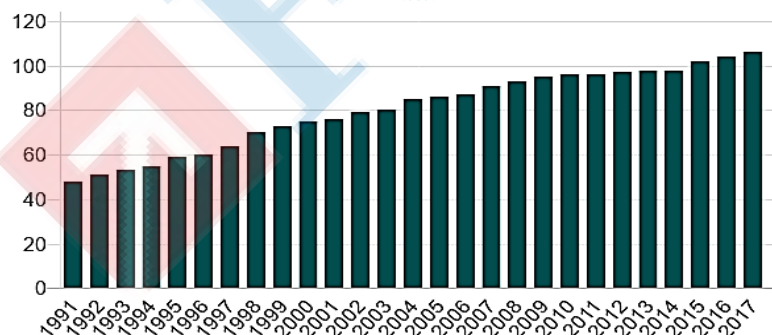
Ans) d

Exp) Option d is the correct answer.

Statement 1 is incorrect: The number of countries which have **formally abolished the death penalty** had been **steadily increasing**, from **48 in 1991 to 106 in 2017**. No additional countries banned the death penalty in 2019 for the second year in a row, but Amnesty says that 142 countries have either abolished the death penalty in law or in practice. At least 2,307 death sentences were passed in 56 countries in 2019. But in some cases, the death sentences will be commuted, where countries are reluctant to enforce the punishment.

How many countries have abolished the death penalty?

■ Abolitionist countries



Source: Amnesty International



Statement 2 is incorrect: While the **death penalty is not prohibited by the International Covenant on Civil and Political Rights (ICCPR)** or any other **virtually universal international treaty**, there are a number of instruments in force with fewer states parties that do abolish capital punishment. Similarly, international customary law does not prohibit the death penalty at the current time, but custom is rapidly

changing towards a position in favour of worldwide abolition. At the international level, the most important treaty provision relating to the death penalty is Article 6 of the ICCPR. At the time the ICCPR was drafted (1947-1966), just ten countries had abolished the death penalty, but extensive debate nonetheless took place as to its status under the covenant.

Source: <https://www.ibanet.org/medias/Deathpenalty-Paper.pdf?context=bWFzdGVyfEhSSS1yZXBvcnRzfDE1NjM3NnxhcHBsaWNhdGlvi9wZGZ8aDYzL2hmMy84ODAwNjgzNDkxMzU4L0RlYXRocGVuYWx0eV9QYXBldi5wZGZ8NGEzOWJiMTI1Yzk5YWl0YjJiZmM5ZGU1MzY4OWMwNzNiNmMTFlOTIyOGE2OGNkZmQ5NmU2MWFmZGYxNWQzMw&attachment=true>
<https://www.bbc.com/news/world-45835584>
<https://theprint.in/theprint-essential/rarest-of-rare-history-of-death-penalty-in-india-and-crimes-that-call-for-hanging/383658/>

Q.82)

Ans) c

Exp) Option c is the correct answer.

The basis of the classification of an offence depends on how serious it is. The punishment of each offence decides its seriousness.

Statement 1 is correct: A **cognizable offence** is an offence in which the **police officer as per the first schedule** or under any other law for the time being in force, **can arrest the accused without a warrant** and **can start an investigation without the permission of the court**. Cognizable offences are generally heinous or serious in nature such as murder, rape, kidnapping, theft, dowry death etc. The first information report (FIR) is registered only in cognizable crimes.

- 1) Under section 154 Criminal Procedure Code (CrPC), a police officer is bound to register an FIR in case of a cognizable crime. He can also conduct some kind of preliminary inquiry before registering the FIR. In these offences, a convict is arrested and produced before the magistrate in the stipulated time.

Statement 2 is incorrect: A **non-cognizable offence is the offence listed** under the first schedule of the **Indian Penal Code and is bailable in nature**. In case of a non-cognizable offence, the police cannot arrest the accused without a warrant as well as cannot start an investigation without the permission of the court. The crimes of forgery, cheating, defamation, public nuisance, etc., fall in the category of non-cognizable crimes.

Statement 3 is incorrect: Cognizable offence has been defined under Section 2 of the Code of Criminal Procedure. Cognizable offence means an offence for which a police officer may, in accordance with the First Schedule or under any other law for the time being in force, arrest without a warrant or permission/order from the Magistrate. **Cognizable offences are those offences which are serious in nature**. Example- Murder, Rape, Dowry Death, Kidnapping, Theft, Criminal Breach of Trust, Unnatural Offences.

