

**1. Ans: c**

Explanation:

**Force for Drifting**

Wegener suggested that the movement responsible for the drifting of the continents was caused by pole-fleeing force and tidal force. **The polar-fleeing force relates to the rotation of the earth.** The Earth is not a perfect sphere; it has a bulge at the equator. This bulge is due to the rotation of the earth.

The second force that was suggested by Wegener- the tidal force- is due to the attraction of the moon and the sun that develops tides in oceanic waters. Wegener believed that these forces would become effective when applied over many million years.

**Hence, option c is correct.**

**2. Ans: c**

Explanation:

A tectonic plate (also called lithospheric plate) is a massive, irregularly shaped slab of solid rock, generally composed of both continental and oceanic lithosphere.

The theory of plate tectonics proposes that the earth's lithosphere is divided into seven major and some minor plates.

Young Fold Mountain ridges, trenches, and/or faults surround these major plates.

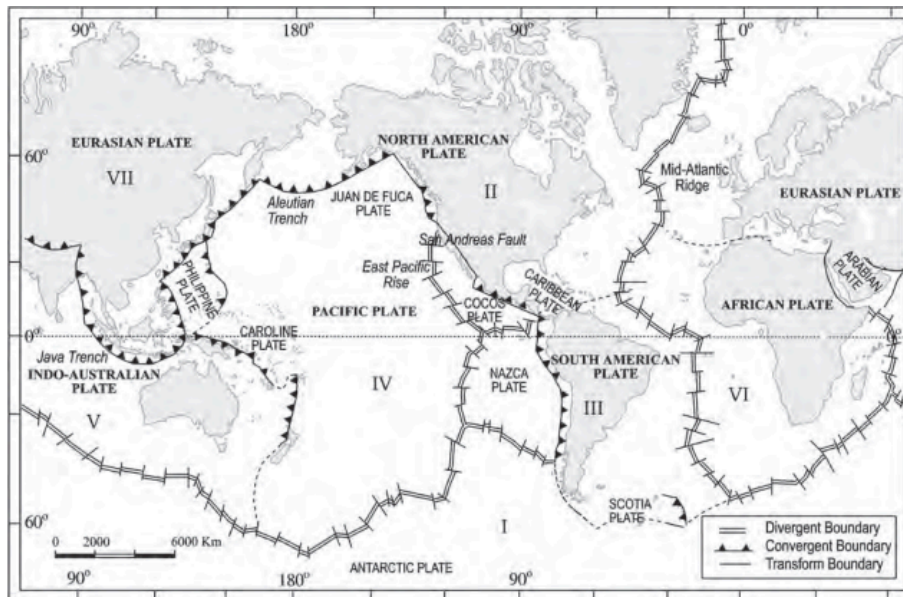
**The major plates are as follows:**

- (i) Antarctica and the surrounding oceanic plate
- (ii) North American (with western Atlantic floor separated from the South American plate along the Caribbean islands) plate
- (iii) South American (with western Atlantic floor separated from the North American plate along the Caribbean islands) plate
- (iv) Pacific plate
- (v) India-Australia-New Zealand plate
- (vi) Africa with the eastern Atlantic floor plate
- (vii) Eurasia and the adjacent oceanic plate

**Some important minor plates are listed below:**

- (i) Cocos plate: Between Central America and Pacific plate
- (ii) Nazca plate: Between South America and Pacific plate
- (iii) Arabian plate: Mostly the Saudi Arabian landmass
- (iv) Philippine plate: Between the Asiatic and Pacific plate
- (v) Caroline plate: Between the Philippine and Indian plate (North of New Guinea)**
- (vi) Fuji plate: North-east of Australia

These plates have been constantly moving over the globe throughout the history of the Earth.



**Major and minor plates of the world**

**Hence, option c is correct.**

**3. Ans: a**

Explanation:

#### **Soil-forming Factor- Climate**

Climate is an important active factor in soil formation. The climatic elements involved in soil development are :

- (i) moisture in terms of its intensity, frequency and duration of precipitation-evaporation and humidity;
- (ii) temperature in terms of seasonal and diurnal variations.

Precipitation gives soil its moisture content which makes the chemical and biological activities possible. Excess water helps in the downward transportation of soil components through the soil (eluviation) and deposits the same down below (illuviation).

In climates like wet equatorial rainy areas with high rainfall, not only calcium, sodium, magnesium, potassium etc., but also a major part of silica is removed from the soil.

Removal of silica from the soil is known as desilication.

**In dry climates, because of high temperature, evaporation exceeds precipitation and hence groundwater is brought up to the surface by capillary action and in the process**

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**the water evaporates leaving behind salts in the soil.** Such salts form into a crust in the soil known as hardpans.

In tropical climates and in areas with intermediate precipitation conditions, calcium carbonate nodules (kanker) are formed.

Temperature acts in two ways — increasing or reducing chemical and biological activity.

**Chemical activity is increased in higher temperatures, reduced in cooler temperatures (with the exception of carbonation) and stops in freezing conditions. That is why tropical soils with higher temperatures show deeper profiles and in the frozen tundra regions, soils contain largely mechanically broken materials.**

*Hence, both statements 1 & 2 are correct, & statement 2 explains statement 1.*

**4. Ans: a**

Explanation:

#### **Lakes Formed by Earth Movement**

**(a) Tectonic Lakes:** Due to warping, sagging, bending and fracturing of the earth's crust, tectonic depressions occur. Such depressions give rise to lakes of immense sizes and depths. **They include Lake Titicaca (the highest in the world) and the Caspian Sea (the largest lake, almost 5 times larger than its nearest rival, Lake Superior).**

**(b) Rift Valley Lakes:** Due to faulting, a rift valley is formed by the sinking of land between two parallel faults, deep, narrow and elongated in character. Water collects in these troughs and their floors are often below sea level. The best-known example is the East African Rift Valley which runs through Zambia, Malawi, Tanzania, Kenya and Ethiopia and extends along the Red Sea. It includes such lakes as **Lake Tanganyika (the world's deepest lake), Malawi, Rudolf, Edward, and Albert as well as the Dead Sea (the world's lowest lake).**

*Hence, option a is correct.*

**5. Ans: d**

Explanation:

#### **HEATING AND COOLING OF ATMOSPHERE**

There are different ways of heating and cooling of the atmosphere.

The earth after being heated by insolation, transmits the heat to the atmospheric layers near to the earth in long waveform. The air in contact with the land gets heated slowly and

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the upper layers in contact with the lower layers also get heated. This process is called **conduction**. Conduction takes place when two bodies of unequal temperature are in contact with one another, there is a flow of energy from the warmer to cooler body. The transfer of heat continues until both bodies attain the same temperature or the contact is broken. Conduction is important in heating the lower layers of the atmosphere.

The air in contact with the earth rises vertically on heating in the form of currents and further transmits the heat of the atmosphere. This process of vertical heating of the atmosphere is known as **convection**. The convective transfer of energy is confined only to the troposphere.

The transfer of heat through horizontal movement of air is called **advection**. The horizontal movement of the air is relatively more important than the vertical movement. In middle latitudes, most of the diurnal (day and night) variations in daily weather are caused by advection alone. **In tropical regions particularly in northern India, during the summer season local winds called 'loo' are the outcome of the advection process.**

**Hence, statement 1 is incorrect.**

#### **Terrestrial Radiation**

**The insolation received by the earth is in short waveforms and heats up its surface.**

The earth, after being heated itself, becomes a radiating body, and it **radiates energy to the atmosphere in the long waveform**. This energy heats up the atmosphere from below. This process is known as terrestrial radiation.

The long wave radiation is absorbed by the atmospheric gases particularly by carbon dioxide and the other greenhouse gases. Thus, the atmosphere is indirectly heated by the Earth's radiation.

The atmosphere, in turn, radiates and transmits heat to space. Finally the amount of heat received from the sun is returned to space, thereby maintaining constant temperature at the earth's surface and in the atmosphere.

**Hence, statement 2 is incorrect.**

**6. Ans: c**

Explanation:

#### **COMPOSITION OF THE ATMOSPHERE**

The atmosphere is composed of gases, water vapour and dust particles. The proportion of gases changes in the higher layers of the atmosphere in such a way that oxygen will be almost in negligible quantity at the height of 120 km. Similarly, carbon dioxide and water vapour are found only up to 90 km from the surface of the earth.

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### **Gases**

**Carbon dioxide is meteorologically a very important gas as it is transparent to the incoming solar radiation but opaque to the outgoing terrestrial radiation.** It absorbs a part of terrestrial radiation and reflects back some part of it towards the earth's surface. It is largely responsible for the greenhouse effect. The volume of other gases is constant but the volume of carbon dioxide has been rising in the past few decades mainly because of the burning of fossil fuels. This has also increased the temperature of the air. Ozone is another important component of the atmosphere found between 10 and 50 km above the earth's surface and acts as a filter and absorbs the ultra-violet rays radiating from the sun and prevents them from reaching the surface of the earth.

**Hence, statement 1 is correct.**

### **Water Vapour**

Water vapour is also a variable gas in the atmosphere, **which decreases with altitude.** In the warm and wet tropics, it may account for four per cent of the air by volume, while in the dry and cold areas of desert and polar regions, it may be less than one per cent of the air. **Water vapour also decreases from the equator towards the poles.** It also absorbs parts of the insolation from the sun and preserves the earth's radiated heat. It thus, acts like a blanket, allowing the earth neither to become too cold nor too hot. Water vapour also contributes to the stability and instability of the air.

**Hence, statement 2 is correct.**

**7. Ans: a**

Explanation:

### **Indian Lagoons**

A lagoon (bay) has freshwater streams flowing into it from the hinterland or the catchment areas, on one side, and on the otherside, the lagoon opens into the sea through a comparatively narrow mouth. India has three major lagoons, **the Chilika Lake (978 sq. km.) in Orissa, perhaps the largest lagoon in Asia, the Pulicat Lake (350 sq. km.) between Andhra Pradesh and Tamil Nadu, and the Vembanad Lake (300 sq. km.) in Kerala.** These three major lagoons of India are not only identical with each other, broadly in their hydrological as well as biological features, but are also identical with similar major lagoons in South and Southeast Asia.

**Hence, option a is correct.**

**8. Ans: c**

Explanation:

The Narmada river rises from the western flanks of the Amarkantak Plateau.

**The Tapi originates from the sacred tank of Multai on the Satpura Plateau in the Betul district of Madhya Pradesh.**

The Sabarmati rises from the hills of Mewar in the Aravali Range, flows through a gorge at Dharoi and falls into the Gulf of Khambhat.

The Mahi river rises in the Vindhyas and empties itself into the Gulf of Khambhat.

***Hence, option c is correct.***

**9. Ans: a**

Explanation:

#### **Characteristics of Monsoon Rainfall**

**Monsoon rainfall is largely orographic in its mode of occurrence and is governed by relief.** The Himalayas and the Western Ghats are the main rainfall-controlling relief features. The Himalayas obstruct the moisture-laden monsoon winds from the Indian Ocean and cause rainfall in the northeastern States and in the Indus-Ganga-Brahmaputra plain. **Again, the windward side of Western Ghats receives more than 250 cm of annual rainfall whereas most parts of the leeward side of the Western Ghats receive less than 60 cm of annual rainfall.**

***Hence, statement 1 is correct & statement 2 is incorrect.***

**The amount of rainfall decreases with increasing distance from the sea.** Southwest monsoon come in the form of heavy downpours which result in large-scale run off and soil erosion.

***Hence, statement 3 is correct.***

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**10. Ans: a**

Explanation:

Normally, two types of minerals are recognised:

**(i) Metallic Minerals:** These minerals contain metal. Iron ore, copper, manganese, nickel, etc. are important examples of metallic minerals.

Metallic minerals are further sub-divided into ferrous and non-ferrous minerals.

**(a) Ferrous minerals:** These minerals have iron content. Iron ore, manganese, chromite, pyrites, tungsten, **nickel, cobalt** etc. are important examples of ferrous minerals.

**(b) Non-ferrous minerals:** These minerals do not have iron content. Gold, silver, bauxite, tin, **magnesium**, etc. are important examples of non-ferrous minerals.

**(i) Non-metallic Minerals:** These minerals do not contain metal. Limestone, nitrate, potash, dolomite, **mica**, gypsum, etc. are important examples of non-metallic minerals. Coal and petroleum are also non-metallic minerals. They are used as fuel and are also known as mineral fuels.

**Hence, option a is correct.**

**11. Ans: a**

Explanation:

**Limitations of Preamble**

1. Preamble cannot be pressed into service as long as the words are clear, precise and are susceptible to only one meaning.

2. Preamble can be resorted to only when the language of a provision is reasonably capable of alternative constructions.

**3. Preamble cannot either restrict or extend the meaning and scope of the words used in the enacting part.**

4. Preamble can only indicate in a general way, the content and colour of the enactment but cannot override the enacting provisions in the Act.

**5. In case of conflict between the Preamble and the section, the Preamble would succumb and the section shall prevail.**

**6. If the provisions contained in a statute do not accord with the Preamble, then those provisions cannot be invalidated on this ground.**

7. Preamble cannot be used to control or qualify the clear and precise language of enactment.

8. Preamble cannot be regarded as a source of any substantive power or of any prohibition or limitation.

**Hence, statement 1 is correct & statements 2 & 3 are incorrect.**

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**12. Ans: c**

Explanation:

Rights, in fact, are those conditions of social life without which no man can seek, in general, to be himself at his best. Since the State exists to make possible that achievement, it is only by maintaining rights that its end may be secured. **Rights, therefore, are prior to the State in the sense that, recognised or not, they are that from which the State's validity derives.**

**Hence, statement 1 is correct.**

**Our rights are not independent of society, but inherent in it.** We have them, that is to say, for its protection as well as for our own.

“To provide for me the conditions which enable me to be my best self is to oblige me, at the same time, to seek to be my best self. To protect me against attack from others is to imply that I myself will desist from attacking others. To give me the benefit of education is to imply that I will so use the advantages education confers to add to the common stock. I do not exist solely for the State; but neither does the State exist solely for me. **My claim comes from the fact that I share with others in the pursuit of a common end.**”

My rights are powers conferred that I may, with others, strive I for the attainment of that common end.”

I seek, in virtue of the common end I share with others, their well-being in my own.

**Rights, therefore, are correlative with functions. I have them that I may make my contribution to the social end.**

**Hence, statement 2 is incorrect & statement 3 is correct.**

**13. Ans: c**

Explanation:

**The object behind the inclusion of Fundamental Rights in the Constitution is to establish a government of law as opposed to that of men, ensuring that there is no scope for the tyranny of the majority over the minority.** Justice Hidayatullah aptly observed, “Fundamental Rights are not playthings in the hands of the majority.”

Fundamental Rights are essential for the attainment of full intellectual, moral and spiritual status by **every citizen.**

**Hence, option c is correct.**



**14. Ans: b**

Explanation:

The object of the writ of quo warranto is to prevent a person who has **wrongfully usurped a public office** from continuing in that office. Before a citizen can claim a writ of quo warranto, he must satisfy the court that the office in question is a public office and it is held by a usurper without legal authority.

