



All India Civil Services Coaching Centre

(Under the aegis of Government of Tamil Nadu)

Answer Key Explanation

Test 14 – GS Paper I

Maximum Questions: 100

Maximum Marks: 200

1. Correct Option: (a)
Explanation:

- Statement 1 is incorrect: The Law Commission of India is a non-statutory body constituted by the Government of India from time to time.
- Statement 2 is incorrect: The first Law Commission was established under the Charter Act of 1833.

Law Commission of India

- The Law Commission of India is a non-statutory body constituted by the Government of India from time to time.
- The Commission was originally constituted in 1955 and is re-constituted every three years.
- The various Law Commission have been able to make important contribution towards the progressive development and codification of Law of the country.
- The Law Commission has so far submitted 277 reports.
- The 22nd Law Commission will be constituted for a period of three years from the date of publication of its Order in the Official Gazette.

Composition:

- A full-time Chairperson.
- Four full-time Members (including Member-Secretary).
- Secretary, Department of Legal Affairs as ex-officio Member.
- Secretary, Legislative Department as ex officio Member.

Not more than five part-time Members.
Functions:

- Identify laws which are no longer needed or relevant and can be immediately repealed.
- Examine the existing laws in the light of Directive Principles of State Policy and suggest ways of improvement and reform and also suggest such legislations as might be necessary to implement the Directive Principles and to attain the objectives set out in the Preamble of the Constitution.
- Consider and convey to the Government its views on any subject relating to law and judicial administration that may be specifically referred to it by the Government through Ministry of Law and Justice (Department of Legal Affairs).
- Consider the requests for providing research to any foreign countries as may be referred to it by the Government through Ministry of Law and Justice (Department of Legal Affairs).
- Take all such measures as may be necessary to harness law and the legal process in the service of the poor
- Revise the Central Acts of general importance so as to simplify them and remove anomalies, ambiguities and inequities.
- The Law Commission shall, on a reference made to it by the Central Government or Suo-motu, undertake research in law and review of existing laws in India for making reforms therein and enacting new legislations.

- It shall also undertake studies and research for bringing reforms in the justice delivery systems for elimination of delay in procedures, speedy disposal of cases, reduction in cost of litigation etc.

2. Correct Option: (b)

Explanation:

- Statement 1 is incorrect: The right to freedom of speech and expression does not include right to strike.

Fundamental Rights:

- Fundamental Rights are enshrined in Part III of the Constitution from Articles 12 to 35.
- Freedom of Speech and Expression (article 19):
- It implies that every citizen has the right to express his views, opinions, belief and convictions freely by word of mouth, writing, printing, picturing or in any other manner.
- The Supreme Court held that the freedom of speech and expression includes the following:
 - Right to propagate one's views as well as views of others.
 - Freedom of the press.
 - Freedom of commercial advertisements.
 - Right against tapping of telephonic conversation.
 - Right to telecast, that is, government has no monopoly on electronic media.
 - Right against bundh called by apolitical party or organisation.
 - Right to know about government activities. Freedom of silence.
 - Right against imposition of pre-censorship on a newspaper.
 - Right to demonstration or picketing but not right to strike.

Freedom of Movement:

- This freedom entitles every citizen to move freely throughout the territory of the country. He can move freely from

one state to another or from one place to another within a state.

- The grounds of imposing reasonable restrictions on this freedom are two:
 - o The interests of general public.
 - o The protection of interests of any scheduled tribe.
- The entry of outsiders in tribal areas is restricted to protect the distinctive culture, language, customs and manners of scheduled tribes and to safeguard their traditional vocation and properties against exploitation.
- The freedom of movement has two dimensions, viz, internal (right to move inside the country) and external (right to move out of the country and right to come back to the country).
- Article 19 protects only the first dimension. The second dimension is dealt by Article 21 (right to life and personal liberty).

Freedom of Residence:

- Every citizen has the right to reside and settle in any part of the territory of the country. This right has two parts: (a) the right to reside in any part of the country, which means to stay at any place temporarily, and (b) the right to settle in any part of the country, which means to set up a home or domicile at any place permanently.
- The State can impose reasonable restrictions on the exercise of this right on two grounds, namely, the interest of general public and the protection of interests of any scheduled tribes.

3. Correct Option: (c)

Explanation:

- Option (c) is incorrect: Moral Suasion is a qualitative instrument of monetary policy

Instrumentsof Monetary Policy

- Quantitative, general or indirect (CRR, SLR, Open Market Operations, Bank Rate, Repo Rate, Reverse Repo Rate)

- Qualitative, selective or direct (consumer credit regulation, RBI guidelines, Moral suasion and direct action)
- Qualitative instruments of monetary policy
- Moral Suasion refers to a request by the RBI to the commercial banks to take certain measures as per the trend of the economy.
- Consumer credit regulation refers to issuing rules regarding down payments and maximum maturities of installment credit for purchase of goods.
- RBI Guidelines refers to the oral, written statements, appeals, guidelines, and warnings etc. to the banks by RBI.
- Rationing of the credit refers to control over the credit granted / allocated by commercial banks.
- Direct Action is taken by the RBI against banks that don't fulfill conditions and requirements. RBI may refuse to rediscount their papers or may give excess credits or charge a penal rate of interest over and above the Bank rate, for credit demanded beyond a limit

4. Correct Option: (b)

Explanation:

- Statement 3 is incorrect: The final MSP is determined as a function of expenses incurred (A2) and the imputed value of family labour (FL).
 - For Sugarcane, FRP is decided by the Cabinet Committee on Economic Affairs headed by PM, considering the recommendations of CACP
- Minimum Support Price (MSP)**
- To enable procurement Government has instituted a floor price for agricultural produce, namely Minimum Support Price (MSP).
 - The Government notifies MSPs based on the recommendations of Commission for Agricultural Costs and Prices (CACP).
 - Currently, CACP recommends MSP for twenty two (22) crops and Fair & Remunerative Price (FRP) for sugarcane.