Statement 4 is correct: Some of the examples of a **cognizable offence** are as follows:

- 1) **Waging or attempting to wage war, or abetting the waging of war against the government of India.**
- 2) Murder
- 3) Rape
- 4) Dowry Death
- 5) Kidnapping
- 6) Theft
- 7) Criminal Breach of Trust
- 8) Unnatural Offences

Section 154 of the Criminal Procedure Code, 1973 provides that under a cognizable offence the Police Officer has to receive the First Information Report (FIR) relating to the cognizable offence.

Source: <https://lawrato.com/indian-kanoon/criminal-law/what-is-a-cognizable-and-non-cognizable-offence-in-india-612#:~:text=Listen,arrest%2C%20unless%20with%20a%20warrant.>

Q.83)

Ans) a

Exp) Option a is the correct answer.

At present, the Supreme Court consists of thirty-four judges (one chief justice and thirty three other judges). In 2019, the centre notified an increase in the number of Supreme Court judges from thirty-one to thirty-four, including the Chief Justice of India.

Statement 1 is incorrect: Collegium system, a system of appointment and transfer of judges that has evolved through judgments of the SC, and not by an Act of Parliament or by a provision of the Constitution. It has evolved through judgements of three judge's cases. In the Subhash Agarawal case, the Supreme court rejected the idea of bringing the office of the Chief Justice of India under the Right to Information Act. However, recently on reviewing its own judgement, the office of the CJI has been brought under the RTI. But, the Supreme court has rejected bringing the working of the collegium under the RTI.

Statement 2 is correct: Warrants issued by governments are on the basis of the recommendation of the Collegium, which comprises the five most senior SC judges. The **Collegium's recommendations for any name can be returned by the government**, but if the Collegium reiterates the name, the government is bound to issue the warrant of appointment. The procedure for this is laid down in the Memorandum of procedure.

Statement 3 is correct: The **judges of the Supreme Court are appointed by the president**. The chief justice is appointed by the president after consultation with such judges of the Supreme Court and high courts as he deems necessary. The other judges are appointed by president after consultation with the chief justice and such other judges of the Supreme Court and the high courts as he deems necessary. **The consultation with the chief justice is obligatory in the case of appointment of a judge other than Chief justice.**

Source: <https://scroll.in/article/1006987/explainer-what-happens-when-the-centre-refuses-to-appoint-judges-despite-a-collegium-recommendation>

<https://indianexpress.com/article/explained/justice-joseph-seniority-row-supreme-court-judges-appointment-5294780/>

Q.84)

Ans) d

Exp) Option d is the correct answer.

Under the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021**, the Information and Broadcasting Ministry has the power to regulate content across all sectors barring the internet. The sectors covered include TV channels, newspapers and magazines, movies in theatres and on TV, and the radio.

The Rules establish a soft-touch self-regulatory architecture and a Code of Ethics and three tier grievance redressal mechanism for news publishers and OTT Platforms and digital media. Notified under section 87 of the Information Technology Act, these Rules empower the **Ministry of Information and Broadcasting to implement Part-III of the Rules which prescribe the following:**

- 1) **Code of Ethics for online news**, OTT platforms and digital media: This Code of Ethics prescribes the guidelines to be followed by OTT platforms and online news and digital media entities.
- 2) **Self-Classification of Content:** The OTT platforms, called as the publishers of online curated content in the rules, would self-classify the content into five age-based categories- U (Universal), U/A 7+, U/A 13+, U/A 16+, and A (Adult). Platforms would be required to implement parental locks for content classified as U/A 13+ or higher and reliable age verification mechanisms for content classified as "A".
- 3) The publisher of online curated content shall prominently display the classification rating specific to each content or programme together with a content descriptor informing the user about the nature of the content, and advising on viewer description (if applicable) at the beginning of every programme enabling the user to make an informed decision, prior to watching the programme.
- 4) Publishers of news on digital media would be required to observe Norms of Journalistic Conduct of the Press Council of India and the Programme Code under the Cable Television Networks Regulation Act thereby providing a level playing field between the offline (Print, TV) and digital media.
- 5) Since Feb 2021, the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021**, extended its regulatory powers over internet content.

Source: <https://pib.gov.in/PressReleaseDetailm.aspx?PRID=1700749>

<https://indianexpress.com/article/explained/explained-ib-ministries-powers-to-regulate-content-on-tv-other-platforms-7761547/>

Q.85)

Ans) a

Exp) Option a is the correct answer.