A public office is an office in which the public has an interest. **It has been held that the office of the Speaker of a Legislative Assembly is a public office and a writ can lie against the same to inquire.**

**Hence, statement 2 is incorrect.**

An application for a writ of quo warranto challenging the legality of an appointment to an office of a public nature is maintainable at the instance of **any private person, although he is not personally aggrieved or interested in the matter (Satish Chander vs University of Rajasthan, 1970)**

**Hence, statement 1 is correct.**

**A petition was filed seeking the writ of quo warranto against the Chief Minister of Rajasthan** on the ground that his election in the Legislative Assembly was not legal.

**Hence, statement 3 is correct.**

**15. Ans: b**

Explanation:

#### **Sixth Schedule**

#### **Constitution of District Councils and Regional Councils.—**

There shall be a District Council for each autonomous district consisting of not more than thirty members, of whom not more than four persons shall be nominated by the Governor and the rest shall be elected on the basis of adult suffrage.

There shall be a separate Regional Council for each area constituted as an autonomous region.

**Hence, option b is correct.**

**16. Ans: b**

Explanation:

**Limitations on the Powers of the Council of States**

1. A Money Bill cannot be introduced in the Council of States.

**2. It has no power either to reject or amend a Money Bill. It can only make recommendations.** If such a Bill is not returned to the House of the People within a period of 14 days, the Bill is deemed to have been passed by both Houses in the form in which it was passed by the House of the People.

**3. Whether a particular Bill is a Money Bill or not is decided by the Speaker of the House of the People.**

**4. The Council of States may discuss the annual financial statement, but it has no power to vote on demands for grants.**

5. It has no power to pass a vote of no-confidence in the Cabinet.  
**Hence, option b is correct.**

**17. Ans: c**

Explanation:

**Article 100 (1):** The Chairman or Speaker, or person acting as such, shall not vote in the first instance, but shall have and **exercise a casting vote in the case of an equality of votes.**

**Hence, statement 1 is correct.**

**Article 100(4):** If at any time during a meeting of a House there is no quorum, it shall be the duty of the Chairman or Speaker, or person acting as such, **either to adjourn the House or to suspend the meeting until there is a quorum.**

**Hence, statement 2 is incorrect.**

**Article 96 (2):** The Speaker shall have the right to speak in, and otherwise to take part in the proceedings of, the House of the People **while any resolution for his removal from office is under consideration in the House and shall, be entitled to vote only in the first instance** on such resolution or on any other matter during such proceedings but not in the case of an equality of votes.

**Hence, statement 3 is correct.**

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**18. Ans: b**

Explanation:

**Doctrine of desuetude and obsolescence:** If times and situations change, so must views, traditions and conventions.

**Doctrine of Non-retrogression:** It means that the state has progressively achieved a certain level of human rights protection for its citizens and is enjoined from causing any reduction in that status at a future time.

**Doctrinal interpretation:** It means interpretation of provisions of the Constitution by evolving doctrines.

**Principle of harmonious interpretation:** The presumption is in favour of organic connectivity of all parts of the Constitution and it must be interpreted in such a manner as to give effect to it in its entirety.

**Hence, option b is correct.**

**19. Ans: c**

Explanation:

**Interim Prime Minister**

**If the office of the Prime Minister falls vacant without a clear successor, the President has some influence in the choice of a new Prime Minister.** This was so in 1964 when Prime Minister Jawaharlal Nehru died and again in 1966, when Prime Minister Lal Bahadur Shastri died all of a sudden. It was believed in political circles that President Radhakrishnan exerted his influence at the time of the appointment of Lal Bahadur Shastri and Indira Gandhi as Prime Ministers, respectively.

**Hence, statement 1 is correct.**

**In making a report under Article 356, the Governor is justified in exercising his discretion even against the aid and advice of his Council of Ministers** because the failure of the constitutional machinery may itself be the result of the conduct of the Council of Ministers. This discretionary power is given to the Governor to enable him to report to the President who, however, must act on the advice of his Council of Ministers in all matters.

**Hence, statement 2 is correct.**

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**20. Ans: b**

Explanation:

**Immunities of President and Governor**

**Article 361(1)-**

Provide immunity to the President of India against being answerable to any court for the exercise and performance of the powers and duties of his office or for any act done or purporting to be done by him in the exercise and performance of those powers and duties.

**However, the conduct of the President may be brought under review by any court, tribunal or body appointed or designated by either House of Parliament for the investigation of a charge under Article 61, dealing with his impeachment.**

**Article 361(1) does not bar the right of any person to bring appropriate proceedings against the Government of India or the Government of a State.**

**Hence, statement 1 is incorrect & statement 2 is correct.**

**Article 361(2)- Lays down that no criminal proceedings whatsoever can be instituted or continued against the President, or the Governor of a State, in any court during his term of office.**

**Article 361 (3)- Lays down that no process for the arrest or imprisonment of the President or the Governor of a State, can be issued by any court during his term of office.**

**Article 361 (4)- Provides that no civil proceedings claiming relief against the President, or the Governor of a State, can be instituted during his term of office in any court in respect of any act done or purporting to be done by him in his personal capacity, whether before or after he entered upon his office as President, or as Governor of such State, until the expiration of two months next after notice in writing has been delivered to the President or the Governor, as the case may be, or left at his office stating the nature of the proceedings, the cause of action, therefore, the name, description and place of residence of the party by whom such proceedings are to be instituted and the relief claimed.**

**Hence, statement 3 is correct.**

**21. Ans: d**

Explanation:

The legal framework for administration of foreign exchange transactions in India is provided by the Foreign Exchange Management Act, 1999, (FEMA), which came into force with effect from June 1, 2000. Under FEMA, all transactions involving foreign exchange have been classified either as capital or current account transactions.

Under the Liberalised Remittance Scheme (LRS), **all resident individuals, including minors, are allowed to freely remit up to USD 2,50,000 per financial year (April – March)** for any permissible current or capital account transaction or a combination of both.

**Hence, statement 1 is correct.**

Individuals can avail of foreign exchange facility for the following purposes within the LRS limit of USD 2,50,000 on a financial year basis:

1. **Private visits to any country (except Nepal and Bhutan)**
2. Gift or donation
3. Going abroad for employment
4. Emigration
5. Maintenance of close relatives abroad
6. Travel for business, attending a conference or specialised training or for meeting expenses for meeting medical expenses, or check-up abroad, or for accompanying as an attendant to a patient going abroad for medical treatment/ check-up
7. Expenses in connection with medical treatment abroad
8. Studies abroad
9. Any other current account transaction which is not covered under the definition of current account in FEMA 1999.

**Hence, statement 2 is correct.**

**The remittances can be made in any freely convertible foreign currency.**

**Hence, statement 3 is correct.**

**22. Ans: b**

Explanation:

**What are InvITs?**

InvITs are a type of investment vehicle that allows investors to invest in infrastructure projects. **The main objective of InvITs is to provide retail investors with access to**

**investment opportunities in infrastructure projects** that were previously only available to large institutional investors.

**Hence, statement 1 is incorrect.**

InvITs offer investors the opportunity to invest in a diversified portfolio of infrastructure projects, which can provide stable income streams and potential capital appreciation over the long term. At the same time, it helps infrastructure projects tap into household savings.

### Features and structure of InvITs

#### Where do they invest?

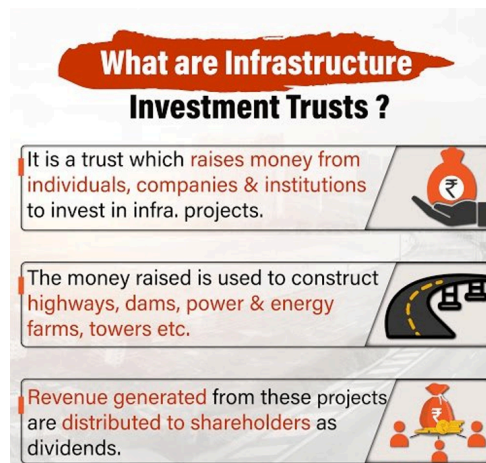
InvITs are similar to mutual funds or REITs, but they invest in infrastructure assets like toll roads, power transmission lines, and pipelines.

#### Structure

**InvITs are created by sponsors, who are typically infrastructure companies or private equity firms.** The sponsor sets up the InvIT and transfers ownership of the underlying infrastructure assets to the trust. The trust then issues units to investors, which represent an ownership stake in the trust and, thus the underlying assets.

**Hence, statement 2 is correct.**

Investors in InvITs can earn returns in two ways: through regular distributions and potential capital appreciation. **InvITs typically distribute most of their earnings to investors in the form of dividends, which can provide a regular income stream.** In addition, if the underlying assets appreciate in value over time, investors can potentially sell their units for a profit.



#### Advantages of InvITs

The Infrastructure Investment Trusts provide access to retail investors to invest in large infrastructure projects while offering some additional benefits.

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- **Low ticket size:** The investor can invest small amounts of money into the InvITs.
- **Liquidity:** As the units of InvITs are listed on stock exchanges, there is reasonable liquidity (an exit option) for both the existing investors and the new investors.
- **Transparency:** The investor can easily know where the money is invested as well as what the fair value of the investment would be as the NAV is declared regularly.
- **Regulations:** InvITs are regulated by the Securities and Exchange Board of India (SEBI), which sets rules and regulations governing the formation and operation of InvITs. SEBI requires InvITs to distribute at least 90% of their income to investors and limits the amount of leverage that the trust can use to finance the acquisition of infrastructure assets.

**Hence, statement 3 is correct.**

**23. Ans: a**

Explanation:

**Government Security (G-Sec)**

Government Security (G-Sec) is a tradeable instrument issued by the Central Government or the State Governments. It acknowledges the Government's debt obligation. Such securities are short-term (usually called treasury bills, with original maturities of less than one year) or long-term (usually called Government bonds or dated securities with original maturity of one year or more).

**In India, the Central Government issues both, treasury bills and bonds or dated securities while the State Governments issue only bonds or dated securities, which are called the State Development Loans (SDLs).**

G-Secs carry practically no risk of default and, hence, are called **risk-free gilt-edged instruments**.

**Hence, statement 2 is incorrect.**

**Treasury bills**

Treasury bills or T-bills, which are money market instruments, are short-term debt instruments issued by the Government of India and are presently issued in three tenors, namely, 91 days, 182 days 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.

**Hence, statement 1 is correct.**

### **Cash Management Bills (CMBs)**

In 2010, the **Government of India, in consultation with RBI, introduced a new short-term instrument, known as Cash Management Bills (CMBs)**, to meet the temporary mismatches in the cash flow of the Government of India. The CMBs have the generic character of **T-bills** but are issued for maturities of less than 91 days.

**Hence, statement 3 is incorrect.**

**24. Ans: c**

Explanation:

### **Instruments of Monetary Policy**

**Repo Rate:** The interest rate at which the Reserve Bank provides liquidity under the liquidity adjustment facility (LAF) to all LAF participants against the collateral of government and other approved securities.

**Standing Deposit Facility (SDF) Rate:** The rate at which the Reserve Bank accepts uncollateralised deposits, on an overnight basis, from all LAF participants. The SDF is also a financial stability tool in addition to its role in liquidity management. The SDF rate is placed at 25 basis points below the policy repo rate. With the introduction of SDF in April 2022, the SDF rate replaced the fixed reverse repo rate as the floor of the LAF corridor.

**Marginal Standing Facility (MSF) Rate:** *The penal rate at which banks can borrow, on an overnight basis, from the Reserve Bank by dipping into their Statutory Liquidity Ratio (SLR) portfolio up to a predefined limit (2 per cent).* This provides a safety valve against unanticipated liquidity shocks to the banking system. The MSF rate is placed at 25 basis points above the policy repo rate.

**Liquidity Adjustment Facility (LAF):** The LAF refers to the Reserve Bank's operations through which it injects/absorbs liquidity into/from the banking system. It consists of overnight as well as term repo/reverse repos (fixed as well as variable rates), SDF and MSF. Apart from LAF, instruments of liquidity management include outright open market operations (OMOs), forex swaps and market stabilisation schemes (MSS).

**LAF Corridor:** The LAF corridor has the marginal standing facility (MSF) rate as its upper bound (ceiling) and the standing deposit facility (SDF) rate as the lower bound (floor), with the policy repo rate in the middle of the corridor.

**Main Liquidity Management Tool:** A 14-day term repo/reverse repo auction operation at a variable rate conducted to coincide with the cash reserve ratio (CRR) maintenance cycle is the main liquidity management tool for managing frictional liquidity requirements.

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**Fine Tuning Operations:** The main liquidity operation is supported by fine-tuning operations, overnight and/or longer tenor, to tide over any unanticipated liquidity changes during the reserve maintenance period. In addition, the Reserve Bank conducts, if needed, longer-term variable rate repo/reverse repo auctions of more than 14 days.

**Reverse Repo Rate:** The interest rate at which the Reserve Bank absorbs liquidity from banks against the collateral of eligible government securities under the LAF. Following the introduction of SDF, the fixed rate reverse repo operations will be at the discretion of the RBI for purposes specified from time to time.

**Bank Rate:** The rate at which the Reserve Bank is ready to buy or rediscount bills of exchange or other commercial papers. The Bank Rate acts as the penal rate charged on banks for shortfalls in meeting their reserve requirements (cash reserve ratio and statutory liquidity ratio). The Bank Rate is published under Section 49 of the RBI Act, 1934. This rate has been aligned with the MSF rate and, changes automatically as and when the MSF rate changes alongside policy repo rate changes.

**Cash Reserve Ratio (CRR):** The average daily balance that a bank is required to maintain with the Reserve Bank as a per cent of its net demand and time liabilities (NDTL) as on the last Friday of the second preceding fortnight that the Reserve Bank may notify from time to time in the Official Gazette.

**Statutory Liquidity Ratio (SLR):** Every bank shall maintain in India assets, the value of which shall not be less than such percentage of the total of its demand and time liabilities in India as on the last Friday of the second preceding fortnight as the Reserve Bank may, by notification in the Official Gazette, specify from time to time and such assets shall be maintained as may be specified in such notification (typically in unencumbered government securities, cash and gold).

**Open Market Operations (OMOs):** These include the outright purchase/sale of government securities by the Reserve Bank for injection/absorption of durable liquidity in the banking system.

**Hence, option c is correct.**

**25. Ans: d**

Explanation:

Agriculture serves as the backbone of India's economy, playing a pivotal role in ensuring food security, providing employment, and contributing to overall economic development.

### **Achievements of Indian agriculture**

#### **Increased Food Grain Production**

India's foodgrain production has seen a steady rise over the years, reflecting improvements in agricultural productivity and policy support. In 2004-05, total foodgrain production stood at **204.6 million tonnes** (4th advance estimates). This increased to **252 million tonnes** in 2014-15 and further surged to an estimated **332.3 million tonnes** in 2023-24.

#### **Gross Area Under Major Crops**

In 2004-05, the total area under foodgrain crops was 120.2 million hectares (4th advance estimates). This expanded to 124.3 million hectares in 2014-15 and reached 132.1 million hectares in 2023-24.