- It consists of: seven cereals (paddy, wheat, maize, sorghum, pearl millet, barley and ragi), five pulses (gram, tur, moong, urad, lentil), seven oilseeds (groundnut, rapeseed mustard, soyabean, sesamum, sunflower, safflower, nigerseed), and three commercial crops (copra, cotton and raw jute).
- In addition, MSP for Toria and De-Husked coconut is fixed on the basis of MSP's of Rapeseed/Mustardseed and Copra respectively.

A2 vs. C2 debate

- The CACP determines the MSP based on the expenses incurred by the farmer. It is determined in following manner:
 - o Expenses incurred (A2) is estimated by considering cost of production, changes in input price, trends in market prices, demand and supply situation, inter-crop price parity, effect on general price level, effect on cost of living, international market price situation, etc.
- The final MSP is determined as a function of expenses incurred (A2) and the imputed value of family labour (FL).
- There have been demands for considering a different costing method (C2).
- Adopting C2 will entail following changes:
 - o It would include the rent paid for any leased-in land, the imputed rent for the owned land, the interest on owned fixed capital, and imputed value of wages to family labour, in addition to the Cost A2.
 - o It is also argued that 50 per cent of Cost C2 should be added as the profit component, for determining the MSP.

5. Correct Option: (a)

Explanation:

- Statement 2 is incorrect: There is increase in total biomass in success seral stages.

Ecological Succession

- An important characteristic of all communities is that composition and

structure constantly change in response to the changing environmental conditions.

- This change is orderly and sequential, parallel with the changes in the physical environment.
- These changes lead finally to a community that is in near equilibrium with the environment and that is called a climax community.
- The gradual and fairly predictable change in the species composition of a given area is called ecological succession.
- During succession some species colonise an area and their populations become more numerous, whereas populations of other species decline and even disappear.
- The entire sequence of communities that successively change in a given area are called sere(s).
- The individual transitional communities are termed seral stages or seral communities.
- In the successive seral stages there is a change in the diversity of species of organisms, increase in the number of species and organisms as well as an increase in the total biomass.
- Based on the nature of the habitat – whether it is water (or very wet areas) or it is on very dry areas – succession of plants is called hydrarch or xerarch, respectively.
- Hydrarch succession takes place in wetter areas and the successional series progress from hydric to the mesic conditions.
- As against this, xerarch succession takes place in dry areas and the series progress from xeric to mesic conditions.

6. Correct Option: (d)

Explanation:

- All statements are correct

Coral Reefs

- The coral is a polyp, an organism that lives in the shallow sea. Its skeleton is composed of limestone and dolomite.

- The layers of deposition of the skeletons of these polyps form a shallow rock known as Coral Reef.
- They thrive in tropical oceans confined between 25° North and 25° south latitudes.
- Corals are found mainly in the tropical oceans and seas because they require a high mean annual temperature above 20°C.
- Since coral polyps cannot survive above water level, coral reefs are found either up to sea level or below it.
- The coral reefs are more diverse than tropical rainforests because coral reefs have more than 1,000,000 species.

7. Correct Option: (d)

Explanation:

- All statements are correct

Independence for India League

- Before the formation of a committee under Motilal Nehru to draft a constitution for India, a larger section of Congress was inclined towards the dominion status instead of complete independence.
- Even before the finalization of the report, Jawaharlal Nehru joined hands with Subhash Chandra Bose to organize the Independence for India League as Secretaries. Srinivasa Iyengar was its first president.
- Its main objective was to fight for complete independence and 'a socialist revision of the economic structure of society.'
- When the Nehru Report came before the annual session of the Congress in Calcutta in December 1928, the left-leaning members lashed it out on the fact that it did not want the complete Independence and wanted only a dominion status.

8. Correct Option: (b)

Explanation:

- Statement 1 is incorrect: solanki temple architecture has a massive rectangular

stepped tank called the 'surya kund' in front of it

- Statement 3 is incorrect: Hoysala is a vesara style temple architecture, which developed in south India after Cholas

Temple architecture

- The Sun temple at Modhera dates back to the early 11th century and was built by Raja Bhimdev I of the Solanki Dynasty in 1026.
- There is a massive rectangular stepped tank called the surya kund in front of it, perhaps the grandest temple tank in India.
- Every year, at the time of the equinoxes, the sun shines directly into this central shrine of the temple.
- The main architectural features of Odisha temples are classified into three orders, i.e., rekhapida, pidhadeul and khakra.
- Most of the main temple sites are located in ancient Kalinga—modern Puri District, including Bhubaneswar or ancient Tribhuvaneshvara, Puri and Konark.
- In general, the shikhara, called deul in Odisha, is vertical almost until the top when it suddenly curves sharply inwards.
- Deuls are preceded, as usual, by mandapas called jagamohana in Odisha. Odisha temples usually have boundary walls.
- Compartments and niches are generally square, the exterior of the temples are lavishly carved, their interiors generally quite bare.
- Hoysalas grew into prominence in South India (centred at Mysore) after the Chola and the Pandya power declined.
- Chief temples are at Belur, Somnathapuram and Hoysaleswara Temple at Halebid.
- These temples have a plan called the stellate plan. This is because the plan which emerged from being a straightforward square to a complex one with many projecting angles began to resemble a star.

- The star-like ground plan is a distinct feature of Hoysala architecture. These are vesara style temple, made of soapstone which is relatively soft.
- This enabled artists to carve intricate details like jewellery

9. Correct Option: (c)

Explanation:

- All statements are correct

Weathering

- Weathering refers to the process of weakening, breaking up, and disintegration of the rock that forms the surface of the ground and that lie exposed to the weather.
- Weathering breaks down the initial rock mass into smaller fragments thus preparing the rock material for the formation of the soil.
- Weathering produces other natural resources such as clay which is used for making bricks.
- Other natural resource found from weathering is bauxite which is aluminum ore.
- Another significance of weathering is that weathering weakens rocks making them easier for people to exploit for example by mining and quarrying.