Parliamentary privileges are special rights, immunities and exemptions enjoyed by the two Houses of Parliament, their committees and their members.

Statement 1 is correct. Members of the Parliament are exempted from jury service. They can refuse to give evidence and appear as a witness in a case pending in a court when Parliament is in session.

Statement 2 is correct. Parliament collectively can punish **members as well as outsiders** for breach of its privileges or its contempt by reprimand, admonition or imprisonment (also suspension or expulsion, in case of members).

Statement 3 is incorrect. The Constitution has extended the parliamentary privileges to those persons who are entitled to speak and take part in the proceedings of a House of Parliament or any of its committees. These **include the attorney general of India and Union ministers**.

Parliamentary privileges **do not extend to the president** who is also an integral part of the Parliament.

Statement 4 is incorrect. Parliament, till now, **has not made any special law to exhaustively codify all the privileges**. They are based on five sources: 1. Constitutional provisions, 2. Various laws made by Parliament, 3. Rules of both the Houses, 4. Parliamentary conventions, and 5. Judicial interpretations.

Source: Laxmikanth Chapter 22 Parliament

Q.86)

Ans) c

Exp) Option c is the correct answer.

Statement 1 is correct: A democratic polity can be classified into two categories– monarchy and republic. In a monarchy, the head of the state (usually king or queen) enjoys a hereditary position, that is, he comes into office through succession, e.g., Britain. **In a republic**, on the other hand, **the head of the state is always elected directly or indirectly for a fixed period**, e.g., USA. Therefore, the term 'republic' in our Preamble indicates that **India has an elected head called the president**. He is elected indirectly for a fixed period of five years.

Statement 2 is correct: A republic also means two more things:

- 1) Vesting of political sovereignty in the people and not in a single individual like a king.
- 2) **The absence of any privileged class and hence all public offices being opened to every citizen without any discrimination.**

Source: Indian polity by M Laxmikanth. 6th edition pdf. Page no.127 and 128.

Q.87)

Ans) b

Exp) Option b is the correct answer.

The **Constitution of India stands for a Secular State**. Hence, **it does not uphold any particular religion as the official religion of the Indian State**. The Indian Constitution embodies the positive concept of secularism, i.e., equal respect for all religions or equal protection for all religions. The term "secular" was added to the Indian Constitution's Preamble by the 42nd Constitutional Amendment Act of 1976.

- 1) A secular state guarantees religious freedom to individuals and businesses.
- 2) It addresses the individual as a citizen, regardless of religion.
- 3) It is not constitutionally linked to any particular religion, and it neither promotes nor interferes with religion.
- 4) As can be seen, the concept of a secular state entails three distinct but interconnected sets of relationships involving the state, religion, and the individual.
- 5) The state shall have no religion of its own, and all citizens shall have equal access to the freedom of conscience and the right to freely profess, practices, and propagate any religion.
- 6) To be truly secular, a state must not only refuse to be theocratic but also have no formal, legal ties to any religion.

Though all other statements are the provisions of Secularism, only statement b best defines the best term Secular state. So, Option b is correct.

| Articles in constitution | Provisions of Secularism |
|---------------------------|--|
| Article 14 and Article 15 | The former grants equality before the law and equal protection of the laws to all while the later enlarges the concept of secularism to the widest possible extent by prohibiting discrimination on grounds of religion, race, caste, sex or place of birth. |
| Article 16 (1) | Equal opportunity to all citizens in matters of public employment and reiterates, no discrimination on the basis of religion, race, caste, sex, descent, place of birth and residence |
| Article 25 | Freedom of Conscience', that is, all persons have equal right to freely profess, practice and propagate religion. |
| Article 26 | Every religious group/ individual has the right to establish and maintain religious and charitable institutions and to manage its own affairs in matters of religion. |
| Article 27 | The state shall not compel any citizen to pay any taxes for the promotion or maintenance of any particular religion or religious institution. |
| Article 28 | allows educational institutions maintained by different religious groups to impart religious instruction |
| Article 29 and 30 | Provides for the cultural and educational rights to the minorities |

Source: Indian polity by M Laxmikanth. 6th edition pdf. Page no. 101 and chapter 7. Fundamental rights.

Q.88)

Ans) c

Exp) Option c is the correct answer.

The Constitution does not define the term “minorities” anywhere, but only mentions it in some Articles.