#### **Annual Growth Rate of Real Gross Value Added (GVA) at Basic Prices**

The annual growth rate of real GVA in the agriculture, forestry, and fishing sector has shown fluctuations over the years. In 2004-05, it was recorded at **1.4%**, slightly declining to **1.2%** in 2014-15. However, the sector has gained momentum in recent years, with the growth rate rising to an estimated **2.1%** in 2023-24. This reflects improved **efficiency, mechanisation, and diversification** in agricultural activities.

#### **Real Gross Value Added (GVA) in Agriculture (₹ Crore at Constant Prices)**

The real GVA for agriculture, forestry, and fishing has demonstrated substantial growth, showcasing the sector's increasing contribution to the economy. In 2004-05, the GVA stood at **₹13.85 lakh crore**, which rose to **₹18.94 lakh crore** in 2014-15 and further increased to an estimated **₹26.42 lakh crore** in 2023-24 (PE). This consistent rise highlights the sector's resilience and its vital role in India's economic development.

#### **Increase in productivity**

Comparison of yield between 2013-14 and 2023-24 (Kg/ha) reflects a substantial increase in productivity.

<b>Crop</b>	<b>2013-14</b>	<b>2023-24</b>	<b>Absolute Difference (2023-24 over 2013-14)</b>	<b>Difference (%)</b>
<b>Rice</b>	<b>2416</b>	<b>2882</b>	<b>466</b>	<b>19.29</b>
<b>Wheat</b>	<b>3145</b>	<b>3559</b>	<b>414</b>	<b>13.16</b>
Maize	2676	3351	675	25.22
Coarse Cereals	1717	2945	1228	71.52
<b>Total Pulses</b>	<b>763</b>	<b>881</b>	<b>118</b>	<b>15.47</b>
<b>Total Foodgrains</b>	<b>2120</b>	<b>2515</b>	<b>395</b>	<b>18.63</b>

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<b>Total Oilseeds</b>	<b>1167</b>	<b>1314</b>	<b>147</b>	<b>12.60</b>
Sugarcane	70522	78953	8431	11.96
Jute	2639	2783	144	5.46

**Hence, option d is correct.**

**26. Ans: b**

Explanation:

**Global Economic Prospects is a World Bank Group flagship report** that examines global economic developments and prospects, with a special focus on emerging markets and developing economies.

The January 2025 edition of the World Bank's Global Economic Prospects (GEP) report projects India's economy to grow at a steady rate of 6.7% in both FY26 and FY27, significantly outpacing global and regional peers.

India is set to dominate the global economic landscape, maintaining its status as the fastest-growing large economy for the next two fiscal years.

**Hence, option b is correct.**

**27. Ans: c**

Explanation:

**The terms of trade are defined as the**

The terms of trade is an index measuring the price of a country's exports relative to the price of its imports i.e. **ratio between export and import prices.**

The terms of trade rise (improve) when the price of a country's exports increases relative to the price of its imports and decline (deteriorate) if import prices increase relative to export prices.

Terms of trade matter because it measures the purchasing power of exports relative to imports. **A country experiencing an improvement in its terms of trade can buy more imports with the same quantity of exports, hence gaining purchasing power. In contrast, a country experiencing a deterioration in its terms of trade (for instance, an oil importer when oil prices rise) is transferring purchasing power abroad.**

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***Hence, statement 2 is correct.***

The terms of trade are affected by all factors influencing the price of internationally traded goods and services. Among those, two important factors are fluctuations in ***exchange rates and commodity prices***.

**An appreciation of the domestic exchange rate can lead to a reduction in the domestic price of imported goods if those goods are priced in foreign currency, and hence improve the terms of trade.**

Fluctuations in commodity prices can significantly impact a country's terms of trade for example, Russia's invasion of Ukraine in February 2022 prompted a series of events that impacted Europe's energy landscape and, inevitably its terms of trade. Preceding the conflict, Russia was the largest exporter of energy to the European Union in the form of oil as well as gas. After the start of the war, a combination of supply disruptions and international sanctions on Russia caused gas prices to spike, while oil prices rose as well. As a result, imported energy costs skyrocketed across Europe. Due to Europe's heavy reliance on imported energy, its terms of trade worsened, resulting in a net transfer of domestic income abroad and a sharp slowdown in economic activity.

***Hence, statement 1 is correct.***

**28. Ans: b**

Explanation:

The Stand-by Arrangement (SBA) provides short-term financial assistance to countries facing balance of payments problems. Historically, it has been the **IMF lending instrument most used by advanced and emerging market countries**.

The purpose is to Respond flexibly to countries' external financing needs by supporting their adjustment policies with short-term financing.

Pakistan signed Stand-By Arrangement (SBA) with the IMF signed in July 2023 for a \$3 billion.

***Hence, option b is correct.***

**29. Ans: d**

Explanation:

**Four elements which can be identified as being meant specifically for poverty alleviation are:**

1. **Allocation of resources for agriculture:** Since agriculture is the mainstay of the majority of the population, growth in agriculture and, therefore, resources allocated for agriculture are an important part of the attack on poverty. This is not an acceptance of the trickle-down theory. It is common knowledge that in states in which agriculture has made spectacular progress, poverty levels have come down. Therefore, the allocation of resources for agriculture is an important indicator.
2. **Food security system:** The public distribution system with all its shortcomings has played a notable role in avoiding acute conditions of scarcity and met to a certain extent the minimum requirements.
3. **Employment guarantee schemes:** There has been a substantial expansion in programmes which are intended to provide additional employment. The various employment guarantee schemes as well as the credit-related integrated rural development programmes are examples of such programmes.
4. **Expenditure on health and education:** Expenditure on health and education also has an important bearing on reducing poverty levels.

**Hence, option d is correct.**

**30. Ans: a**

Explanation:

Sustained inflation is a period of continuous rising prices.

Sustained inflation is considered as a purely monetary phenomenon. It is not possible for the price level to continue rising if the money supply remains constant.

Sustained inflation can be better understood when government increases its expenditure without raising taxes. This leads to the increase in aggregate demand which, aggregate supply remaining constant, will cause a rise in price level. It is important to know what happens when the price level rises. **The higher price level raises the demand for money to rise for transactions purposes.** With supply of money remaining constant, the greater demand for money causes interest rate to rise. **The rise in interest rate crowds out private investment.**

**Hence, statements 1 & 3 are correct, & statement 2 is incorrect.**

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**31. Ans: c**

Explanation:

The sacred books of the Jainas are collectively known as the Siddhanta or Agama. The language of the earliest texts is Ardha-Magadhi (dialect of Prakrit)

**Canonical literature includes**

**12 Angas**, 12 Uvargas (Upangas), 10 Painnas (Prakirnas), 6 Cheya Suttas (Cheda Sutras), 4 Mula Suttas (Mula Sutras), and individual texts such as the **Nandi Sutta (Nandi Sutra)** and **Anugodara (Anuyogadvava)**.

**Non-canonical literature includes**

Commentaries on the canonical works -Nijjuttis (Niryuktis), Bhashyas, and Churnis. The Jaina Puranas (the Shvetambaras call them Charitas) are hagiographies of the Jaina saints known as tirthankaras.

**The Adi Purana** (9th century) narrates the life of the first tirthankara Rishabha, **Harivamsa Purana** ( 8th century ) gives a Jaina version of the stories of the Kauravas, Pandavas, Krishna, Balarama and others.

**The Trishashtilakshana Mahapurana** by Jinasena and Gunabhadra (9th century) has life stories of various Jaina saints, kings, and heroes.

**The Parishishtaparvan** (12th century) by Hemachandra gives a history of the earliest Jaina teachers and also mention certain details of political history.

**Hence, option c is correct.**

**32. Ans: b**

Explanation:

**Kalibangan** (literally, 'black bangles') gets its name from the thick clusters of black bangles lying all over the surface of its mounds. This site lies on the banks of the dry bed of the **Ghaggar river, in Rajasthan.**

**Hence, 1st pair is incorrectly matched.**

**Lothal** is located between the Sabarmati river and its tributary, **the Bhogavo**, in Saurashtra in Gujarat.

The most distinctive feature of Lothal is the dockyard.

***Hence, 2nd pair is correctly matched.***

**Banawali in Hissar district (Haryana)** is a fortified site measuring about 300 × 500 m, close to the dry bed of the **Rangoi River**.

The site shows evidence of the early, mature, and late Harappan phases.

***Hence, 3rd pair is incorrectly matched.***

**33. Ans: a**

Explanation:

**There are many references to agricultural activity in the Rig Veda.**

The verbs vap (to sow) and krish (to cultivate) occur, along with references to various agricultural implements.

**Phala, langala, and sira** are words for the **plough of wood**.

Other implements included the hoe (khanitra), sickle (datra, srini), and axe (parashu, kulisha).

The word kshetra means a cultivated field.

Hymns refer to the levelling of fields for cultivation, the desire for fertile fields (urvara), and furrows (sita) drenched by rain, producing rich harvests.

***Hence, statement 1 is correct.***

Rigvedic Hymns refer to warriors, priests, cattle-rearers, farmers, hunters, barbers, and vintners. **The crafts mentioned include chariot-making, cart-making, carpentry, metal working, tanning, the making of bows and bowstrings, sewing, weaving, and making mats out of grass or reeds.**

***Hence, statement 2 is correct.***

**There are hardly any references to metallurgical activities** in the Rig Veda, and very few of these occur in these family books.

***Hence, statement 3 is incorrect.***

**34. Ans: d**

Explanation:

**RENUNCIATORY TRADITION** became popular in the age of Buddha. Renunciants advocated giving up attachment to all material things and social relationships. These were people who had left their homes and lived as wanderers, dependent on food and alms offered by sympathetic or generous householders.

The renunciants were referred to by various terms:

**paribbajaka** (Sanskrit—parivrajaka, 'wanderer'),  
**samana** (Sanskrit—shramana, 'one who strives', i.e., to realize the truth), and  
**bhikkhu** (Sanskrit—bhikshu, 'one who lives by begging alms').

Renunciation and asceticism were not entirely new ideas. **Vedic texts** contain words such as vanaprasthi, tapasi, yogi, yati, vairagi, muni, vaikhanasa, and **sannyasi**—all of which have elements of ascetic or renunciatory connotations.

**Hence, option d is correct.**

**35. Ans: c**

Explanation:

**Jaina texts reflect the idea of the superiority of the Kshatriya varna over all others.** The early medieval Adi Purana attributes the creation of the Kshatriya, Vaishya, and Shudra varnas to the first tirthankara Rishabha.

**Hence, statement 1 is correct.**

**People of all varnas and social backgrounds could enter the Jaina sangha.**

**Hence, statement 2 is incorrect.**

**Digambara tradition holds that a woman has to be reborn as a man before she can attain salvation.**

The Shvetambaras, however, acknowledge the possibility of women attaining Jina-hood.

**Hence, statement 3 is correct.**



**36. Ans: d**

Explanation:

**The majestic free-standing Ashokan pillars may symbolise the axis** of the world (axis mundi) that separated heaven and earth.

**Hence, statement 1 is correct.**

**There are also pillars without inscriptions**—the one with a bull capital at Rampurva, the pillar with the lion capital at Vaishali, and the Kosam pillar without a capital.

**Hence, statement 2 is correct.**

**The Maurya period saw the beginning of rock-cut architecture.** The Barabar and Nagarjuni hills to the north of Bodh Gaya contain several caves that were inhabited by Ajivika monks in ancient times. Three caves in the Barabar hills have dedicative inscriptions of Ashoka, and three in the Nagarjuni hills have inscriptions of his son Dasharatha.

**Hence, statement 3 is correct.**

**37. Ans: a**

Explanation:

Hundreds of inscribed and unscribed memorial stones found in various parts of peninsular India reflect different kinds of violence and conflict in the society of their time. They also represent a widespread and long-standing tradition of memorializing the dead in stone. The large numbers of memorial stones found in Karnataka differ widely in form, style, and content.

Chronologically, they range from the 5th to 19th centuries, with a peak during the 10th–13th centuries. **A majority of them are viragals (memorials for heroes), mostly honouring men who died in the course of cattle raids, either as defenders or attackers** like those of Karnataka, most of the Tamil Nadu viragals record the death of men in cattle raids.

**Hence, option a is correct.**

**38. Ans: a**

Explanation:

**Vallabhacharya (1479-1531)**

He was the author of a number of scholarly works in Sankrit and Brajbhasa. The important among them are 'Subodhini' and '**Siddhant Rahasya**'.

**Hence, 1st pair is correctly matched.**

**Kabir(15th Century)**

The most important of Kabir's works are the **Bijak**, Sabads, Sakhis, Mangal, Basant, Holi, Rekhtal etc. His poems are in many metres but most of them are Dohas.

**Hence, 2nd pair is correctly matched.**

**Jnanesvara (1271-1296)**

Jnanesvara wrote his commentary on the 'Bhagwat Gita' called '**Bhavartha Dipika**', which is commonly known as **Jnanesveri**.

**Hence, 3rd pair is incorrectly matched.**

**39. Ans: d**

Explanation:

**One of the important causes of Babur's victory in First Battle of Panipat was the adoption of a scientific war strategy Tulugama by him.**

Babur's army was divided into vanguard, left wing, right wing, and centre. He commanded the centre, riding in its main mass with separate divisions on his own right and left flanks. Besides these there were two bodies of select Turkish horsemen at the outer ends of the right and left wings, whose task it was to turn the enemy's flanks and take him in the rear, this tactic being known by the Turki word **taulqama** or "the horns of the crescent closing in the enemy's rear.' In addition to these divisions, there were two smaller bodies known as the itmish or easily disposable reserve, placed near the two shoulders of the centre; their duty was to go promptly and reinforce any hard-pressed wing. These arrangements had been practised during his march for some days before, so that there was no delay or confusion in each soldier taking up his appointed place on the day of battle.

**Hence, option d is correct.**

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**40. Ans: b**

Explanation:

**Batti:** He enjoys a significant position in Sanskrit literature of the Rajput period. He was a **court poet in the court of Sridhar Sen of Vallabhi**. His sole works is '**Ravana**' which is popularly known as '**Bhattikavya**' after his own name.

**Magha:** He was a resident of Gujrat. His most famous work is "**Shishupala Vadha**". **He was a port as well a scholar**. He studied philosophy, Puranas, Vedas and many other scriptures.

**Sriharsha:** He flourished in the twelfth century. He was the **court poet of Gahadwala king**

**Jaichand :**He is famous for his work known as '**Naishdhiya charita**'. **He was a great philosopher along with being a poet.**

**Hence, option b is correct.**

**41. Ans: a**

Explanation:

A tropical cyclone is a rapidly rotating storm that begins over tropical or subtropical oceans, with very violent winds and torrential rain; sometimes accompanied by thunderstorms. A tropical cyclone is a rapidly rotating storm originating over tropical oceans from warm sea surface waters from where it draws the energy to develop.