10. Correct Option (b)

Explanation:

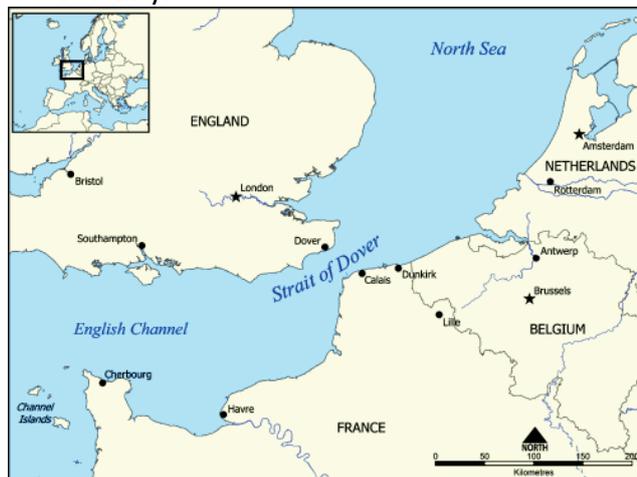
- Statement 1 is incorrect: The English Channel separates the southern coast of England from the northern coast of France.

The English Channel

- It is the smallest of the shallow seas covering the continental shelf of Europe.
- The English Channel separates the southern coast of England from the northern coast of France.
- An arbitrary limit marked by a line between the Scilly Isles and the Isle of Ushant.
- Its location has given it immense significance over the centuries, as both a route and a barrier during the peopling

of Britain and the emergence of the nation-states of modern Europe.

- Tides in the English Channel generally are strong, especially in the Strait of Dover.
- The weather over the English Channel is highly variable. Often, but especially from October to April, it is cloudy, chilly, and wet, with strong winds and poor visibility.



11. Correct Option: (a)

Explanation:

- Option (a) is correct: GW190412 is the First gravitational wave observation from the merger of two black holes with different masses.

GW190412

- The LIGO Scientific Collaboration and Virgo Collaboration observed for the first time gravitational waves produced by the inspiral and merger of two black holes.
- This event was observed with both LIGO detectors (at Hanford, Washington and in Livingston, Louisiana USA) as well as the Virgo detector (located in Cascina, Italy).
- First binary black hole merger where the masses of the two black holes are definitively unequal — one black hole in the system is more than 3 times heavier than the other.
- This asymmetry in masses has important ramifications due to this scientist can better measure the distance to the source, and inclination of the system and

the speed of rotation (spin) of the heavier black hole, etc.

- GW190412 occurred almost 2.5 billion lightyears away from Earth.
- The unequal masses of GW190412 enabled researchers to verify a fundamental prediction of Albert Einstein's General relativity: that gravitational waves include more than one harmonic of the orbital frequency.
- Observation of this single event tells us that black hole systems with unequal masses are relatively common, and that we should expect to observe many more such systems in future.
- Scientists from several Indian research institutes participated in the analysis and made critical contributions to this discovery.

12. Correct Option: (b)

Explanation:

- Statement 2 is Incorrect: The app, being built by researchers from the University of Sydney in collaboration with Google Earth and the Group on Earth Observations along with other partners.

Paddy Watch App

- The world's first real-time paddy-field monitoring platform is being built by researchers from the University of Sydney, which will give information on the quantity of rice planted and the harvest achieved.
- The app can help meet the United Nations mandated sustainable development goal No.2 — of 'Zero Hunger'.
- Paddy Watch is being developed in partnership with Universiti Malaysia Terengganu; the Indonesian Centre for Agricultural Land Resources Research and Development in the Indonesian Ministry of Agriculture; IADA Ketara, Ministry of Agriculture, Malaysia; the Institute of Soil Science at the Chinese Academy of Sciences; Indian Agricultural Research Institute; and RIICE remote

sensing, Vietnam, in collaboration with Google Earth and the Group on Earth Observations.

- It will provide accurate and up-to-date information on how much rice has been planted and how much can be achieved.
- The Google Earth Engine will be used to build the first real-time mobile application that will allow farmers, agricultural scientists, non-government organisations and government planners to manage land use to ensure food security in the world's rice bowls.
- The real-time land-use data will be verified by field operators in India, China, Malaysia, Indonesia, and Vietnam. This will allow the agricultural scientists to monitor and ensure their accuracy worldwide.
- These five countries hold the position of the largest rice-producing countries across the globe.
- Among these, India, China and Indonesia are the world's three largest producers of rice and together account for about 60 per cent of the total world production.

13. Correct Option: (d)

Explanation:

- All statements are correct

Drone Rules (announced in August 2021)

- Drones up to 500 kg are now subject to regulations, compared to the earlier limit of 300 kg.
- Several approvals abolished with the total forms to be filled reduced from 25 to 5.
- Types of fees reduced from 72 to 4.
- Quantum of fees to be paid considerably reduced and delinked with the size of drone.
- Removal of requirement of prior security clearance.
- Earlier restrictions on all foreign entities owning, manufacturing or dealing with drones in India has been done away with.

- No remote pilot license required for micro drones (for non-commercial use) and nano drones.
- An interactive map on the Digital Sky platform specifies colour-coded zones on the map i.e. green, yellow and red, indicating free zones, those which require prior permission, and no-fly zones, respectively.
- The perimeters of these zones have also been liberalised to increase freely accessible airspace under the green category.

14. Correct Option: (d)

Explanation:

- Option (d) is correct

GST Collection in 2021-22

- The GST collections for the Centre were 61.4 per cent of BE during April to November 2021.
- Gross GST collections witnessed an increase of 61.5 per cent over April to December 2020 and 33.7 per cent over April to December 2019.
- Over the last 4 years, GST revenues have steadily grown and the year-average of monthly GST collection has increased from 0.9 lakh crore in 2017-18 to 1.19 lakh crore in 2021-22 (upto December)
- The improvement in GST collections has been due to the combined effect of:
- The rapid economic recovery post pandemic, The nation-wide drive against GST evaders and fake bills along with many systemic changes introduced recently, and Various rate rationalization measures undertaken by the GST Council to correct inverted duty structure.