Statement 1 is correct: The Central Government notifies minority communities at the national level in consultation with various stakeholders under Section 2 (c) of the National Commission for Minorities (NCM) Act, 1992. The six communities notified as minority communities under Section 2(c) of the NCM Act, 1992 are Christians, Sikhs, Muslims, Buddhists, Parsis and Jains. Notification of any community specific to a State as minority community within a State comes under the purview of the State concerned.

Statement 2 is incorrect: The Seventh Constitutional Amendment Act of 1956 inserted a new Article 350-B in Part XVII of the Constitution. It says that there should be a **Special Officer for Linguistic Minorities**. He is to be appointed by the President of India. There is no provision for **Special Officer for Religious Minorities in our Constitution**.

Statement 3 is incorrect: Initially, five religious communities namely Muslims, Christians, Sikhs, Buddhists, and Zoroastrians (Parsis) were notified as minority communities. In 2014, **Jains were also notified as another minority community. Jews are not notified as minority community in India as of yet.**

Statement 4 is incorrect: In TMA PAI Case, Supreme Court dealt with the question of the scope of rights of minorities to establish and administer educational institutions of their choice under the Constitution. While delivering judgment, the court rejected the contention that since Hindus were a majority in India, they could not be a religious minority in the State of Punjab as it took the State as the unit to determine whether the Hindus were a minority community. Therefore, this judgment held that the **unit to determine a religious or linguistic minority can only be the State (not nation).**

In 2005, the SC in its judgment in 'Bal Patil' referred to the TMA Pai ruling, and said that the verdict in the TMA Pai Foundation case (supra) has **clarified that the unit for determining the status of both linguistic and religious minorities would be 'state'.**

Source: Explained: Who is a 'minority' in India? Here's what courts have said -ForumIAS Blog

Revaluation of Minority Commission -ForumIAS Blog

Laxmikanth

Q.89)

Ans) a

Exp) Option a is the correct answer.

A Governor possesses executive, legislative, financial and judicial powers more or less analogous to the President of India. However, he has no diplomatic, military or emergency powers like the president.

Statement 1 is correct: All executive actions of the government of a state are formally taken in Governor's name.

The **executive powers** and functions of the **Governor** are:

- 1) All executive actions of the government of a state are formally taken in his name.
- 2) He can make rules specifying the manner in which the Orders and other instruments made and executed in his name shall be authenticated.
- 3) He can make rules for more convenient transaction of the business of a state government and for the allocation among the ministers of the said business.
- 4) He appoints the chief minister and other ministers. They also hold office during his pleasure.
- 5) There should be a Tribal Welfare minister in the states of Chattisgarh, Jharkhand, Madhya Pradesh and Odisha appointed by him. The state of Bihar was excluded from this provision by the 94th Amendment Act of 2006.

Statement 2 is correct: A governor is an integral part of the state legislature. In that capacity, he has the following legislative powers and functions:

- 1) He can summon or prorogue the state legislature and dissolve the state legislative assembly.
- 2) He can address the state legislature at the commencement of the first session after each general election and the first session of each year.
- 3) He can send messages to the house or houses of the state legislature, with respect to a bill pending in the legislature or otherwise.
- 4) He can appoint any member of the State legislative assembly to preside over its proceedings when the offices of both the Speaker and the Deputy Speaker fall vacant. Similarly, he can appoint any member of the state legislature council to preside over its proceedings when the offices of both Chairman and Deputy Chairman fall vacant.

Statement 3 is incorrect: Anglo-Indians were provided two nominated seats in the Lok Sabha and one nominated seat in the State Legislative Assemblies to ensure adequate representation of the community in elected legislative bodies. Though In **January 2020, the Anglo-Indian reserved seats in the Parliament and State Legislatures of India** were **discontinued** by the 126th Constitutional Amendment Bill of 2019, when enacted as the **104th Constitutional Amendment Act, 2019**. The reservation for the Anglo-Indian community was extended till the year 2020 through the 95th Amendment, 2009. Originally, this provision was to operate till 1960.

Source: Indian polity by M Laxmikanth. 6th edition pdf. Page no.687.

Q.90)

Ans) c

Exp) Option c is the correct answer.

Statement a is correct: Central Vigilance Commission (CVC) is the main agency for preventing corruption in the Central government. It was established in 1964 by an executive resolution of the Central government. Later, in 2003, the Parliament enacted a **law conferring statutory status** on the CVC.