**It has a low-pressure centre and clouds spiralling towards the eyewall surrounding the "eye", the central part of the system where the weather is normally calm and free of clouds.** Its diameter is typically around 200 to 500 km but can reach 1000 km. A tropical cyclone brings very violent winds, torrential rain, high waves and, in some cases, very destructive storm surges and coastal flooding. The winds blow counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

**Hence, statement 1 is correct.**

Approximately 85 tropical storms annually develop over the world's warm tropical oceans. More than half (45) of these storms intensify into tropical cyclones, known regionally as hurricanes or typhoons.

**72% of these tropical storms form in the Northern Hemisphere. The remaining 28% develop in the Southern Hemisphere.**

**Hence, statement 2 is incorrect.**

Tropical cyclones are one of the most dangerous weather events on Earth, but at their core lies a paradox—an area of clear skies and calm winds called the eye. The eye is surrounded by an eyewall, which is composed of towering clouds, intense severe weather, and the storm's strongest winds. The more defined a cyclone's eye and eyewall, the greater the intensity of the storm. So, determining when, where, and how often eyes occur is imperative for understanding how these storms are changing over time.

### **Eye and Eye wall**

The "eye is a roughly circular area of comparatively light winds and fair weather found at the center of a severe tropical cyclone. Although the winds are calm at the axis of rotation, strong winds may extend well into the eye. There is little or no precipitation and sometimes blue sky or stars can be seen. The eye is the region of lowest surface pressure and warmest temperatures aloft the eye temperature may be 10 C (18 F) warmer or more at an altitude of 12 km (8 m) than the surrounding environment, but only 0-2 C (0-3 F) warmer at the surface in the tropical cyclone. Eyes range in size from 8 km (5 m) to over 200 km (120 m) across, but most are approximately 30-60 km (20-40 m) in diameter. The eye is surrounded by the eyewall, the roughly circular area of deep convection which is the area of highest surface winds in the tropical cyclone. The eye is composed of air that is slowly sinking and the eyewall has a net upward flow as a result of many moderate- occasionally strong-updrafts and downdrafts. The eye's warm temperatures are due to compressional warming of the subsiding air. Most soundings taken within the eye show a low-level layer which is relatively moist, with an inversion above- suggesting that the sinking in the eye typically does not reach the ocean surface, but instead only gets to around 1-3 km of the surface.

**Some of the most intense tropical cyclones exhibit concentric eyewalls, two or more eyewall structures centered at the circulation center of the storm.** Just as the inner eyewall forms, convection surrounding the eyewall can become organised into distinct rings. Eventually, the inner eye begins to feel the effects of the subsidence resulting from the outer eyewall, and the inner eyewall is usually more rapid than the pressure falls due to the intensification of the outer eyewall, and the cyclone itself weakens for a short period of time.

The World Meteorological Organization (WMO) has confirmed that cyclone Freddy, which wreaked havoc across southeast Africa in early 2023, holds the record for the longest-lived tropical cyclone on record. Freddy maintained its strength for a staggering 36 days.

### **The different terminologies**

Different terminology is used for this weather phenomenon depending on the location:

- In the Caribbean Sea, the Gulf of Mexico, the North Atlantic Ocean and the eastern and central North Pacific Ocean, it is called "hurricane"
- In the western North Pacific, it is called "typhoon"
- In the Bay of Bengal and Arabian Sea, it is called "cyclone"
- In the western South Pacific and southeast Indian Ocean, it is called "severe tropical cyclone."
- In the southwest Indian Ocean, it is called a "tropical cyclone".

**Hence, statement 3 is incorrect.**

42. Ans: b

Explanation:

Globally, glaciers and icefields contribute significantly to sea level rise. **Ice loss from Juneau Icefield, a plateau icefield in Alaska**, accelerated after 2005 AD. Rates of area shrinkage were 5 times faster from 2015–2019 than from 1979–1990.

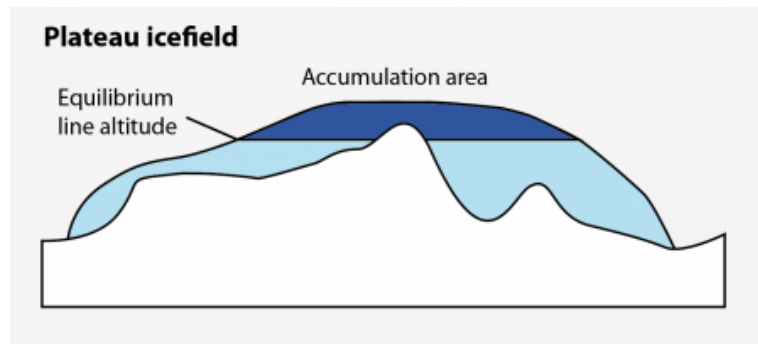
**Hence, statement 1 is incorrect.**

**Juneau Icefield is one of the largest icefields in the world**, made up of many interconnected glaciers, with outlet glaciers draining from the large central plateau, and numerous smaller glaciers on the mountain slopes all around.

### Plateau Icefields

**Juneau is a large plateau icefield; that is, it has a fairly flat upper icefield.** This can make it quite sensitive to climate change. This is because as warming temperatures result in the snowline rising, the area of the icefield with permanent snow (accumulation zone) shrinks rapidly across its flat upper surface. The end of summer snowline lies at the Equilibrium Line Altitude (ELA), where over the course of the year, the mass gain is equal to the mass loss. Above the ELA, there is net gain over the course of the year. Below the ELA, there is net loss.

Rising ELAs across low-slope plateau icefields are problematic, as the low slope here means that there is a rapid and large loss of accumulation area



**Hence, statement 2 is correct.**

**43. Ans: a**

Explanation:

Wetlands—places where the land is covered by water, either salt, fresh, or somewhere in between—cover just over 6% of the Earth's land surface. **Sprinkled throughout every continent except Antarctica**, they provide food, clean drinking water, and refuge for countless people and animals around the world.

**Pantanal Wetland**

**Pantanal is the largest tropical wetland and one of the most pristine in the world. It sprawls across three South American countries—Bolivia, Brazil and Paraguay.**

***Hence, statement 1 is incorrect & statement 2 is correct.***

This massive wetland has the largest concentration of crocodiles in the world, with approximately 10 million **caimans**.

Jaguars, the largest feline in the Americas, hunt caiman. Pantanal, has one of the highest density of jaguars anywhere the world.

**The Pantanal is also home to the biggest parrot on the planet, the hyacinth macaw. Hyacinth macaws can be found in parts of Brazil, eastern Bolivia and northeastern Paraguay.**

***Hence, statement 3 is incorrect.***

**44. Ans: b**

Explanation:

Azerbaijan Launches Climate Finance Action Fund in Package of Initiatives for COP29.

**The Climate Finance Action Fund (CFAF) proposes a novel approach to increasing climate finance flows by involving fossil-fuel-producing countries and companies.**

CFAF will be established as an investment fund focused on income-generating investments **in developing economies** that foster climate action and drive development outcomes.

***Hence, statement 1 is incorrect.***

**It is a Fund to target climate projects in developing countries that need support, meeting next generation of NDCs to keep 1.5C within reach**, and addressing the consequences of natural disasters.

***Test prepared by Kranti Sir [Director MAX IAS]***

**Hence, statement 2 is correct.**

The proposed fund will **concentrate on climate-related projects**, foster renewable energy production with co-benefits in job creation and green diversification, and support research and development (R&D) to innovate new climate solutions.

20% of the generated income will be allocated to the Fund's Rapid Response Facility, aimed at providing highly concessional and grant-based assistance to address the impacts of natural disasters in Small Island Developing States (SIDS) and Least Developed Countries (LDCs).

**CFAF will deploy a diverse range of financial instruments for its investments, including green bonds and other debt instruments**, venture capital, and equity instruments. CFAF will also provide off-take agreement guarantees and first-loss capital for low-carbon projects.

**Hence, statement 3 is correct.**

**45. Ans: a**

Explanation:

**What is a heat wave?**

Heat Waves are a period of unusually high temperatures as compared to what is normally expected over a region. Therefore, the temperatures at which Heat waves are declared differ from place to place based on the temperature climatology (historical temperatures) of that region.

**What is criterion for declaring a heat wave in India?**

Heat wave is considered if maximum temperature of a station reaches at least 40°C or more for Plains and at least 30°C or more for Hilly regions.

**a) Based on Departure from Normal**

**Heat Wave:** Departure from normal is 4.5°C to 6.4°C

**Severe Heat Wave:** Departure from normal is >6.4°C

**b) Based on Actual Maximum Temperature**

**Heat Wave:** When actual maximum temperature  $\geq 45^\circ\text{C}$

**Severe Heat Wave:** When actual maximum temperature  $\geq 47^\circ\text{C}$

If the above criteria are met at least in 2 stations in a Meteorological sub-division for at least two consecutive days and it is declared on the second day.

**Presently, the notified list of disasters eligible for National Disaster Response Fund (NDRF)/State Disaster Response Fund (SDRF) assistance, includes 12 disasters namely cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloud burst, pest attack and frost & cold wave.**

*Hence, option a is correct.*

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**46. Ans: a**

Explanation:

**THE WILD LIFE (PROTECTION) ACT, 1972**

**SECTION 5A. Constitution of the National Board for Wild Life.—**

(1) The Central Government shall, within three months from the date of commencement of the Wild Life (Protection) Amendment Act, 2002 (16 of 2003), constitute the National Board for Wild consisting of the following members, namely:—

(a) the Prime Minister as Chairperson;

**Hence, statement 1 is incorrect.**

**SECTION 12. Grant of permit for special purposes.—**

Notwithstanding anything contained elsewhere in this Act, it shall be lawful for the **Chief Wild Life Warden, to grant a permit, by an order in writing stating the reasons therefor, to any person, on payment of such fee as may be prescribed**, which shall entitle the holder of such permit to hunt subject to such conditions as may be specified therein, any wild animal specified in such permit, for the purpose of,—

(a) education;

[(b) scientific research;

(bb) scientific management.

Explanation.—For the purposes of clause (bb), the expression, “scientific management” means—

(i) translocation of any wild animals to an alternative suitable habitat; or

(ii) population management of wildlife, without killing or poisoning or destroying any wild animals;]

**Hence, statement 2 is correct.**

**SECTION 65. Rights of Scheduled Tribes to be protected.—**

**Nothing in this Act shall affect the hunting rights conferred on the Scheduled Tribes of the Nicobar Islands in the Union territory of Andaman and Nicobar Islands.**

**Hence, statement 3 is incorrect.**



**47. Ans: d**

Explanation:

Like plants and animals, fungi are eukaryotic multicellular organisms. Unlike these other groups, however, fungi are composed of filaments called hyphae; their cells are long and thread-like and connected end-to-end.

Because of this diffuse association of their cells, the body of the organism is given the special name mycelium, a term which is applied to the whole body of any fungus.

When reproductive hyphae are produced, they form a large organised structure called a sporocarp or mushroom. This is produced solely for the release of spores and is not the living, growing portion of the fungus.

**Another feature of fungi is the presence of chitin in their cell walls. This is a long carbohydrate polymer that also occurs in the exoskeletons of insects, spiders, and other arthropods. The chitin adds rigidity and structural support to the thin cells of the fungus and makes fresh mushrooms crisp.**

**Hence, statement 1 is correct.**

**Lichens:**

Lichens are a complex life form that is a symbiotic partnership of two separate organisms, a fungus and an alga. The dominant partner is the fungus, which gives the lichen the majority of its characteristics, from its thallus shape to its fruiting bodies. The alga can be either a green alga or a blue-green alga, otherwise known as cyanobacteria. Many lichens will have both types of algae.

Lichens, do not have any roots, stems or leaves and their chloroplasts are contained only in the algae on the top surface of the lichen.

lichens directly benefit humans through their ability to absorb everything in their atmosphere, especially pollutants. Lichens can provide us with valuable information about the environment around us. **Any heavy metals, carbon or sulfur or other pollutants in the atmosphere are absorbed into the lichen thallus.**

**Hence, statement 2 is correct.**

**Mosses:** Mosses are very primitive, the ancestors of the trees, they have plant-like structures that look like and function like leaves, stems and roots. They have chloroplasts throughout their entire bodies and can photosynthesise from all sides of their structures.

Mosses along with lichens are the first organisms to colonise rocks and hence, are of great ecological importance. **They decompose rocks making the substrate suitable for the growth of higher plants.**

**Hence, statement 3 is correct.**

**Test prepared by Kranti Sir [Director MAX IAS]**

**48. Ans: a**

Explanation:

### **Biotic Components of the Pond Ecosystem**

Biotic components are living components. A wide variety of living components are found in the pond ecosystem:

- **Producers:** These include species of rooted, submerged, emerged, floating plants and algae. The most common algae found in ponds are ***Spirogyra***, *Mougeotia* and *Zygnema*. Green plants that are found in the pond ecosystem- ***Azolla***, *Hydrilla*, *Pistia*, *Wolffia*, *Lemna*, *Eichhornia*, *Nymphaea*, *Potamogeton*, *Jussiaea*,
- **Primary consumers: Zooplankton** are the main primary consumers. Small herbivores such as snails, insects, small fishes, tadpoles, and larvae of aquatic animals are the primary consumers.
- **Secondary consumers:** These include large animal species such as frogs, big fishes, water snakes, crabs, water shrews, **water voles**, **herons**, ducks, kingfishers, etc.
- **Decomposers:** These include different types of bacteria and fungi that feed upon dead and decaying parts of the aquatic species.

**Hence, option a is correct.**

**49. Ans: c**

Explanation:

The “blue” denotes the carbon capture and storage (CCS) processes integrated into the production. In essence, CCS technology captures the CO<sub>2</sub> emissions from steam methane reforming and stores it underground or underwater, preventing its release into the atmosphere.

### **Difference between Blue Ammonia and Green Ammonia?**

The difference between blue and green ammonia fuel lies primarily in the sourcing and production process of hydrogen. This dictates their respective environmental impacts. Blue ammonia is produced by extracting hydrogen from natural gas. It relies on existing fossil fuel extraction, further development of extraction capacity and the construction of more fossil fuel infrastructure.

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On the other hand, **green ammonia production leverages hydrogen obtained through water electrolysis (green hydrogen) that is powered by renewable energy sources like solar or wind power.** This process splits water molecules into hydrogen and oxygen, with the hydrogen then used for ammonia synthesis.

**Unlike the blue variant, green ammonia production can be virtually carbon-free, assuming that the electricity used for electrolysis comes from renewable sources.** This characteristic makes green ammonia a truly low-carbon fuel or even carbon-neutral energy carrier.

***Hence, statements 1 and 2 are correct.***

**50. Ans: b**

Explanation:

Bonobos and Chimpanzees both share close to 98% of their genome in common with humans, Even though the two species are equally related to humans, the two species differ from each other in important ways.