15. Correct Option: (b)

Explanation:

- Statement 1 is incorrect, so, using elimination method one can arrive at the correct option which is (b).
- Statement 1 is incorrect: When a money bill is presented to the President, he may either give his assent to the bill or

withhold his assent to the bill but cannot return the bill for reconsideration of the Houses.

Money Bill:

- Article 110 of the Constitution deals with the definition of money bills.
- If any question arises whether a bill is a money bill or not, the decision of the Speaker of the Lok Sabha is final.
- His decision in this regard cannot be questioned in any court of law or in the either House of Parliament or even the president.
- When a money bill is transmitted to the Rajya Sabha for recommendation and presented to the president for assent, the Speaker endorses it as a money bill.
- A money bill can only be introduced in the Lok Sabha and that too on the recommendation of the president.
- The Rajya Sabha has restricted powers with regard to a money bill. It cannot reject or amend a money bill. It can only make the recommendations. It must return the bill to the Lok Sabha within 14 days, whether with or without recommendations. So, the RS can maximum delay a bill for 14 days.
- In case of deadlock with respect to the passage of the Money Bill, the provision of joint sitting of both the houses is not applicable to money bills.

16. Correct Option: (c)

Explanation:

- Statement 2 is incorrect: The court held that the 24th Constitutional Amendment was entirely valid. But it found the second part of the 25th Constitutional Amendment to be ultra vires.
- Statement 3 is incorrect: It is the Judiciary that is responsible to decide what constitutes the basic structure without the help of parliament and state assemblies.

Kesavananda Bharati case

- Main petitioner, Kesavananda Bharati, of Kesavananda Bharati Sripadagalvaru and Ors v State of Kerala Case, 1973 (known

for the basic structure doctrine of the Supreme Court), passed away.

Kesavananda Bharati:

- He challenged the Kerala land reforms legislation in 1970, which imposed restrictions on the management of religious property.
- The case was challenged under Article 26, concerning the right to manage religiously owned property without government interference.
- A 13-judge Bench was set up by the Supreme Court, the biggest so far, to hear the case.
- Question underlying the case also included:
 - o Was the power of Parliament to amend the Constitution unlimited? In other words, could Parliament alter, amend, abrogate any part of the Constitution even to the extent of taking away all fundamental rights?
- The landmark judgement was delivered on 24th April 1973 by a thin majority of 7:6 wherein the majority held that any provision of the Indian Constitution can be amended by the Parliament in order to fulfil its socioeconomic obligations that were guaranteed to the citizens as given in the Preamble, provided that such amendment did not change the Constitution's basic structure.
- The minority, however, in their dissenting opinion, were wary of giving the Parliament unlimited amending power.
- The court held that the 24th Constitutional Amendment was entirely valid. But it found the second part of the 25th Constitutional Amendment to be ultra vires.
- The Supreme Court declared the Article 31C as unconstitutional and invalid on the ground that judicial review is basic structure and hence cannot be taken away.
- Despite the ruling that Parliament cannot breach fundamental rights, the court upheld the amendment that

removed the fundamental right to property.

- The court ruled that in spirit, the amendment would not violate the “basic structure” of the Constitution.

Doctrine of the Basic Structure:

- The origins of the basic structure doctrine are found in the German Constitution which, after the Nazi regime, was amended to protect some basic laws.
- Learning from that experience, the new German Constitution introduced substantive limits on Parliament’s powers to amend certain parts of the Constitution which it considered ‘basic law’.
- In India, the basic structure doctrine has formed the bedrock of judicial review of all laws passed by Parliament.
- No law can impinge on the basic structure.
- What the basic structure is, however, has been a continuing deliberation.
- Parliamentary democracy, fundamental rights, judicial review, secularism- are all held by courts as basic structure, the list is not exhaustive.
- It is the Judiciary that is responsible to decide what constitutes the basic structure.

17. Correct Option: (b)

Explanation:

- Statement 2 is incorrect: Base rate is the minimum rate set by the RBI below which banks are not allowed to lend to their customers.
- Statement 3 is incorrect: MCLR is the minimum interest rate that a bank can lend at and is determined internally by the bank

Policy Rates

- Repo rate is the rate at which the central bank of a country (Reserve Bank of India in the case of India) lends money to commercial banks in the event of any shortfall of funds.

- It is used by monetary authorities to control inflation.
- The reverse repo rate is the rate at which the central bank of a country borrows money from commercial banks within the country.
- It is a monetary policy instrument that can be used to control the money supply in the country.
- Base rate is the minimum rate set by the Reserve Bank of India below which banks are not allowed to lend to their customers.
- The marginal cost of a funds-based lending rate (MCLR) is the minimum interest rate that a bank can lend at.
- MCLR is a tenor-linked internal benchmark, which means the rate is determined internally by the bank depending on the period left for the repayment of a loan.

18. Correct Option: (b)

Explanation:

- Statement 1 is incorrect: Commission for Agricultural costs and pricing (CACP) is an advisory body and its recommendations are not binding on the central government.

Sugarcane

- Recently Niti Aayog task force has recommended linking sugarcane prices to sugar rates to keep the industry in sound financial health.
- The task force also recommended shifting of some areas under sugarcane cultivation to less water-intensive crops by providing a suitable incentive to farmers.
- India is one of the largest sugar producer and consumer in the world.
- Price of sugarcane i.e. Fair and Remunerative Price (FRP) is announced by the Central Government based on the recommendations of the Commission for Agricultural Costs and Prices (CACP).

- CACP is an advisory body and its recommendations are not binding on Government.
- Some states also announce 'State Advised Prices (SAP)' for sugarcane over and above the FRP of the central government.
- Ethanol is an agro-based product, mainly produced from a by-product of the sugar industry, namely molasses.
- The government has been implementing Ethanol Blended Petrol (EBP) Programme wherein Oil Marketing Companies sell petrol blended with ethanol up to 10%.