The **Lokpal and Lokayuktas Act** was passed in 2013 with amendments in parliament, following the Jan Lokpal movement led by Anna Hazare in 2011. The Lokpal is responsible for enquiring into corruption charges at the national level while the Lokayukta performs the same function at the state level.

Statement b is correct: The Lokpal and Lokayuktas Act (2013) amended the CVC Act 2003. Accordingly, Central Vigilance Commission has been **empowered to conduct preliminary inquiry into complaints referred by Lokpal** in respect of officers and officials of Groups A, B, C & D. For this a Directorate of Inquiry for making preliminary inquiry is to be set up in the Commission.

Statement c is incorrect: The Central Vigilance Commission is a multi-member body consisting of a Central Vigilance Commissioner (chairperson) and not more than two vigilance commissioners. They are **appointed by the president** by warrant under his hand and seal on the recommendation of a **three-member committee** consisting of the **prime minister** as its head, the **union minister of home affairs** and the **Leader of the Opposition in the Lok Sabha**. Lokpal has no role in appointment of Central Vigilance Commissioner.

Statement d is correct:

The **jurisdiction of the Central Vigilance Commission extends to the following:** 1. Members of All India Services serving in connection with the affairs of the Union and Group A officers of the Central Government. 2. Officers of the rank of Scale V and above in the Public Sector Banks. Officers in Grade D and above in Reserve Bank of India, NABARD and SIDBI. 4. Chief Executives and Executives on the Board and other officers of E-8 and above in Schedule 'A' and 'B' Public Sector Undertakings. 5. Chief Executives and Executives on the Board and other officers of E-7 and above in Schedule 'C' and 'D' Public Sector Undertakings. 6. Managers and above in General Insurance Companies. 7. Senior Divisional Managers and above in Life Insurance Corporation.

Lokpal's jurisdiction will cover all categories of public servants, including Group A, Group B, Group C, and Group D officers and employees of Government.

Source: Laxmikanth(5th edition) Chapter 59 Lokpal and Lokayuktas

Chapter 57 **Central Vigilance Commission**

Lokpal will help CVC function independently: Govt - The Hindu

Q.91)

Ans) d

Exp) Option d is the correct answer.

Option 1 is correct. Article 21 has a very wide scope and thus it covers other rights as well. **Right to live with human dignity** is one of the most important rights which are embodied under Article 21. This right was provided so that everyone can live their life with basic human dignity. So the practice like 'Manual Scavenging' was abolished a long time ago in the year 1955 by the Protection of the Civil Rights Act to ensure that there should be no exploitation of the workmen especially who belonged from Scheduled Caste and several other lower casts. Also, they should not be deprived of their rights and benefits and thereby declared a punishable offence in the year 1993.

Option 2 is correct. A person who has been employed to handle the manual cleaning, disposing, carrying of human excreta from a railway track, insanitary latrine, open drain or pit is considered to be a manual scavenger and this practice is called as manual scavenging. It is mainly done by the people who belong to a **lower caste society** and are **also called as Dalits or Untouchables**. It exploits the marginalized group of society and it's a huge threat to their life. **It is also the violation of Right to Equality** as the people who are involved in it are considered to be untouchables and are not accepted by the society. They are not allowed to enter the temples or drink water from the same well and the list continues. The problem of manual scavenging has been taking place before the pre independence era.

Option 3 is correct. To secure the **right to adequate means of livelihood for all citizens** is one of the Directive principles of state policy. The legislature has passed the act to prevent the manual scavenging and to provide adequate means of livelihood. **The Employment of Manual Scavenging and Construction of Dry Latrines (Prohibition) Act, 1993** was passed to prohibit manual scavenging and to ensure that the people who are indulged in this practice are **not deprived of their right to live with human dignity**. As it is evident from the name of the Act, it prohibits the employment of the manual scavengers and also the building of the insanitary latrines. The violation of the same is punishable with simple imprisonment up to one year or a fine of Rs 2000/- or with both in some cases.

Source: <https://timesofindia.indiatimes.com/readersblog/justcorporatethings/manual-scavenging-violation-of-article-21-37191/>

Indian polity by M Laxmikanth. 6th edition pdf. Chapter 7- Fundamental right and chapter 8- Directive principles of state policy.

Q.92)

Ans) d

Exp) Option d is the correct answer.

The Article 244 in Part X of the Constitution deals with a special system for administration of areas designated as Tribal Areas as the tribes in these areas have remained relatively isolated and deeply entrenched in their indigenous culture and customs. The Sixth Schedule of the constitution contains the detailed scheme of administration of such tribal areas exclusively in the 4 north-eastern states of Assam, Tripura, Meghalaya and Mizoram.