**Chimpanzees are widespread across equatorial Africa, bonobos live only south of the Congo River in the Democratic Republic of Congo.**

***Hence, statement 1 is incorrect.***

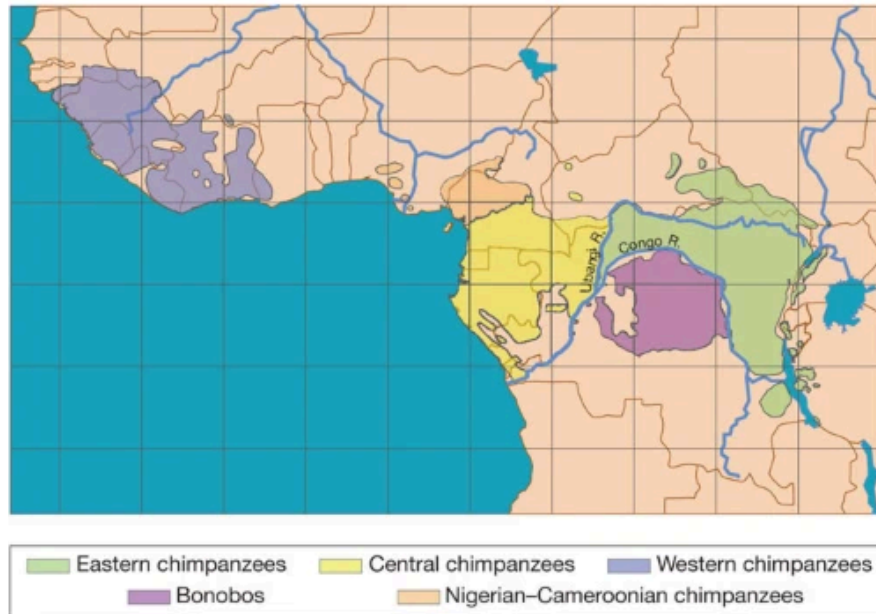
**The Bonobo**

**Bonobos are female-dominant,** with females forming tight bonds against males through same-sex socio-sexual contact that is thought to limit aggression. In the wild, they have not been seen to cooperatively hunt, use tools, or exhibit lethal aggression.

**The Chimpanzee**

**Chimpanzees are male-dominant,** with intense aggression between different groups that can be lethal. Chimpanzees use tools, cooperatively hunt monkeys, and will even eat the infants of other chimpanzee groups.

**Geographical distribution of Chimpanzees and Bonobos**



**Hence, statement 2 is correct.**

**51. Ans: d**

Explanation:

The letters in the word laser stand for Light Amplification by Stimulated Emission of Radiation. **A laser is an unusual light source.** It is quite different from a light bulb or a flashlight. **Lasers produce a very narrow beam of light.** This type of light is useful for lots of technologies and instruments.

**Lasers do not occur in nature. However, we have figured ways to artificially create this special type of light. Lasers produce a narrow beam of light in which all of the light waves have very similar wavelengths.**

**Hence, statement 1 is incorrect.**

The light stays focused and does not spread out much (like a flashlight would), laser beams can travel very long distances. They can also concentrate a lot of energy on a very small area.

Lasers have many uses:

- They are used in precision tools and can cut through diamonds or thick metal.

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- They can also be designed to help in delicate surgeries.
- Lasers are used for recording and retrieving information.
- They are used in communications and in carrying TV and internet signals.
- We also find them in laser printers, bar code scanners, and DVD players.
- They also help to make parts for computers and other electronics.

**Lasers are also used in instruments called spectrometers. Spectrometers can help scientists figure out what things are made of. For example, the Curiosity rover uses a laser spectrometer to see what kinds of chemicals are in certain rocks on Mars.**

NASA missions have used lasers to study the gases in Earth's atmosphere.

The Laser-Induced Breakdown Spectroscopy (LIBS) instrument onboard Chandrayaan-3 Rover has made the first-ever in-situ measurements on the elemental composition of the lunar surface near the south pole.

Lasers have also been used in instruments that map the surfaces of planets, moons, and asteroids.

**Scientists have even measured the distance between the moon and Earth using lasers.**

By measuring the amount of time it takes for a laser beam to travel to the moon and back, astronomers can tell exactly how far away it is.

**Hence, statements 2 & 3 are correct.**

**52. Ans: a**

Explanation:

#### **Facts About LED**

LEDs are small light sources that become illuminated by the movement of electrons through a semiconductor. **LED colours are caused by different semiconductor materials.**

**Hence, statement 1 is correct.**

LEDs are made of soda-lime glass, similar to that used throughout the glass industry for bottles and other common products.

Phosphor-based LEDs are the most popular for manufacturing high-intensity white LEDs. Phosphor in an LED is a phosphate mix that may contain manganese, rare earth elements such as lanthanum, and yttrium as either an oxide or a phosphate, along with barium/aluminium oxide. Phosphor components may vary slightly depending on the colour of the lamp.

**LEDs do not contain mercury, as do compact fluorescent lamps (CFLs), so disposal concerns aren't the same.**

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***Hence, statement 3 is incorrect.***

As LED light bulbs age, the output slowly decreases as the LED lamp loses its initial efficiency. The LED has reached the end of its life when its light output reaches 50% of the rated output and not when the LED bulb gets to the point of emitting 0% of its rated initial output.

The lifespan for LEDs is about 30,000 hours. That averages about 6 hours of light per day for 12 years.

**Phosphor-converted white light-emitting diodes (pc-WLEDs) are excellent energy-efficient light sources for artificial lighting applications.**

***Hence, statement 2 is correct.***

**53. Ans: a**

Explanation:

**In a zero-carbon world, certain chemical elements like nickel, lithium and cobalt used in batteries, as well as rare-earth elements such as neodymium and samarium, which are essential to the magnets of wind turbines and electric motors, are very important.**

***Hence, statement 1 is incorrect.***

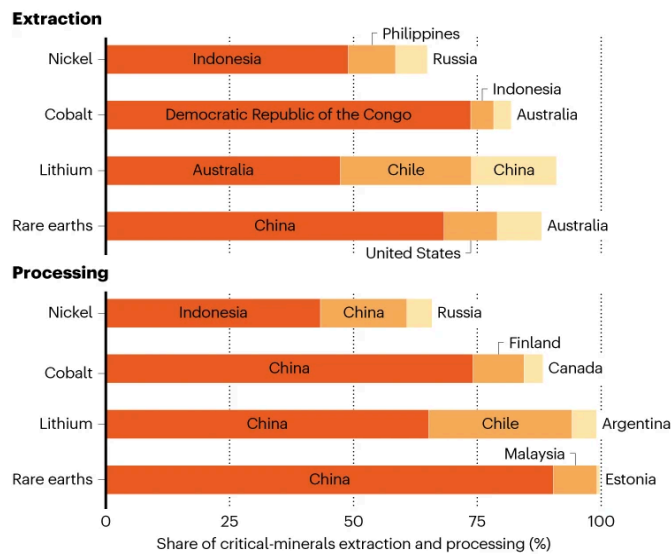
The world is struggling to work out how to equitably meet demand for these elements.

**Most cobalt comes from the Democratic Republic of the Congo (DRC,) and most nickel from Indonesia. China dominates in graphite and rare-earth elements. The largest producer of lithium is Australia.**

***Hence, statement 2 is incorrect & statement 3 is correct.***

**The top three extractors and processors of various critical minerals by country, according to the International Energy Agency:**

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**Hence, option a is correct.**

**54. Ans: d**

Explanation:

**DeepSeek, a Chinese artificial intelligence (AI) startup, made headlines worldwide after it topped app download charts and caused US tech stocks to sink.**

In January, it released its latest model, DeepSeek R1, which it said rivalled technology developed by ChatGPT-maker OpenAI in its capabilities while costing far less to create.

**What is DeepSeek?**

DeepSeek is the name of a free AI-powered chatbot, which looks, feels and works very much like ChatGPT.

That means it's used for many of the same tasks, though exactly how well it works compared to its rivals is up for debate.

It is reportedly as powerful as OpenAI's o1 model - released at the end of last year - in tasks including mathematics and coding.

Like o1, R1 is a "reasoning" model. These models produce responses incrementally, simulating how humans reason through problems or ideas.

**Hence, option d is correct.**

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**55. Ans: c**

Explanation:

**Extrachromosomal DNA (ecDNA)**

**Extrachromosomal DNA (ecDNA) is a self-replicating circular DNA originating from the chromosomal genome and exists outside the chromosome.** It contains specific gene sequences and non-coding regions that regulate transcription.

**Hence, statement 1 is correct & statement 2 is incorrect.**

Extrachromosomal DNA (ecDNA) has recently been recognised as a major contributor to cancer pathogenesis that is identified in most cancer types.

**One of the most distinguishable characteristics of ecDNAs is their lack of a centromere.** Such an acentric nature allows ecDNAs to be inherited differently from chromosomes, leading to high-level amplification and heterogeneity.

Genomic instability is a hallmark of cancer and is a major driving force of tumorigenesis. **A key manifestation of genomic instability is the formation of extrachromosomal DNAs (ecDNAs) — acentric, circular DNA molecules ranging from 50 kb to 5 Mb in size, distinct from chromosomes.**

Ontological studies have revealed that ecDNA serves as a carrier of oncogenes, immunoregulatory genes, and enhancers, capable of driving elevated transcription of its cargo genes and cancer heterogeneity, leading to rapid tumour evolution and therapy resistance.

**Hence, statement 3 is correct.**

**56. Ans: c**

Explanation:

**Carbon Capture With PrISMa**

Traditionally, carbon capture tech development begins with chemists designing materials and engineers developing processes, while economic and environmental impacts are assessed later. The results are often suboptimal and only delay the implementation of real-world solutions.

In response to this, scientists led by Berend Smit at EPFL and Susana Garcia at Heriot-Watt University have developed the **PrISMa (Process-Informed design of tailor-made Sorbent Materials) platform: an innovative tool that seamlessly connects**

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**materials science, process design, techno-economics, and life-cycle assessment by taking into account multiple stakeholder perspectives from the outset.**

Using advanced simulations and machine learning, PrISMa can identify the most effective and sustainable solutions, and predict the performance of new materials, which sets it apart as a powerful tool in the fight against climate change.

**PrISMa accelerates carbon-capture technology development** during this critical period as we aim for a net-zero world.

**Hence, option c is correct.**

**57. Ans: b**

Explanation:

#### **Minerals in Mobile Device**

##### **Display**

- A mobile device's glass screen is very durable because glassmakers combine its main ingredient, silica (silicon dioxide or quartz) sand, with ceramic materials and then add potassium.
- **Layers of indium-tin-oxide are used to create transparent circuits in the display.** Tin is also the ingredient in circuit board solder, and cassiterite is a primary source of tin.
- **Gallium provides light-emitting diode (LED) backlighting.** Bauxite is the primary source of this commodity.
- Sphalerite is the source of indium (used in the screen's conductive coating) and germanium (used in displays and LEDs).

**Hence, statement 1 is incorrect & statement 3 is correct.**

##### **Electronics and Circuitry**

- The content of copper in a mobile device far exceeds the amount of any other metal. Copper conducts electricity and heat and comes from the source mineral chalcopyrite.
- Tetrahedrite is a primary source of silver. Silver-based inks on composite boards create electrical pathways through a device.
- Silicon, very abundant in the Earth's crust, is produced from the source mineral quartz and is the basis of integrated circuits.
- Arsenopyrite is a source of arsenic, which is used in radio frequency and power amplifiers.
- **Tantalum, from the source mineral tantalite, is added to capacitors to regulate voltage and improve the audio quality of a device.**

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- Wolframite is a source of tungsten, which acts as a heat sink and provides the mass for mobile phone vibration.

### **Battery**

Battery Spodumene and subsurface brines are the sources of lithium used in cathodes of lithium-ion batteries.

Graphite is used for the anodes of lithium-ion batteries because of its electrical and thermal conductivity.

### **Speakers and Vibration**

Bastnaesite is a source of rare-earth elements used to produce magnets in speakers, microphones, and vibration motors.

*Hence, statement 2 is correct.*

### **58. Ans: c**

Explanation:

The term '**microplastics**'/**Microbead** is widely used to describe plastic particles with size ranging from **1 nanometre to 5 millimetres**.

Microplastics, which can be up to five millimetres in diameter, enter the ocean from marine plastic litter breaking down, run-off from plumbing, leakage from production facilities and other sources.

When ingested by marine life such as birds, fish, mammals and plants, microplastics have both toxic and mechanical effects, leading to issues including reduced food intake, suffocation, behavioural changes and genetic alteration.

In addition to entering the food chain through seafood, **people can inhale microplastics from the air, ingest them from water and absorb them through the skin**. Microplastics have been found in various human organs and even in the placenta of newborn babies. **These tiny plastic particles are present in everyday items, including cigarettes, clothing and cosmetics.**

*Hence, both statements 1 & 2 are correct.*

**Cigarette filters-** Microplastics known as cellulose acetate fibres comprise the majority of cigarette filters.

**Clothing and textiles:** Plastics – including polyester, acrylic and nylon – comprise approximately 60 per cent of all clothing material.

**Cosmetics:** Cosmetics and personal care products are other staples of grooming routines that can be loaded with microplastics. **These products often contain primary**

**microplastics, which are intentionally manufactured and added, often to provide texture - from hand sanitiser and soap to toothpaste and deodorant.**

Plastic particles from these products can be absorbed into the skin or, in the case of products like lipstick or lip balm, directly ingested. Microplastics that remain on the skin are eventually washed down the drain and could make their way to the ocean.

**The Beat the Microbead campaign was initiated by the Plastic Soup Foundation in 2012 to bring on the map the issue of microbead pollution through personal care products.**

**Clean Seas platform of UNEP** is connecting and rallying individuals, civil society groups, industry and governments for catalysing change and transforming habits, practices, standards and policies around the globe to dramatically reduce marine litter and its negative impacts.

Since its launch in 2017, the campaign has become a catalyst for change, transforming habits, practices, standards and policies around the globe.

**Hence, statement 3 is incorrect.**

**59. Ans: d**

Explanation:

The idea of biophilia originates in an understanding of human evolution, where for more than 99% of our species' history, we biologically developed in an adaptive response to natural not artificial or human-created forces.

**Biophilic design is a methodology for designing buildings and landscapes that nurtures the relationship between people and nature by introducing various natural features into the built environment.**

The challenge of biophilic design is to address deficiencies of contemporary building and landscape practice by establishing a new framework for the satisfying experience of nature in the built environment.

Biophilia is the inherent human inclination to affiliate with nature that even in the modern world, continues to be critical to people's physical and mental health and wellbeing.

**Hence, option d is correct.**

**60. Ans: b**

Explanation:

**The Akash air defence missile system is a medium-range, surface-to-air missile system** which provides area air defence against multifarious air threats to mobile, semi-mobile and static vulnerable forces and areas.

**Hence, statement 1 is incorrect.**

The surface-to-air missile system with a range of up to 25 km (16 miles) was **exported to Armenia in November 2024 in a \$230-million deal.**

**Hence, statement 2 is correct.**

**61. Ans: d**

Explanation:

The Amazon Cooperation Treaty Organization (ACTO) is an intergovernmental organisation formed by the eight Amazonian countries: Bolivia, Brazil, Colombia, Ecuador, **Guyana**, Peru, **Suriname**, and **Venezuela**, which signed the Amazon Cooperation Treaty (ACT), becoming the only socio-environmental block in Latin America.