19. Correct Option: (a)

Explanation:

- Statement 3 is incorrect: Soils subject to laterization are poor in organic matter

Soil Laterization

- The weathering process by which soils and rocks are depleted of soluble substances, such as silica-rich and alkaline components and enriched with insoluble substances, such as hydrated aluminum and iron oxides.
- Laterization is especially common in tropical regions that have a pronounced dry season and a water table that is close to the surface. It occurs in the hot, rainy tropics where chemical weathering proceeds at a rapid rate.
- It refers to a cemented horizon in soils, which when dried, becomes very hard.
- Movements of large amounts of water through the soil cause eluviations and leaching to occur.
- Almost all of the by products of weathering, very simple small compounds or nutrient ions, are translocated out of the soil profile by leaching if not taken up by plants for nutrition.
- The two exceptions to this process are iron and aluminum compounds. Iron oxides give tropical soils their unique reddish coloring.
- Heavy leaching also causes these soils to have an acidic pH because of the net loss of base cations.

20. Correct Option: (b)

Explanation:

- Statement 2 is incorrect: Alpha diversity is used to compare number of species in different communities
- Biodiversity biodiversity and Measurement of Biodiversity can be defined as a community of all the living organisms on the earth and the diversity among them from all the ecosystems.
- The term biodiversity was coined by Walter G. Rosen in 1986.
- Biodiversity can be categorized into three main types:
 - o Genetic Diversity (Diversity within species)
 - o Species Diversity (Diversity between species)
 - o Ecosystem Diversity (Diversity between ecosystem)

Measurement of biodiversity

- Alpha diversity: Alpha diversity refers to the number of species in a single community at a particular time. Alpha diversity is better called as species richness. Alpha diversity is used to compare number of species in different communities
- Beta diversity: It is the measure of degree of change in species composition along with an environmental gradient. Beta diversity is low if same species of moss occupy the whole mountain side.
- Gamma diversity: Gamma diversity applies to large geographic scale. Gamma diversity is the rate at which additional species are encountered as geographical replacements within a habitat type in different localities.

21. Correct Option: (b)

Explanation:

- Statement 1 is incorrect: Nayakas were military commanders under Vijaynagar Empire

Nayakas of Vijaynagar Empire

- In Vijaynagar Empire, there were many areas in the empire which were under the control of subordinate rulers, i.e.,

those who had been defeated in war, but whose kingdoms had been restored to them.

- In the large centrally controlled area, the king granted amaram or territory with a fixed revenue to military chiefs. These chiefs, who were called palaiyagar (palegar) or nayaks, had to maintain a fixed number of foot, soldiers, horses and elephants for the service of the state.
- They collected taxes and other dues from peasants, craftsmen, and traders in the area. They retained part of the revenue for personal use and for maintaining a stipulated contingent of horses and elephants. The nayaks or palegars also had to pay a sum of money to the central exchequer.
- The Chola traditions of village selfgovernment were considerably weakened under the Vijayanagara rule.
- The growth of hereditary nayakships tended to curb their freedom and Initiatives.

22. Correct Option: (a)

Explanation:

- Statement 1 is incorrect: Wheat, barley, rai, peas, sesame, lentil, chickpea and mustard were produced. Millets are also found from sites in Gujarat. While rice uses were relatively rare.
- Statement 2 is incorrect: Recently, a study by Indian and Canadian archaeologists has found that dairy products were being produced by the Harappans as far back as 2500 BCE. The finding reveals the earliest evidence of dairy production.

Agricultural techniques of IVC

- The Harappan villages, mostly situated near the flood plains, produced sufficient foodgrains.
- Wheat, barley, rai, peas, sesame, lentil, chickpea and mustard were produced.
- Millets are also found from sites in Gujarat.
- While rice uses were relatively rare.

- The Indus people were the earliest people to produce cotton.
- While the prevalence of agriculture is indicated by finds of grain, it is more difficult to reconstruct actual agricultural practices.
- Representations on seals and terracotta sculpture indicate that the bull was known, and archaeologists extrapolate shows oxen were also used for ploughing.
- Most Harappan sites are located in semiarid lands, where irrigation was probably required for agriculture.
- Traces of canals have been found at the Harappan site of Shortughai in Afghanistan, but not in Punjab or Sindh.
- Although the Harappans practised agriculture, animals were also reared on a large scale.
- Evidence of the horse comes from a superficial level of Mohenjodaro and from a doubtful terracotta figurine from Lothal.
- In any case the Harappan culture was not horse centred.
- Recently, a study by Indian and Canadian archaeologists has found that dairy products were being produced by the Harappans as far back as 2500 BCE. The finding reveals the earliest evidence of dairy production.

23. Correct Option (a)

Explanation:

- Statement 2 is incorrect: The temperate cyclones occur mostly in winter, late autumn and spring.

Temperate Cyclones:

- The cyclones developing in the mid and high latitude, beyond the tropics are called the Temperate Cyclones or Extra Tropical Cyclones or Mid-Latitude Cyclones or Frontal Cyclones or Wave Cyclones.
- The origin and development temperate cyclone is best explained by the Norwegian model. It is very popularly known as polar front theory.

- According to this theory, the warm-humid air masses from the tropics meet the dry cold air masses from the poles and thus a polar front is formed.
- Temperate Cyclones is intense frontogenesis involving mainly occlusion type front.
- Individual frontal cyclones exist for about 3 to 10 days moving in a generally west to east direction.
- The temperate cyclones occur mostly in winter, late autumn and spring. They are generally associated with rainstorms and cloudy weather.

24. Correct Option: (d)

Explanation:

- Statement 1 is incorrect: Retreating monsoon occurs in the months of October and November in India.

Retreating Monsoon

- The months of October and November are known for retreating monsoons.
- By the end of September, the southwest monsoon becomes weak as the low pressure trough of the Ganga plain starts moving southward in response to the southward march of the sun.
- The monsoon retreats from the western Rajasthan by the first week of September.
- It withdraws from Rajasthan, Gujarat, Western Ganga plain and the Central Highlands by the end of the month.
- By the beginning of October, the low pressure covers northern parts of the Bay of Bengal and by early November, it moves over Karnataka and Tamil Nadu.
- By the middle of December, the centre of low pressure is completely removed from the Peninsula.