Statement a is incorrect: This statement is incorrect as the Sixth Schedule is applicable only in the tribal regions in the states of - Assam, Tripura, Meghalaya and Mizoram (not all states).

Statement b is incorrect: This statement is incorrect as these areas are not outside the authority of the State Executive. The Governor, who is a part of the State Executive takes key decisions regarding organisation of autonomous districts, the final assent for passage of legislative decisions of the autonomous councils, etc.

Statement c is incorrect: This statement is incorrect as it is the Governor, not the President, who makes decisions regarding the creation of autonomous districts and subsequently their resizing, change in name, boundaries, etc.

Statement d is correct: Although the district and regional councils in the areas being administered under the Sixth Schedule are empowered to constitute village councils or courts for trial of suits and cases between tribes according to their customary laws, they are still under the jurisdiction of the High Court of the State in which they are situated. However it must be noted that the extent of this jurisdiction of the High Court in these tribal suits is specified by the Governor, and hence may be different from its jurisdiction under normal circumstances.

Source: Indian Polity by Laxmikanth, 5th Edition, Ch-41, Pg 41.2

Q.93)

Ans) a

Exp) Option a is the correct answer

India became independent on August 15, 1947. Jawaharlal Nehru's famous speech, 'tryst with destiny' delivered on the midnight of August 15, is remembered as the moment a new nation was born thereon. In reality though, that was the moment when India and Pakistan acquired dominion status. While India remained a dominion till 1950, Pakistan retained the status till 1956.

1) In simpler words, dominions were autonomous communities within the British Empire which were "equal in status" but had an "allegiance to the Crown". What it meant was that King George VI continued to reign as the Emperor of India and Lord Mountbatten was the first Governor-General of the country. Nehru was sworn in as the premier, but served on the command of the British Governor-General, and unelected Indian nationalist leaders were administered oaths in the name of the British King-Emperor. A British field Marshall led the Indian army and judges appointed by the British continued to be part of the high courts and the federal court.

2) It was only on January 26, 1950, that the country was able to break free from the monarchy and transform into a sovereign democratic republic after its constitution came into effect. The three years of dominion status though, were crucial in the ultimate creation of a democratic republic.

Source: <https://indianexpress.com/article/research/independence-day-dominion-status-august-15-1947-6555454/>

Q.94)

Ans) b

Exp) Option b is the correct answer.

In recent years there has been a proliferation of gambling, betting and e-games like Online Rummy, Dream Teams, etc. This poses significant challenges with respect to the protection of customers and regulation of these activities.

Option a is incorrect: There are **two categories of games** in India: **Games of Chance** and **Games of Skill**. **Gambling & betting** has **not** been put **in any single category** and its **classification varies** from **state to state**. For example, e-gaming has been classified as a Game of Chance in Sikkim & Nagaland.

Option b is correct: **Gambling** has been placed under the **State List in the 7th Schedule** of the constitution. This means that **each State government and Legislature** is **free to regulate** gambling & betting within its own state according to its own understanding.

Option c is incorrect: As Gambling is a part of State List, its **designation as legal and illegal**, whether online or offline **varies from state to state**. For example, it is legal in Goa, but illegal in Maharashtra. Online gambling and land-based casinos are legalized in Goa, Sikkim, Nagaland, and Daman under the Public Gambling Act, 1976.

Option d is incorrect: **Advertising for e-games and gambling online or lotteries does not invite punishment in all the states**. **Currently** All India Gaming Federation, The Rummy Federation, and Federation of Indian Fantasy Sports have adopted a **self-regulation code** for all their **advertisements**.

Source: <https://www.hindustantimes.com/brand-post/whats-the-legal-status-of-gambling-regulations-in-india-in-2021-101623671189683.html>

Q.95)

Ans) b

Exp) Option b is the correct answer.

- 1) **The state Assam is located in the North Eastern region of India.** It is a landscape of indigenous tribes. **The Deori is one of the major tribal communities of Assam.** It contributes to one of the distinct plains' tribe communities of the state. The people of the tribe are distributed in many districts of the state like Jorhat, Majuli, Sivasagar, Dibrugarh, Tinisukia, Lakhimpur, Biswanath etc.
- 2) Since ancient times the different **tribes of people living in Assam** have made Assamese culture more diverse and livelier. The different tribes of Assam are: **Mising, Tiwa, Rabha, Sonowal Kachari, Bodo-Kachari, Dimasa** etc. For the formation of Assam and contributing of the society and culture of Assam, the Deoris are also Major tribe among all other tribes of Assam. The Deoris are from the Tibeto-Burman caste from the Mongaloid race. The Deori tribe is found in the state of Assam and Arunachal Pradesh, They speak both Assamese and Tibeto-Burman language called Deori Chutia. The name Deori derives from the word Deva, which mean God.