**About of Amazon**

The Amazon River Basin occupies the entire central and eastern area of South America, lying to the east of the Andes mountain range and extending from the Guyana Plateau in the north to the Brazilian Plateau in the south. The Basin covers more than 6,100,000 km<sup>2</sup>, or 44% of the land area of the South American continent, extending into Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela. The Basin has widely varying climatic and topographic characteristics, with elevations ranging from sea level at the River's mouth to an altitude of 6,500 m in the Andes. The Amazon River, which runs for approximately 7,100 km from its source in Peru to the Atlantic Coast of Brazil, is the world's longest, widest, and deepest river.

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**Hence, option d is correct.**

**62. Ans: d**

Explanation:

**The Montreux Convention Regarding the Regime of the Straits** gives **Turkey** control over the water route between the Black Sea and the Mediterranean Sea and beyond.

The Montreux Convention is the essential element in the context of Black Sea security and stability,

It sets limits on the passage of civilian vessels and military warships through the Dardanelles and the Bosphorus straits, which, with the Sea of Marmara between them form the seagoing link between the Black Sea and the Mediterranean.

The international agreement was signed by Australia, Bulgaria, France, Greece, Japan, Romania, Yugoslavia, the United Kingdom, the Soviet Union and Turkey and has been in effect since November 1936.

**Turkey's closure of the Bosphorus and Dardanelles straits under the Montreux Convention** since the onset of Russia's large-scale invasion of Ukraine has played a critical role in preventing the aggressor from using its maritime superiority to capture Odesa, Mykolaiv, and other territories.

**Hence, option d is correct.**

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**63. Ans: d**

Explanation:

**World's most vital waterways for global trade**

In recent years, numerous incidents have disrupted the world's most important trade waterways, impacting supply chains across industries and economies.

The upheavals include COVID-19 pandemic lockdowns, the Ever Given getting stuck in the Suez Canal, persistent drought at the Panama Canal, Russia's blockade of Ukraine's Black Sea ports and the ongoing attacks on ships in the Red Sea, to name a few.

Disruptions at key ocean trade routes can significantly impact the global economy given that 90% of traded goods continue to be shipped by sea, according to the International Maritime Organization.

Five of the most important waterways for global trade:

**The English Channel**

The English Channel is the busiest ocean shipping lane in the world. More than 500 vessels go through it every single day to get from the North Sea to the Atlantic and from the United Kingdom to continental Europe – and vice versa.

Major ports include Portsmouth, Le Havre, Cherbourg and Brest.

**The Malacca Strait**

Located between Sumatra Island in Indonesia and the Malay Peninsula, the Malacca Strait interconnects the Indian and Pacific Ocean. It extends from the Andaman Sea through the Strait of Singapore to the South China Sea, and connects many of Asia's major economies, including Japan, Taiwan, South Korea and India.

Around 94,000 ships pass through the Malacca Strait every year or use its more than 40 ports. Together, the ships carry around 30% of all traded goods globally

**The Hormuz Strait**

The Hormuz Strait is wedged between Iran and Oman, and links the Persian Gulf with the Gulf of Oman and the Arabian Sea. As the main shipping route for oil from the Middle East, the strait sees a fifth of the world's oil consumption passing through it daily – around 21 million barrels. It also carries 20% of global liquefied natural gas every year.

**The Suez Canal**

The Suez Canal in Egypt connects the Mediterranean with the Red Sea and is a dividing line between Africa and Asia. The canal, which is at the opposite end of the Red Sea and Gulf of Aden's Bab Al Mandeb strait, is the shortest maritime route from Europe to Asia and allows ships to avoid the long trip around South Africa's Cape of Good Hope.

The modern Suez Canal was completed in 1869 when Egypt was under French occupation. After several enlargements, the canal is now close to 200km long and sees on average over 20,000 vessel crossings every year.

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**The Panama Canal**

The Panama Canal connects the Atlantic and Pacific Ocean and has been a significant waterway for global trade since its completion in 1914.

The canal connects nearly 2,000 ports in 170 countries and facilitated more than 14,000 transits.

**However, prolonged drought has greatly impacted the Panama Canal. Too little water has been available from the lakes that feed the canal's locks, which require over 100,000 cubic meters of water.** This has, in turn, enabled a much smaller number of vessels to pass and upped waiting times from a few hours to weeks.

The Panama Canal is adapting to counter the effects of drought and the climate crisis. Water-saving measures, for example, have been put in place and ships have had to lower their draft to continue using the locks.

**Hence, option d is correct.**

**64. Ans: d**

Explanation:

The 3rd edition of Joint Special Forces Exercise CYCLONE commenced at Mahajan Field Firing Ranges in Rajasthan. The exercise is being conducted from 10th to 23rd February 2025. **Exercise CYCLONE is an annual event conducted alternatively in India and Egypt.** Last edition of the same exercise was conducted in Egypt in January 2024.

**Hence, option d is correct.**

**65. Ans: d**

Explanation:

**The Global Infrastructure Facility (GIF), a G20 initiative, is a global collaboration platform that integrates efforts to boost private investment** in sustainable, quality infrastructure projects in developing countries and emerging markets.

**Hence, statement 1 is incorrect.**

**GIF works with various multilateral development banks that serve as implementing partners for GIF-supported projects.** These include the African Development Bank, Asian Development Bank, Asian Infrastructure Investment Bank, European Bank for Reconstruction and Development, European Investment Bank, Inter-American Development Bank, International Finance Corporation, Islamic Development Bank, Multilateral Investment Guarantee Agency, and World Bank.

GIF is supported by generous contributions from the governments of Australia, Canada, China, Denmark, Germany, Japan, Singapore, and the World Bank.

***Hence, statement 2 is incorrect.***

**66. Ans: b**

Explanation:

The Quad, officially the Quadrilateral Security Dialogue, is a group of four countries: the **United States, Australia, India, and Japan.**

The Quad is committed to supporting an open, stable and prosperous Indo-Pacific that is inclusive and resilient.

***Hence, option b is correct.***

**67. Ans: a**

Explanation:

**The Galwan river flows westwards from the disputed Aksai Chin region in to Ladakh after originating in Samzungling area on the eastern side of the Karakoram range** and joins the Shyok River, one of the tributaries of the Indus.

Indian Army and China's People's Liberation Army (PLA) engaged in deadly hand-to-hand combat in the Galwan Valley in Ladakh in the western sector of the Line of Actual Control (LAC), the de facto border between India and China.

***Hence, option a is correct.***

**68. Ans: b**

Explanation:

Taiwan's Matsu Islands, which lie just 10 nautical miles off China's coast are located in the **East China Sea.** It's an archipelago of 36 islands and islets.



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**Hence, option b is correct.**

**69. Ans: d**

Explanation:

There are tribal communities that have **declining or stagnant populations, low levels of literacy, pre-agricultural levels of technology and are economically backwardness**. 75 such groups of tribals in **18 States and 1 Union Territory have been identified and categorised as Particularly Vulnerable Tribal Groups (PVTGs)**.

**Hence, statement 1 is incorrect & statement 2 is correct.**

On November 15, 2023, during Janjatiya Gaurav Divas in Khunti, Jharkhand, the Prime Minister launched the **Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PMJANMAN) to uplift Particularly Vulnerable Tribal Groups (PVTGs)**. PM-JANMAN aims to improve the quality of life for PVTG communities through targeted support in areas such as safe housing, clean drinking water, education, health, road and telecom connectivity, electrification, and sustainable livelihoods.

**Hence, statement 3 is correct.**

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**70. Ans: d**

Explanation:

**“The Movement Du 23 Mars (M23) is an armed group operating in the Democratic Republic of Congo (DRC).**

Since mid-December 2024, the Rwanda-backed armed group M23 has expanded its control through DRC territory, seizing the North Kivu provincial capital of Goma on January 27 and the South Kivu provincial capital of Bukavu on February 16. This aggression has undermined the territorial integrity of the DRC. With Rwanda’s support, it has also threatened, injured, killed, and displaced thousands of innocent civilians, cost the lives of three UN peacekeepers and wounded several others. This violence risks escalating into a broader regional conflict.

**Hence, option d is correct.**

**71. Ans: a**

Explanation:

North of the Damodar river is the **Hazaribagh plateau** with an average elevation of 600 m above mean sea level. This plateau has isolated hills; **Parasnath in the east rises to 1,366 m**. The area is made of granites and gneisses, while the hills have quartz rocks. It looks like a peneplain due to large-scale erosion.

The Ranchi Plateau to the south of the Damodar Valley rises to about 600 m above mean sea level. The maximum height is found in western part where pats or high mesas capped with laterite rise steeply to an altitude of about 1100 m. The Netarhat Pat and Goru rise to 1,119 and 1,142 m above sea level respectively. Most of the surface is rolling where the city of Ranchi (661 m) is located. At places, it is interrupted by monadnocks and conical hills.

The Rajmahal Hills forming the north eastern edge of the Chotanagpur Plateau are mostly made of basalt and are covered by lava flows. They run in north-south direction and rise to an average elevation of 400 m (the highest mount is 567 m). These hills have been dissected into separate plateaus.

'Dalma hills' of East Singhbhum District. Dalma hill top with Mandir and cave has religious significance for local people.

**Hence, option a is correct.**

**72. Ans: a**

Explanation:

**1. Tropical Wet Evergreen Forests:**

- These are typical Rainforests that grow in those areas where the annual rainfall exceeds 250cm.
- The annual temperature is about 25° Celsius to 27° Celsius
- The average annual humidity exceeds 77 percent and the dry season is distinctly short.
- Due to high heat and high humidity, the trees of these forests do not shed their leaves annually, at least not together, and are termed Evergreen forests.
- The trees often reach 45 meters in height, individual trees exceed 60 meters. The entire morphology looks like a green carpet when viewed from above. The Sunlight can not reach the ground and owing to deep shade, the undergrowth is formed mainly of tangled masses of cane, bamboo, ferns, climbers, etc.
- The true Evergreen forests are found along the western side of the Western Ghats (between 500 to 1370 meters above sea level ) south of Mumbai, in a strip running from Northeast to Northwest direction across Arunachal Pradesh, Upper Assam, Nagaland, Manipur, Mizoram, and Tripura up to a height of 1070 meters and in the Andaman and Nicobar Island.
- The Important species of these forests are Mesua, **White cedar**, Calophyllum, Toon, Dhup, Palaquium, Hopea, Jamun, Canes, Gurjan, chaplasha, agar, muli, bamboo, etc.

**2. Tropical Semi-Evergreen Forest**

- Tropical Semi-Evergreen Forest are bordering the areas of tropical wet evergreen forest.
- The annual rainfall is 200-250 cm, the mean annual temperature varies from 24 to 27 degrees Celcius, and the relative humidity is about 75 per cent.
- These forests are characterized by many species, frequently buttressed trunks, rougher and thicker bark, heavy climbers, fewer bamboos, and abundant epiphytes.
- The important species are - aini, semul, gutel, mundani, hopea, benteak, kadam, irul, laurel, rosewood, mesua, haldu, kanju, byasal, kusum, thorny bamboo, white cedar, India chestnut, litsa, hollock, champa and mango, etc.

**3. Tropical moist deciduous forests:**

- These forests are found in areas of moderate rainfall of 100 to 200 cm per annum, a mean annual temperature of about 27 degrees Celsius, and an average annual relative humidity of 60 to 75 percent. such areas include a belt running along the western ghats surrounding the belt of evergreen forest both on the western ghats and the eastern slopes, a strip along the Shiwalik range including terai and Babar, Manipur, and Mizoram, hills of eastern Madhya Pradesh and Chhattisgarh, Chota Nagpur Plateau, most of Odisha, parts of west bengal and in the Andaman and Nicobar islands.

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- The trees of these forests drop their leaves for about 6 -8 weeks during the spring and early summer when sufficient moisture for the leaves is not available.
- These are very useful forests because they yield valuable timber and several other forest products.
- The main species found in these forests are teak, sal, padauk, laurel, white chuglam, badam, dhup, chikrosi, kokko, haldu, rosewood, mahua, bijasal, lendi, semul, irul, dhaman, amla, kusum, tendu, paula, jamun, bamboo, etc.
- It is comparatively easy to exploit these forests due to their high degree of gregariousness.

#### **4. Littoral and swamp forests:**

- These forests occur in and around the deltas, estuaries, and creeks prone to tidal influences and as such are also known as delta or tidal forests, confined to the deltas of the Ganga, the Mahanadi, the Godavari, the Krishna, and the Cauvery.
- The most pronounced and the densest is the Sunderban in the Ganga delta where the predominant species **Sundri (Heriteera)** grows abundantly. It provides hard and durable timber. They can survive and grow both in fresh as well as brackish water.
- The important species found in these forests are **Sundri**, burguiera, sonneratia, agar, bhendi, keora, nipa, amur, bhara, rhizophora, screw pines, canes and palms, etc.

#### **5. The tropical dry deciduous**

They forests are widely distributed over a large area. They occur in an irregular wide strip running north-south from the foot of the Himalayas to Kanniyakumari except in Rajasthan, Western Ghats, and West Bengal.

The important species are teak, axlewood, tendu, bijasal, rosewood, amaltas, palas, haldu, kasi, bel, lendi, common bamboo, **Red Sanders**, anjair, harra, laurel, satinwood, papra, achar, sal, khair, ghont, etc.

**Hence, option a is correct.**

#### **73. Ans: b**

Explanation:

Rubber tree is a quick-growing tall tree acquiring 20-30 metres height. It begins to yield latex in 5-7 years after planting. It requires a hot and humid climate with a temperature of 25-35°C and annual rainfall of over 200 cm.

Deep well-drained loamy soils on the hill slope at elevations ranging from 300 to 450 metres above mean sea level provide the best conditions for its growth.

Almost entire rubber is produced in Kerala, Tamil Nadu and Karnataka.

**Kerala and Tamil Nadu are considered as the traditional rubber-producing states.**

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**SANGRAM-4 Solutions ALL INDIA OPEN MOCK- GS Full Length Test 2025**

<b>State-wise production of NR (Tonne)</b>				
<b>State</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18 (P)</b>	<b>2018-19 (P)</b>
<b>Kerala</b>	<b>438630</b>	<b>540400</b>	<b>540775</b>	<b>490460</b>
<b>Tamil Nadu</b>	<b>19495</b>	<b>21140</b>	<b>21110</b>	<b>21500</b>
<b>Traditional Total</b>	<b>458125</b>	<b>561540</b>	<b>561885</b>	<b>511960</b>

**Hence, option a is correct.**

**74. Ans: c**

Explanation:

To promote Inland Water Transport (IWT) in the country, 111 waterways (including 5 existing and 106 new) have been declared as National Waterways (NWs) under the National Waterways Act, 2016, which came into effect on 12th April, 2016.