Characteristics of Retreating Monsoon

- The retreating southwest monsoon season is marked by clear skies and rise in temperature. However the land is still moist. Owing to the conditions of high temperature and humidity, the weather becomes rather oppressive.

- This is commonly known as the 'October heat'. In the second half of October, the mercury begins to fall rapidly, particularly in northern India.
- The weather in the retreating monsoon is dry in north India but it is associated with rain in the eastern part of the Peninsula. Here, October and November are the rainiest months of the year.
- Southeastern coast receives a lot of rainfall during the retreating monsoon season.
- The widespread rain in this season is associated with the passage of cyclonic depressions which originate over the Andaman Sea and manage to cross the eastern coast of the southern Peninsula.
- The deltas of the Godavari, Krishna and Kaveri are likely to experience cyclones.
- A few cyclonic storms also strike the coast of West Bengal, Bangladesh and Myanmar.
- A bulk of the rainfall of the Coromandel coast is derived from these depressions and cyclones. Such cyclonic storms are less frequent in the Arabian Sea.

25. Correct Option: (b)

Explanation:

- Statement 2 is incorrect: The regular diesel becomes more viscous due to presence of paraffin wax at low temperatures and hinders the flow of the fuel in the car engine.

Winter Diesel

- The Indian Oil Corporation (IOC) has got approval from the Directorate General of Quality Assurance (DGQA) for the use of winter diesel by armed forces for operations in high altitude areas such as Ladakh.
- Winter diesel is a specialised fuel that was introduced by IOCL last year as a technological solution.
- The flow characteristics of regular diesel change at low temperatures as fuel contains paraffin wax which is added for improving viscosity and lubrication.

- At low temperatures, the paraffin wax thickens or “gels” and hinders the flow of the fuel in the car engine.
- Winter diesel which contains additives to maintain lower viscosity can be used in temperatures as low as -30°C and that besides a low pour point.
- Winter diesel has a higher cetane rating — which is an indicator of the combustion speed of diesel and compression needed for ignition and lower sulphur content, which would lead to lower deposits in engines and better performance.
- It also meets the Bureau of Indian Standards (BIS) specification of BS-VI grade.

26. Correct Option: (a)

Explanation:

- Statement 2 is incorrect: It is not an airborne disease.
- Statement 3 is incorrect: Ebola River is a tributary of the Congo River.

Ebola Disease

- Recently Guinea has declared an Ebola outbreak.
- Ebola is a deadly disease caused by a virus.
- Ebola virus disease (EVD), formerly known as Ebola haemorrhagic fever, is a rare but severe, often fatal illness in humans.
- The virus gets its name from the Ebola River, a tributary of the Congo River, present in the Democratic Republic of the Congo.
- The virus is transmitted to people from wild animals and spreads in the human population through human-to-human transmission.
- The virus is not airborne, which means a person cannot get the disease simply by breathing the same air as an infected patient.
- Ebola jumps to humans from infected animals like chimpanzees, fruit bats and forest antelope.

- Six species of Ebolavirus have been identified: Ebola virus, Sudan virus, Tai Forest virus, Bundibugyo virus, Reston virus, and Bombali virus.
- Of these, only four (Ebola, Sudan, Tai Forest, and Bundibugyo viruses) are known to cause disease in people.

27. Correct Option: (d)

Explanation:

- Option (d) is correct

Maya Angelou

- The US Mint has started rolling out quarters that feature late American author and activist Maya Angelou, the first Black woman to appear on the coin.
- The coin is part of the American Women Quarters programme, the US Mint said.

28. Correct Option: (b)

Explanation:

Cost push inflation

- Economists describe cost-push inflation as a condition when the supply of goods or services is limited in some way but demand remains the same, pushing up prices.
- The increased price of labor or raw materials, for example, leads to decreased supply of these goods. While demand remains constant, the prices of commodities increase causing a rise in the overall price level.
- The overall price level increases due to higher costs of production which reflects in terms of increased prices of goods and commodities which primarily use these inputs. This is essentially inflation triggered by less supply.
- India’s dependence on crude-oil import is as high as 85 per cent, according to the Petroleum Planning & Analysis Cell. Also, in the last financial year 2020-21, about 19.8 per cent of the country’s overall imports constituted petroleum products.
- The surge in fuel cost affects almost all corners of the economy.
- Supply disruptions during the lockdown and inflation related to food items, such

as edible oils and vegetables, pushed up the Indian CPI inflation.

- Following are considered some of the main reasons for demand-pull inflation:
 - o Expectations of inflation in the future
 - o A strengthening financial system that results in more spending
 - o Asset inflation stemming from an undervalued currency
 - o Technological innovations
 - o Increases in government spending
 - o Increased printing of money

29. Correct Option: (a)

Explanation:

- Statement 3 is incorrect: Currently Arunachal Pradesh is neither under 5th Schedule nor under 6th Schedule. It is under the Inner Line Permit (ILP) system.

Schedules of constitution 6th Schedule:

- The recent revival of the demand for two autonomous councils in Arunachal Pradesh has led to the call for bringing the entire Arunachal Pradesh under the ambit of the 6th Schedule or Article 371 (A) of the Constitution.
- Currently Arunachal Pradesh is neither under 5th Schedule nor under 6th Schedule.
- It is under the Inner Line Permit (ILP) system.
- The 6th Schedule is applied in Assam, Meghalaya, Mizoram and Tripura.
- The 5th Schedule areas are declared in the States of Andhra Pradesh, Telangana, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha and Rajasthan.
- The 6th Schedule of the Constitution provides for the administration of tribal areas in Assam, Meghalaya, Tripura and Mizoram to safeguard the rights of the tribal population in these states. This special provision is provided under Article 244(2) and Article 275(1) of the Constitution.
- The tribes in the above states have not assimilated much with the life and ways of the other people in these states.