Source: <http://www.jcreview.com/admin/Uploads/Files/61b5c9b8f2d2f7.53588731.pdf>

<https://www.thehindu.com/news/national/other-states/to-myanmar-in-search-of-a-lost-clan-of-the-deoris-tribe-of-assam/article6485876.ece>

Q.96)

Ans) c

Exp) Option c is the correct answer.

The Constitution in its Part V makes provisions regarding the selection of various Presiding Officers of the Lok Sabha in order to ensure the impartial and smooth functioning of the legislative business. The Presiding Officers of Lok Sabha include the Speaker, the Deputy Speaker and the Panel of Chairpersons of Lok Sabha.

Statement 1 is correct: While the **3rd Schedule** contains the **oaths** taken by **important functionaries** like the **President, Vice President, Union Ministers, MPs, CAG, Judges, etc**, it must be noted that the **Speaker**, despite being an important constitutional authority, **doesn't have to take any separate oath** or affirmation when assuming this office. He **only swears an oath once** in the **capacity of the Member of Parliament** when he is elected to it during the general elections.

This is true of the Deputy Speaker as well.

Statement 2 is incorrect: This statement is **incorrect**, as the **Deputy Speaker** undertakes **all the responsibilities** of a **Speaker** in case of his **absence**, including **presiding** over the **Joint sitting** of both the houses.

It must be noted that **despite** being placed **higher** than the Deputy Speaker of Lok Sabha in the **order of precedence**, the **Chairman of the Rajya Sabha does not preside** over joint sittings of the Houses.

Statement 3 is incorrect: The constitution provides the Speaker security of tenure by providing that he may only be **removed** upon the **passage of a resolution** to that effect in the Lok Sabha by an **Effective Majority (majority of all the then members** of the House) as opposed to an **ordinary majority** (majority of members **present and voting**).

Source: Indian Polity by Laxmikanth, 5th edition, Ch-22, Pg 22.7, 22.8, 22.9

Q.97)

Ans) d

Exp) Option d is the correct answer.

Statement 1 is correct: At the recently concluded Leaders' Summit on Climate in April 2021, **Lowering Emissions by Accelerating Forest Finance (LEAF) Coalition**, a collective of the **United States, United Kingdom and Norway governments**, came up with a \$1 billion fund plan that shall be offered to countries committed to arrest the decline of their tropical forests by 2030. LEAF was supported by transnational corporations (TNCs) like Unilever plc, Amazon.com, Inc, Nestle, Airbnb, Inc as well as Emergent, a US-based non-profit. Tropical forests are massive carbon sinks and by investing in their protection, public and private players are likely to stock up on their carbon credits.

Statement 2 is correct: The **LEAF coalition initiative** is a step towards **concretizing the aims** and objectives of the **Reducing Emissions from Deforestation and Forest Degradation (REDD+)** mechanism. REDD+ was created by the United Nations Framework Convention on Climate Change (UNFCCC). It monetized the value of carbon locked up in the tropical forests of most developing countries, thereby propelling these countries to help mitigate climate change.

1) Such a financial impetus is crucial as it incentivizes developing countries to capture extensive deforestation and provide livelihood opportunities to forest-dependent populations. A country willing to participate would need to fulfill certain predetermined conditions laid down by the Coalition. It is a unique initiative as it seeks to help developing countries in battling the double-edged sword of development versus ecological commitment.

Statement 3 is correct: The Lowering Emissions by Accelerating Forest finance (**LEAF**) **Coalition's goal** is to halt **deforestation by financing large scale tropical forest protection**. In 2021, the Coalition mobilized \$1bn in financing, kicking off the largest-ever public-private efforts to protect tropical forests.

Source: <https://leafcoalition.org/>

<https://www.downtoearth.org.in/blog/forests/leaf-coalition-s-proposal-is-a-step-forward-in-saving-forests-indigenous-peoples-77745>

Q.98)

Ans) a

Exp) Option a is the correct answer.