**National Waterway 1-** Ganga-Bhagirathi-Hooghly River System (Haldia - Allahabad),  
**States-** **Uttar Pradesh, Bihar, Jharkhand & West Bengal.**

**Hence, option c is correct.**

**75. Ans: d**

Explanation:

**Peaty and Marshy soils are formed as a result of the accumulation of large amounts of organic matter in the soils,** they contain a considerable amount of soluble salts and 10 to 40% organic matter, such soils are found in Kottayam and Alappuzha districts of Kerala where it is called **Kari**.

**Hence, option d is correct.**

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**76. Ans: b**

Explanation:

Part of Wayanad, Nagarhole, Bandipur and Madumalai, Nilambur, Silent Valley, and Siruvani hills - ***Nilgiri Biosphere reserve***

**Neyyar, Peppara, and Shendurney Wildlife Sanctuaries and their adjoining areas -*Agasthyamalai Biosphere Reserve***

Part of Kokrajhar, Bongaigaon, Barpeta, Nalbari - ***Manas Biosphere reserve***

Indian part of Gulf of Mannar between India and Sri Lanka - ***Gulf of Mannar Biosphere reserve***

***Hence, option b is correct.***

**77. Ans: b**

Explanation:

Although the State Legislatures are also modelled on the parliamentary form of government, their structure differs from that of Parliament. **If the State Legislature is bicameral, the Upper House of the same is merely a second chamber and it does not have the kind of powers enjoyed by the Rajya Sabha.**

***Hence, statement 1 is incorrect.***

Article 200 provides that when a Bill passed by the State Legislature, is presented to the Governor, the Governor shall declare—

(a) that he assents to the Bill; or

(b) that he withholds assent therefrom; or

**(c) that he reserves the Bill for the President's consideration**

(d) the Governor may, as soon as possible, return the Bill (other than a Money Bill) with a message for re-consideration by the State Legislature. But, if the Bill is again passed by the Legislature with or without amendment, the Governor shall not withhold assent therefrom or

(e) if in the opinion of the Governor, the Bill, if it became law, would so derogate from the powers of the High Court as to endanger its constitutional position, he shall not assent to but shall reserve it for the consideration of the President

**Laws enacted by the State Legislatures have to go through the discretionary wisdom of the Governor as he has the power he exercises on his independent judgment to reserve any Bill for the consideration of the President of India.** Moreover, the Governor

can also recommend imposition of the President's rule in a State if he opines that the government in the State cannot be carried on in accordance with the provisions of the Constitution.

**Hence, statement 2 is correct.**

**78. Ans: b**

Explanation:

Public Finance

Constitutional provisions regulating public finance:

- 1. The Executive cannot raise money by taxation, borrowing or otherwise, or spend money, without the authority of Parliament.**
2. The power of raising money by tax or loan and authorising expenditure belongs **exclusively to the Lok Sabha.**
- 3. Parliament cannot vote for money for any purpose whatsoever except on demand by Ministers.**
- 4. Parliament cannot impose any tax except upon the recommendation of the Executive.**

**Hence, option b is correct.**

**79. Ans: c**

Explanation:

**Article 145. Rules of Court, etc.—**

(1) Subject to the provisions of any law made by Parliament, the Supreme Court may from time to time, with the approval of the President, make rules for regulating generally the practice and procedure of the Court

(2) may fix the minimum number of Judges who are to sit for any purpose, and may provide for the **powers of single Judges and Division Courts.**

(3) The minimum number of Judges who are to sit for the purpose of deciding **any case involving a substantial question of law as to the interpretation of this Constitution** or **for the purpose of hearing any reference under Article 143** shall be **five**

**Hence, statements 1 & 3 are correct, & statement 2 is incorrect.**

**80. Ans: d**

Explanation:

**Contempt proceedings being part of the inherent powers of the Court is not subject to or regulated by the Criminal Procedure Code, 1973.** Contempt of Courts Act, 1971 merely confirms the existence of power in the High Courts and the Supreme Courts to try their own contempt as well as that of the subordinate courts. It has been also clarified that it is within the powers.

**Hence, statement 1 is incorrect.**

**Difference between civil and criminal contempt**

The civil contempt of court takes place when there is a wilful disobedience of judgment, order or direction of the court, **whereas criminal contempt of court happens when by publication or by any other action, the image of the court or the judges is scandalised.**

**Hence, statement 2 is incorrect.**

**81. Ans: a**

Explanation:

The end of the life of Lok Sabha either by an order made by the President under Article 85(2)(b) or on the expiration of the period of five years from the date appointed for its first meeting is termed as 'dissolution of the House.

**In Lok Sabha, all Bills pending at the time of dissolution, whether originating in the House or transmitted to it by Rajya Sabha, lapse.**

**Hence, statement 1 is correct.**

In Rajya Sabha, Bills passed by Lok Sabha, but which have not been disposed of and are pending in Rajya Sabha on the date of dissolution, lapse. Only the Bills originating in Rajya Sabha which have not been passed by Lok Sabha but are still pending before Rajya Sabha, do not lapse.

If, however, in respect of a Bill upon which the Houses have disagreed and the **President has notified his intention of summoning a Joint Sitting of the Houses for the consideration of the Bill prior to dissolution, that the Bill does not lapse** and may be passed at a Joint Sitting of both Houses, notwithstanding that dissolution has

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intervened since the President notified his intention to summon the Joint Sitting of the Houses.

**Hence, statement 2 is correct.**

**There is no express provision in the Constitution regarding the effect of dissolution on a Bill which has been passed by the two Houses of Parliament and sent to the President for assent.** It has, however, been held that **such a Bill does not lapse on dissolution of Lok Sabha.** Further, if such a Bill is returned by the President for reconsideration, the successor House can reconsider it and if it is passed by the successor House (with or without amendments), it will be deemed to have been passed “again”.

**Hence, statement 3 is incorrect.**

**82. Ans: a**

Explanation:

**Article 110. Definition of “Money Bills”.—**

(1) A bill shall be deemed to be a Money Bill if it contains only provisions dealing with all or any of the following matters, namely:—

- (a) the imposition, abolition, remission, alteration or regulation of any tax;
- (b) the regulation of the borrowing of money or the giving of any guarantee by the Government of India, or the amendment of the law with respect to any financial obligations undertaken or to be undertaken by the Government of India;
- (c) the custody of the Consolidated Fund or the Contingency Fund of India, the payment of money into or the withdrawal of money from any such Fund;
- (d) the appropriation of money out of the Consolidated Fund of India;
- (e) the declaring of any expenditure to be expenditure charged on the Consolidated Fund of India or the increasing of the amount of any such Expenditure;
- (f) the receipt of money on account of the Consolidated Fund of India or the public account of India or the custody or issue of such money or the audit of the accounts of the Union or of a State; or
- (g) any matter incidental to any of the matters specified in sub-clauses (a) to (f).

(2) A Bill shall not be deemed to be a Money Bill by reason only that it provides for the imposition of fines or other pecuniary penalties, or for the demand or payment of fees for licences or fees for services rendered, or by reason that **it provides for the imposition, abolition, remission, alteration or regulation of any tax by any local authority or body for local purposes.**

(3) If any question arises whether a Bill is a Money Bill or not, the decision of the Speaker of the House of the People thereon shall be final.

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(4) There shall be endorsed on every Money Bill **when it is transmitted to the Council of States under Article 109, and when it is presented to the President for assent under Article 111**, the certificate of the Speaker of the House of the People signed by him that it is a Money Bill.

**Hence, statement 1 is correct & statement 2 is incorrect.**

**Article 111. Assent to Bills.**—When a Bill has been passed by the Houses of Parliament, it shall be presented to the President, and the President shall declare either that he assents to the Bill, or that he withholds assent therefrom:

Provided that the President may, as soon as possible after the presentation to him of a Bill for assent, **return the Bill if it is not a Money Bill** to the Houses with a message requesting that they will reconsider the Bill or any specified provisions thereof and, in particular, will consider the desirability of introducing any such amendments as he may recommend in his message, and when a Bill is so returned, the Houses shall reconsider the Bill accordingly, and if the Bill is passed again by the Houses with or without amendment and presented to the President for assent, the President shall not withhold assent therefrom.

**Hence, statement 3 is incorrect.**

**83. Ans: a**

Explanation:

**Working of free-market mechanism does not ensure economic stability at full employment level.** According to J.M Keynes theory, lapses from full employment or depressions are caused by deficiency of aggregate demand due to the slackened private investment activity. In order to compensate for this shortfall in private investment, the government has to step up its expenditure on public works.

**Hence, statement 1 is correct.**

**The increase in government expenditure raises aggregate demand manifold through the working what Keynes has called the income multiplier.** This helps to push the economy out of depression and to raise levels of income and employment.

**Hence, statement 2 is correct & statement 2 correctly explains statement 1.**

**84. Ans: a**

Explanation:

**INSTITUTIONAL CREDIT FOR AGRICULTURE AND ALLIED ACTIVITIES (In Crores)**

Year	Loans Issued		
	Co-operatives	SCBs	RRBs
1	2	3	4
2019-20	157367	1070036	165326
2020-21	190682	1194704	190012
2021-22	243220	1415964	204180
2022-23	236349	1676529	242286
2023-24	242008	2023749	282878

**Scheduled Commercial Banks are the largest providers of credit for agriculture and allied activities.**

**Regional Rural Banks provided more loans than Co-operative banks for agriculture and allied activities:**

*Hence, option a is correct.*

**85. Ans: b**

Explanation:

**General Government Debt includes debt of both the Centre and the State Governments.**

It is important to note that General Government Debt in India is overwhelmingly rupee-denominated, with external borrowings (from bilateral and multilateral sources) contributing a minimal amount.

The General Government **debt to GDP ratio** (including both State and Centre) has steeply declined from about 88 per cent in FY 2020-21 to about 81 per cent in 2022-23,

**Debt to GDP Ratio (Per cent)**

<b>Country</b>	<b>2002</b>	<b>2010</b>	<b>2018</b>	<b>2022</b>
<b>Japan</b>	<b>154.1</b>	<b>205.9</b>	<b>232.4</b>	<b>260.1</b>
<b>Singapore</b>	<b>96.3</b>	<b>98.7</b>	<b>109.4</b>	<b>167.5</b>
<b>USA</b>	<b>55.5</b>	<b>95.1</b>	<b>107.4</b>	<b>121.3</b>
<b>Sri Lanka</b>	<b>96.3</b>	<b>68.7</b>	<b>83.6</b>	<b>115.5</b>
<b>France</b>	<b>60.3</b>	<b>85.3</b>	<b>97.8</b>	<b>111.8</b>
<b>UK</b>	<b>34.1</b>	<b>74.0</b>	<b>85.2</b>	<b>101.9</b>
<b>Brazil</b>	<b>76.1</b>	<b>62.4</b>	<b>84.8</b>	<b>85.3</b>
<b>India</b>	<b>82.9</b>	<b>66.4</b>	<b>70.4</b>	<b>81.0</b>
<b>China</b>	<b>25.9</b>	<b>33.9</b>	<b>56.7</b>	<b>77.0</b>

**Hence, statement 2 is correct.**

The debt-to-GDP ratio, commonly used in economics, is the ratio of a country's debt to its gross domestic product (GDP). Expressed as a percentage, **the ratio is used to measure a country's ability to repay its debt** i.e the debt-to-GDP ratio compares a country's public debt to its annual economic output.

**Hence, statement 3 is correct.**

**86. Ans: c**

Explanation:

**Amartya Sen's Capabilities Approach**

According to this approach, development is not just about increasing the availability of commodities (focus of the per-capita income approach) but expanding the capabilities of individuals to use these commodities and enhancing the freedom of choice of people. Higher income is important an element of one's well being. But, well being of individuals also depends on their health, education, geographical and social environment, and political system.

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**There are three core values of development: (i) sustenance, (ii) self-esteem, and (iii) freedom.**

**Sustenance:** Sustenance is the ability to meet basic needs of people. All people have certain basic needs without which life would be impossible. These basic needs include food, shelter, health, and protection. People should have access to these basic needs.

**Self-Esteem:** Sense of worth and self-respect and feeling of not being marginalized are extremely important for individual's well being. All peoples and societies seek some form of self-esteem (identity, dignity, respect, honor etc.). The nature and form of self-esteem may vary from one culture to another and from time to time. Self-esteem may be based on material values: higher income or wealth may be equated with higher worthiness. One may consider individuals worthy based on their intellect or public service.

**Freedom from Servitude:** Human freedom, the ability to choose, is essential for the well being of individuals. Freedom involves an expanded range of choices for societies: economic and political. It involves freedom from bondage, serfdom, and other exploitative economic, social, and political relationships.

**Hence, option c is correct.**

**87. Ans: d**

Explanation:

Personal Loans

- **Consumer Durables**
- Housing (Including Priority Sector Housing)
- **Advances against Fixed Deposits** (Including FCNR (B), NRNR Deposits etc.)
- Advances to Individuals against shares, bonds, etc.
- **Credit Card Outstanding**
- Vehicle Loans Loans against gold jewellery Services

**Hence, option d is correct.**

**88. Ans: a**

Explanation:

**The Indian Council Act of 1861 marks an important step in the constitutional history of India as it made a beginning in representative institutions and legislative devolutions.** The Act enabled the Governor General to associate a certain number of

nominated non-officials for purposes of legislation. The Act made the following changes in the Governor-General's Council as well as the Legislature:

**1. Changes in Governor-General's Executive Council:** The Governor-General's Executive Council was expanded by the addition of a Fifth Ordinary member. The Act empowered the Governor-General to make rules for the convenient transaction of business and provided that acts done and orders passed in accordance with such rules will be deemed to be the acts and orders of the Governor-General in Council. Accordingly, Lord Canning made rules that firmly established the portfolio system by which department work was distributed among the members, each of whom disposed of all unimportant matters pertaining to his department.

**2. Changes in Central Legislature:** For matters of legislation, the Governor-General's Council was expanded by the addition of not less than 6 and not more than 12 additional members, nominated by the Governor-General and holding office for two years; of these additional members not less than half were to be non-officials. The additional members have to be Europeans or Indians. The Governor-General was empowered to make ordinances in case of necessity.

**3. Changes in Provincial Legislature:** The legislative powers of the Governments of Bombay and Madras were restored, and for purposes of legislation, the Governor's Council was enlarged by the addition of not more than 8 and not less than 4 additional nominated members of whom not less than half were to be non-officials.

**Hence, option a is correct.**

**89. Ans: b**

Explanation:

The great Kailasanatha temple at Ellora was excavated on the instructions of the Rashtrakuta emperor Krishna I (A.D 765-773). With this, the concept of the cave temple was transcended, for the king was not satisfied with a mere hollow in the rock.

**Kailasnatha is not the earliest temple hewn from solid rock.** Others are to be found at Mamallapuram, on the sea coast some fifty miles south of Chennai, where seventeen temples, none very large in size, were carved from outcropping hillocks of granite under the patronage of 7th century Pallava kings.

**Hence, statement 1 is incorrect.**

**Raja Rajeshwara temple at Tanjavur is a Saiva temple built by Raja Raja the Great/Rajaraja I during 985-1015.**

**Hoysaleswara temple at Halebid (Karnataka), is a 12th-century Hindu temple** dedicated to the god Shiva. It was built from 1121 -1160 A.D during the rule of Vishnuvardhana and Narasimha I.