- These areas still have the presence of anthropological specimens.
- Based on the reports of the Bordoloi Committee formed by the Constituent Assembly, the 6th Schedule was formulated to provide limited autonomy to the tribal regions of North-East.
- The committee report stated that there was a need for a system of administration that would allow tribal areas to become developed.
- The report also called for the protection of these tribal areas from exploitation by the people in the plains and preserving their distinct social customs.

Administration in the 6th Schedule:

- The tribal areas in the 6th Schedule area have been constituted as autonomous districts. The autonomous districts have been given varying degrees of autonomy within the State Legislature.
- There are 10 autonomous districts – three in Assam, Meghalaya and Mizoram and one in Tripura.

Composition of Autonomous Councils:

- Each autonomous district and regional council consists of not more than 30 members, of which four are nominated by the governor and the rest via elections.
- All of them remain in power for a term of five years. However, the Bodoland Territorial Council is an exception as it can constitute up to 46 members.

30. Correct Option: (d)

Explanation:

- Statement 1 is incorrect: Open competition for civil services was introduced by Charter Act, 1853.
- Statement 2 is incorrect: The Charter Act of 1813 ended the trade monopoly of East India Company to India, except for tea.

Government of India Act, 1858

- It ended the system of Company's Rule in India by abolishing the Board of Control and Court of Directors.

- British East India Company was abolished and India was henceforth to be governed by, and in the name of, Her Majesty.
- The designation of Governor General of India was renamed to be the Viceroy of India, who was a direct representative of the British Crown in India.
- First Viceroy was Lord Canning.
- The Office of Secretary of State was created with the authority to govern India. The Secretary of State was a member of the British Cabinet and was ultimately responsible to the British Parliament.
- A 15- member Council of India was established to assist the secretary of state, and secretary of state was its chairman.
- Charter Act 1813- It ended the trade monopoly of East India Company to India, except for tea; and trade with China.
- The total trade monopoly of the East India Company ended with the Charter Act, 1833, converting the Company from a commercial body to an administrative body.
- Government of India Act, 1919
- It is also known as the Montagu-Chelmsford reforms. (Montagu was the secretary of state for India and Lord Chelmsford was the Viceroy.)
- It demarcated subjects as Central Subjects and Provincial Subjects.
- Therefore, it led to the separation of central and provincial budgets.
- It introduced dyarchy in the provinces.
- Bicameralism and direct elections were introduced in the Imperial Legislative Assembly.
- 3 of the 8 members in the Viceroy's executive council were to be Indian, except for the Commander-in-Chief.
- It introduced the office of High Commissioner for India in London.
- It provided for the establishment of Public Service Commissions.

- It introduced the appointment of a statutory commission to inquire into the working of the Government of India Act, 1919, which was later known as Simon Commission.

31. Correct Option: (b)

Explanation:

- Option (b) is correct: Due to inflation money lending institutions increase their interest rates and with inflation, exportable items of an economy gain competitive prices in the world market.
- Due to this, the volume of export increases and this export income increases in the economy.

Effects of Inflation

- On Expenditure – Inflation affects both the forms of expenditure – consumption as well as investment.
- Increased prices make out consumption levels fall as goods and services get costlier. On the other hand, inflation makes investment expenditure increase as a result of decreased cost of money.
- On Creditors and Debtors – Inflation redistributes wealth from creditors to debtors. The lender suffers and borrowers benefit out of inflation.
- On Lending: Since the lenders have to recover the cost of money, they will increase the rate of interest due to rising inflation.
- On Exchange Rate: With every inflation, the currency of the economy depreciates provided it follows the flexible currency regime.
- On Export: With Inflation the currency will depreciate and hence , exportable items of an economy gain competitive prices in the world market. Due to this, the volume of export increases and this export income increases in the economy.
- On Import: Inflation gives an economy the advantage of lower imports and import substitution as foreign goods become costlier. But in the case of compulsory imports the economy does

not get this benefit and loses more foreign currency instead of saving it.

- On Income: Inflation affects the income of individual and firms alike. An increase in inflation, increases the nominal value of income, while the real value of income remains the same.
- On Purchasing power: Increased price levels erode the purchasing power of the money.

32. Correct Option: (c)

Explanation:

- Statement 1 is incorrect: Open Market Operation is an instrument of monetary policy.

Fiscal Policy

- Fiscal policy is the economic policy of the government that is concerned with:
 - o taxation
 - o public expenditure and
 - o public borrowing.
- The government uses fiscal policy to control the rising prices or deal with the situation of deflation. In case of inflation or excess demand situation the government can exempt the poor people from paying income tax and reduce the burden of tax on the middle class by increasing the limit of income level to be exempted from income tax.
- At the same time government can increase the tax burden on the rich class who are capable of paying higher amount of tax. In case of tax on commodities, the government can tax the luxury items heavily, while reduce the taxes on necessary and normal goods extensively used by the population.
- Along with taxation policy, the government must reduce public expenditure and public borrowing to control excess demand.
- Reduction in public expenditure and public borrowing reduces the supply of money thereby reducing inflation.

Monetary Policy

- The monetary policy is implemented by the country's central Bank. In case of India, it is the Reserve Bank of India (RBI) which implements monetary policy. The following are the instruments of monetary policy.
 - o Bank rate
 - o Open market operation
- Variable reserve ratio Bank rate is the rate at which the central bank discounts the securities of the commercial banks. It is also the rate at which commercial banks borrow money from the central bank.
- To check excess demand, the central bank increases the bank rate in order to control the borrowing capacity of the commercial banks so that they do not indulge in distribution of loans to the customers.
- Open market operation refers to buying and selling of securities by central bank.
- Normally the commercial banks are the buyers of such securities. During inflation (excess demand situation) the central bank sells government securities to commercial banks in return of money. As a result, money supply in the economy falls causing prices to fall.
- Certain percentage of the value of the asset of the commercial bank is kept as reserves in the central bank called variable reserve ratio.
- To control excess demand, the central bank will increase the variable reserve ratio.
- So, that commercial banks have to a part with larger amount of their asset with the central bank. This will reduce their ability to supply more money in the society.