Statement 1 is correct: The **Grand Slam** in tennis is the **achievement of winning all four major championships in one discipline in the same calendar year**, also referred to as the "Calendar-year Grand Slam" or "Calendar Slam". In doubles, a team may accomplish the Grand Slam playing together or a player may achieve it with different partners. Winning all four major championships consecutively but not within the same calendar year is referred to as a non-calendar-year Grand Slam, while winning the four majors at any point during the course of a career is known as a Career Grand Slam.

Statement 2 is correct: The **first player to complete the Grand Slam**, i.e. win all four majors in a calendar year, was **Don Budge in 1938**. To date, five singles players (two men, three women), nine doubles players (four men, five women) and one junior (boy) have completed the Grand Slam. In wheelchair disciplines, two singles players (one man, one woman) and twelve doubles players (four men, eight women) have achieved it. Margaret Court is the only able-bodied player to complete the Grand Slam in two disciplines, singles and mixed doubles (twice), while wheelchair tennis players Diede de Groot and Dylan Alcott have completed one in both the singles and doubles disciplines of their respective classes.

Statement 3 is incorrect: Legendary **Spanish tennis player Rafael Nadal tops the list of the most Grand Slam tennis titles** won of all time by professional male tennis players.

Source: <https://www.statista.com/statistics/263034/male-tennis-players-with-the-most-victories-at-grand-slam-tournaments/>
https://www.usopen.org/en_US/visit/grand_slam_alltime_champions.html

Q.99)

Ans) d

Exp) Option d is the correct answer.

Statement 1 is correct: Indian Olympic Association (IOA) is registered as a **Non-Profit Organisation** under the Societies Registration Act of 1860. As member of the IOC, it is the Indian Olympic Association's primary mission **to develop, promote and protect the Olympic Movement** in the country. Beyond participation in the Games, the IOA has also established various initiatives with different stakeholders for the development of **sports education** and **Olympic studies**.

Statement 2 is correct: The IOA was **established** before the independence of India in the year **1927** with Sir Dorabji Tata and Dr. A.G. Noehren as the Founding President and Secretary General respectively.

Statement 3 is correct: The IOA oversees the representation of athletes or teams participating in the Olympic Games, **Commonwealth Games**, **Asian Games** and other international multi-sport competitions of IOC, CGF, OCA and ANOC. The Indian Olympic Association is recognised by the Ministry of Youth Affairs and Sports.

Source: <https://olympic.ind.in/organisation>

<https://olympic.ind.in/history>

Q.100)

Ans) b

Exp) Option b is the correct answer.

Statement 1 is incorrect: The **2022 ICC Women's Cricket World Cup** is the **twelfth edition** of the Women's Cricket World Cup, which is being **held in New Zealand** in March and April 2022. It was originally scheduled for 6 February to 7 March 2021 but was postponed by one year due to the COVID-19 pandemic. On 15 December 2021, the International Cricket Council (ICC) announced that the tournament would start on 4 March 2022, with the final scheduled for 3 April 2022. New Zealand qualified automatically as hosts, with all other qualification places determined by the ICC WODI Rankings. Originally, it was announced that three more teams would qualify from the 2017–2020 ICC Women's Championship, but in 2018 this was changed to four teams plus the hosts.

Statement 2 is correct: **India have not won a single Women's Cricket World Cup.** The eleven World Cups played to date have been held in five countries, with India and England having hosted the event three times. Australia is the most successful team, having won six titles and failed to make the final on only three occasions. England got four titles and New Zealand got one title. Therefore Australia, England and New Zealand are the only three teams to have won the event, while India, on twice and the West Indies, on once, have each reached the final without going on to win.

| YEAR | HOSTS | WINNER | RUNNER UP |
|------|--------------|-------------|-------------|
| 1973 | England | England | Australia |
| 1978 | India | Australia | England |
| 1982 | New Zealand | Australia | England |
| 1988 | Australia | Australia | England |
| 1993 | England | England | New Zealand |
| 1997 | India | Australia | New Zealand |
| 2000 | New Zealand | New Zealand | Australia |
| 2005 | South Africa | Australia | India |
| 2009 | Australia | England | New Zealand |
| 2013 | India | Australia | West Indies |
| 2017 | England | England | India |

Source: <https://www.icc-cricket.com/womens-world-cup/history>

<https://www.mykhel.com/cricket/icc-womens-world-cup-winners-list-full-list-of-womens-odi-cricket-world-cup-winners-runners-up-185328.html?story=2>