**Hence, statement 2 is correct.**

**90. Ans: b**

Explanation:

The three principal settlements of the English East India Company in India were **Madras (founded in 1640), Bombay (1661) and Calcutta (1690)**. There were additional subsidiary settlements and factories like for example, Surat, Hugli, Agra, Broach and Cambay some of which were closed down.

**Hence, option b is correct.**

**91. Ans: b**

Explanation:

In 1765, the East India Company acquired the Dewani, or control over the revenues, of Bengal, Bihar, and Orissa.

Warren Hastings auctioned the right to collect revenue to the highest bidders. But his experiment did not succeed. Though the amount of land revenue was pushed high by zamindars and other speculators bidding against each other, the actual collection varied from year to year and seldom came up to official expectations. This introduced instability in the Company's revenues at a time when the Company was hard-pressed for money.

It was at this stage that the idea first emerged of fixing the land revenue at a permanent amount.

**The Permanent Settlement was introduced in Bengal and Bihar in 1793 by Lord Cornwallis.**

It had two special features:

**Firstly**, the zamindars and revenue collectors were converted into so many landlords. **They were not only to act as agents of the Government in collecting land revenue from the ryot hut but also to become the owners of the entire land in their zamindaris.**

Their right of ownership was made hereditary and transferable.

On the other hand the cultivators were reduced to the low status of mere tenants and were deprived of long-standing rights to the soil and other customary rights.

The use of the pasture and forest lands, irrigation canals, fisheries, and homestead plots and protection against enhancement of rent were some of their rights which were sacrificed. In fact the tenantry of Bengal was left entirely at the mercy of the zamindars. This was done so that the zamindars might be able to pay in time the exorbitant land revenue demand of the Company.

**Hence, statement 1 is incorrect.**

**Secondly**, the zamindars were to give, 10/11th of the rent they derived from the peasantry to the state, keeping only 1/11th for themselves.

**But the sums to be paid by them as land revenue were fixed in perpetuity.**

If the rental of a zamindar's estate increased due to the extension of cultivation and improvement in agriculture, **his capacity to extract more from his tenants, or any other reason, he would keep the entire amount of the increase. The state would not make any further demand upon him.**

**Hence, statement 2 is correct.**

**At the same time, the zamindar had to pay his revenue rigidly on the due date even if the crop had failed for some reason; otherwise, his lands were to be sold.**

**Hence, statement 3 is correct.**

**92. Ans: c**

Explanation:

**The Charter Act, 1813:** The Company was deprived of its India trade monopoly except for trade in tea and trade with China.

**The Charter Act, 1833:** It put an end to the remaining trade monopolies of the Company and divested it of all commercial functions. **It provided that no Indian subject of the Company would be debarred from holding any office under the Company by reason of his religion, descent or colour.**

**The Charter Act, 1853:** It provided that British India would remain under the administration of the Company in trust for the Crown.

**Hence, option c is correct.**



**93. Ans: b**

Explanation:

**Gandhi refused to condemn the violence of the people because he saw it as a reaction to the much bigger violence of the state.** In Francis Hutchins' view Gandhiji's major objection to violence was that its use prevented mass participation in a movement, but that, in 1942, **Gandhiji had come around to the view that mass participation would not be restricted as a result of violence.**

**Hence, both statements 1 & 2 are correct, but statement 2 doesn't explain statement 1.**

**94. Ans: b**

Explanation:

As the war situation worsened, President Roosevelt of the USA and President Chiang Kai-Shek of China as well as the Labour Party leaders of Britain put pressure on Churchill to seek the active cooperation of Indians in the War. To secure this cooperation the British Government sent to India in March 1942 a mission headed by a Cabinet minister, Stafford Cripps.

**The Declaration promised India Dominion Status and a constitution-making body after the War whose members would be elected by the provincial assemblies and nominated by the rulers in case of the princely states.**

**Hence, statement 1 is correct & statement 2 is incorrect.**

The Pakistan demand was accommodated by the provision that **any province which was not prepared to accept the new constitution would have the right to sign a separate agreement with Britain.**

British would continue to exercise sole control over the defence of the country during the War.

Negotiations between Cripps and the Congress leaders broke down.

The Congress objected to the provision for Dominion Status rather than full independence, the representation of the princely states in the constituent assembly not by the people of the states but by the nominees of the rulers, and above all by the provision for the partition of India.

The British Government also refused to accept the demand for the immediate transfer of effective power to the Indians and for a real share in the responsibility for the defence of India.

**Hence, statement 3 is correct.**

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**95. Ans: a**

Explanation:

Tiger Reserves located within the Ganga Basin:

Sl No.	Name	State	Location (District)	Nearest Tributary
1	Valmiki	Bihar	West Champaran	Koshi
2	Bandhavgarh	Madhya Pradesh	Shahdol and Jabalpur	Johilla and Son
3	Panna	Madhya Pradesh	Ken	Panna and Chhatarpur
4	<b>Ranthambhore</b>	<b>Rajasthan</b>	<b>SawaiMadhopur and Karauli</b>	<b>Chambal</b>
5	<b>Sariska</b>	<b>Rajasthan</b>	<b>Alwar</b>	<b>Chambal</b>
6	<b>Dudhwa-Katerniaghat</b>	<b>Uttar Pradesh</b>	<b>Lakhimpur-Kheri</b>	<b>Ganga, Sarda</b>
7	Corbett	Uttarakhand	Nainital and PauriGarhwal	Yamuna
8	Sunderbans	West Bengal	North and South 24-Paraganas	Ganga

Amrabad Tiger Reserve - Krishna River Basin, Nallamalla Forest.  
**Amrabad Tiger Reserve is one of the largest tiger reserves in India that extends about 2611.4 Sq Km over**

**Nagarkurnool and Nalgonda districts of Telangana.** Amrabad Tiger Reserve is a well-known and well-preserved nature reserve in Nallamala Hills, part of the Eastern Ghats chain.

**Pench Tiger Reserve - Godavari River Basin**

Pench Tiger Reserve, nestling in the lower southern reaches of the Satpuda hills, is named after the Pench River which is meandering through the Park from north to south. It is situated on the southern boundary of Madhya Pradesh, bordering Maharashtra, in the districts of Seoni and Chhindwara.

Pench river joins the Kanhan river and the Wainganga receives on the right bank the waters of the Kanhan.

The Wainganga after its confluence with the Wardha is called Pranhita.

The Pranhita with its three principal branches viz the Penganga, the Wardha and the Wainganga, is the largest tributary of the Godavari.

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### **Ranthambore Tiger Reserve**

Ranthambore is located at the confluence (great boundary fault) of the Aravalis and Vindhyan ranges and is flanked to the north by the Banas River and to the east by the Chambal River. Ranthambore Tiger Reserve consists of various sites with varying conservation histories that are almost physically isolated by only short pathways connecting them to the centre, Ranthambore National Park. Ranthambore is part of the central Indian landscape's western block, which also contains Sariska Tiger Reserve, Kuno-Palpur Wildlife Sanctuary, Madhav National Park, Ramgarh Visdhari Wildlife Sanctuary, and Mukundara Hills Tiger Reserve.

### **Sariska Tiger Reserve**

Sariska Tiger Reserve is located in the Alwar district's Aravalli Range and is recognised for its high levels of biotic stresses and disturbance.

### **Dudhwa Tiger Reserve**

Dudhwa Tiger Reserve is divided into two sections: Dudhwa National Park and Kishanpur Wildlife Sanctuary. These are 15 kilometres apart, separated by agricultural terrain. Dudhwa National Park is located in Uttar Pradesh's Lakhimpur-Kheri district, near the Indo-Nepal border. The northern boundary of the Park is marked by the Mohana river, which flows along the Indo-Nepal border, while the Suheli river makes the southern boundary.

### **Amrabad Tiger Reserve**

The Amrabad Tiger Reserve is located in the Nallamala Hills, a scenery of steep hills and cavernous valleys, perennial rivers, and fascinating curving roads with thick, wooded terrain on one side and deep and huge valleys on the other, as well as varied colours to distinguish the seasons. The Chenchu tribe has a strong presence in the Tiger Reserve.

***Hence, option a is correct.***

**96. Ans: d**

Explanation:

**Mugger: Mainly a freshwater species, the mugger crocodile is found in lakes, rivers and marshes. Muggers prefer slow-moving, shallower bodies of water rather than, fast-flowing, deep areas.** Also known to thrive in manmade reservoirs and irrigation canals.

***Hence, statements 1 & 2 are correct.***

It is sympatric with the gharial (*Gavialis gangeticus*) in some areas of India and with the saltwater crocodile (*Crocodylus porosus*) in other areas but separated by habitat most of the

time. It is known to be more mobile on land and can migrate considerable distances over land in search of a more suitable habitat. It can chase prey on land for short distances. **They are also known to dig burrows as shelters during the dry season.**

**Hence, statement 3 is correct.**

**97. Ans: c**

Explanation:

**Fractional distillation is used to separate crude oil into simpler, more useful mixtures. This method can be used because different hydrocarbons have different boiling points.**

#### **Fractional distillation**

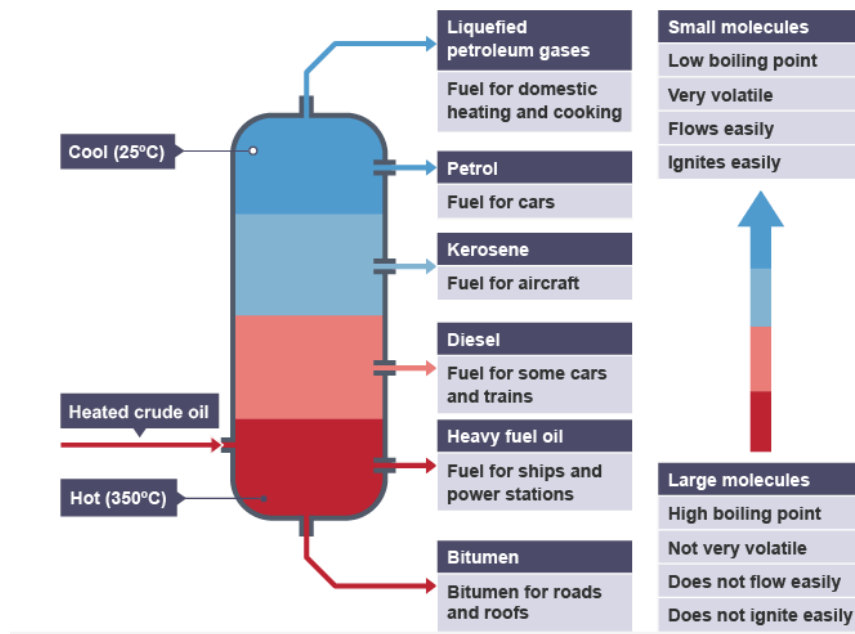
During the fractional distillation of crude oil:

- heated crude oil enters a tall fractionating column, which is hot at the bottom and gets cooler towards the top
- vapours from the oil rise through the column
- vapours condense when they become cool enough
- liquids are led out of the column at different heights

Small hydrocarbon molecules have weak intermolecular forces, so they have low boiling points. They do not condense but leave the column as gases. Long hydrocarbon molecules have stronger intermolecular forces, so they have high boiling points. They leave the column as hot liquid bitumen.

#### **Crude oil fractions**

The different, useful mixtures are called fractions. This is because they are only part of the original crude oil.



**Hence, option c is correct.**

**98. Ans: c**

Explanation:

#### **Kyoto Protocol, 2005**

**The Kyoto Protocol, adopted in 1997 and entered into force in 2005, was the first legally binding climate treaty. It required developed countries to reduce emissions by an average of 5 per cent below 1990 levels** and established a system to monitor countries' progress. However, the treaty did not compel developing countries, including major carbon emitters China and India, to take action. The United States signed the agreement in 1998 but never ratified it and later withdrew its signature.

**Hence, statement 1 is correct.**

#### **Paris Agreement, 2015**

The most significant global climate agreement to date, the Paris Agreement, requires all countries to set emissions-reduction pledges. Governments set targets, known as nationally determined contributions (NDCs), with the goals of preventing the global average temperature from rising 2°C (3.6°F) above preindustrial levels and pursuing efforts to keep

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it below 1.5°C (2.7°F). It also aims to reach global net-zero emissions, where the amount of greenhouse gases emitted equals the amount removed from the atmosphere in the second half of the century.

The United States, the world's second-largest emitter, is the only country to withdraw from the agreement, a move President Donald Trump made during his first administration in 2017. While former President Joe Biden reentered the agreement during his first day in office, Trump again withdrew the United States on the first day of his second administration in 2025. Three other countries have not formally approved the agreement: Iran, Libya, and Yemen.

**The global stocktake is an assessment of progress made toward mitigating global warming since the Paris Agreement in 2015.** The results from the first-ever global stocktake were discussed at COP28 which took place in 2023 in the United Arab Emirates

***Hence, statement 2 is incorrect.***

**99. Ans: a**

Explanation:

**At the UN Climate Change Conference 2022 (COP27) in Egypt, an agreement was reached to create a fund that will help low-income developing countries offset the damage from natural disasters caused by climate change.** Named the "Loss and Damage Fund," this financial mechanism was designed to provide crucial support to vulnerable nations facing the brunt of climate-related challenges.

***Hence, statement 1 is correct.***

**“Loss and damage” refers to the adverse consequences brought about by climate change** and resulting in a range of impacts, such as loss of human lives, damage to infrastructure and buildings, loss of property and crops, as well as the deterioration of ecosystems. These impacts extend beyond the purely economic realm to encompass a broader spectrum of both economic and non-economic losses.

Financial support will be provided in the form of grants, concessional financing that can be utilised by any eligible country. **The World Bank will assume the role of overseeing the fund's overall coordination, ensuring the efficient allocation of resources and aiding nations in their endeavours to recover from the aftermath of natural disasters.**

***Hence, statement 2 is incorrect.***

**100. Ans: b**

Explanation:

**The Adaptation Gap Report (AGR) is an annual publication from the United Nations Environment Programme(UNEP).**

***Hence, statement 1 is incorrect.***

The Adaptation Gap Report 2024 finds that nations must dramatically increase climate adaptation efforts, starting with a commitment to act on finance.

The report finds that progress in adaptation financing is not fast enough to close the enormous gap between needs and flows, which contributes to a continued lag in adaptation planning and implementation efforts.

International public adaptation finance flows to developing countries increased from US\$22 billion in 2021 to US\$28 billion in 2022: the largest absolute and relative year-on-year increase since the Paris Agreement. This reflects progress towards the **Glasgow Climate Pact, which urged developed nations to at least double adaptation finance to developing countries from US\$19 billion (2019 levels) by 2025.**

The report calls for nations to step up by adopting a strong new collective quantified goal for climate finance and including stronger adaptation components in their next round of climate pledges, or nationally determined contributions, due in early 2025.

***Hence, statement 2 is correct.***