33. Correct Option: (c)

Explanation:

- Both statements are correct

Nilgiris Elephant Corridor

- Elephant corridors allow elephants to continue their nomadic mode of survival.

- Despite the shrinking forest cover, the corridors facilitate the travelling of elephants between distinct forest habitats.
- Nilgiris elephant corridor is situated in the ecologically fragile Sigur plateau. The plateau connects the Western and the Eastern Ghats. Apart from that, the plateau also sustains elephant populations and their genetic diversity.
- It has the Nilgiri Hills on its southwestern side and the Moyar River Valley on its north-eastern side. The elephants cross the plateau in search of food and water.

34. Correct Option: (d)

Explanation:

- All statements are correct

Function of Environment

- The environment performs four vital functions
 - o It supplies resources: resources here include both renewable and nonrenewable resources.
 - o It assimilates waste
 - o It sustains life by providing genetic and bio diversity and
 - o It also provides aesthetic services like scenery etc.
- The environment is able to perform these functions without any interruption as long as the demand on these functions is within its carrying capacity. This implies that the resource extraction is not above the rate of regeneration of the resource and the wastes generated are within the assimilating capacity of the environment.
- Absorptive capacity means the ability of the environment to absorb degradation.

35. Correct Option: (a)

Explanation:

- Statement 2 is incorrect: Lord Canning's General Service Enlistment Act (1856) ordered all recruits to be ready for service both within and outside India. It was not about replacing turbans.

Sepoy Mutinies before 1857

- There was rising discontent of the sepoys against the British rule due to the following reasons:
 - o discrimination in payment and promotions;
 - o mistreatment of the sepoys by the British officials;
 - o refusal of the government to pay foreign service allowance while fighting in remote regions;
 - o religious objections of the high caste Hindu sepoys to Lord Canning's General Service Enlistment Act (1856) ordering all recruits to be ready for service both within and outside India.
- Further, the sepoys shared all the discontent and grievances—social, religious and economic—that afflicted the civilian population.
- Over the years, the upper caste sepoys had found their religious beliefs in conflict with their service conditions. For example, in 1806, the replacement of the turban by a leather cockade caused a mutiny at Vellore. Similarly in 1844, there was a mutinous outbreak of the Bengal army sepoys for being sent to far away Sind and in 1824 the sepoys at Barrackpore rose in revolt when they were asked to go to Burma because crossing the sea would mean loss of caste.

36. Correct Option: (c)

Explanation:

- Option (c) is correct:
 1. Nehru report- 1928
 2. Second round table conference- 1930
 3. Poona pact-1932

Simon Commission (1927)

- The Act of 1919 included a provision for its review after a lapse of ten years. However, the review commission was appointed by the British Government two years earlier of its schedule in 1927.

- It came to be known as Simon Commission after the name of its chairman, Sir John Simon.

- All its seven members were Englishmen.

Nehru Report (1928)

- The Secretary of State, Lord Birkenhead, challenged the Indians to produce a Constitution that would be acceptable to all.
- The challenge was accepted by the Congress and a committee headed by Motilal Nehru consisting of eight was constituted to draw up a blueprint for the future Constitution of India.
- The Report published by this Committee came to be known as the Nehru Report.

The Dandi March (1930)

- On 12th March 1930, Mahatma Gandhi began his famous March to Dandi with his chosen 79 followers to break the salt laws.
- He reached the coast of Dandi on 5 April 1930 after marching a distance of 200 miles and on 6 April formally launched the Civil Disobedience Movement by breaking the salt laws.

The Second Round Table Conference (September 1931)

- It was held in London.
- Mahatma Gandhi participated in the Conference but returned to India disappointed as no agreement could be reached on the demand of complete independence and on the communal question.
- Ramsay Macdonald announced Communal award at the end of this conference.

Poona Pact (1932)

- On 16 August 1932 the British Prime Minister Ramsay MacDonald made an announcement, which came to be as the Communal Award.
- Mahatma Gandhi protested against the Communal Award and went on a fast unto death in the Yeravada jail on 20 September 1932.
- Finally, an agreement was reached between Dr Ambedkar and Gandhi. This

agreement came to be called as the Poona Pact.

37. Correct Option: (a)

Explanation:

- Statement 2 is incorrect: Mica is a very good insulator that has a wide range of applications in the electrical and electronics industry.

Mineral Resources in India – Mica

- Mica is a naturally occurring non-metallic mineral that is based on a collection of silicates.
- Mica is a very good insulator that has a wide range of applications in the electrical and electronics industry. It can withstand high voltage and has low power loss factor.
- It is used in toothpaste and cosmetics because of its glittery appearance. It also acts as a mild abrasive in toothpaste. India is one of the foremost suppliers of mica to the world.
- Mica-bearing igneous rocks occur in AP, Bihar, Jharkhand, Maharashtra, Rajasthan.
- India has a near monopoly in the production of mica [60 % of world's total].
- Production decreased in recent times due to fall in demand in the international market.
- Fall in demand is due to better synthetic alternatives that are available

38. Correct Option: (a)

Explanation:

- Statement 2 is incorrect: El Niño is not a regular cycle, or predictable in the sense that ocean tides are.
- Statement 3 is incorrect: El Nino brings rain to South America, it brings droughts to Indonesia and Australia.

El Nino

- El Nino is a climate pattern that describes the unusual warming of surface waters in the eastern tropical Pacific Ocean.

- El Nino refers to the large-scale ocean atmosphere climate interaction linked to periodic warming in sea surface temperatures across the central and eastcentral Equatorial Pacific.
- It is associated with high pressure in the western Pacific.
- El Nino adversely impacts the Indian monsoons and hence, agriculture in India.
- El Nino was first recognized by Peruvian fishermen off the coast of Peru as the appearance of unusually warm water.
- The Spanish immigrants called it El Nino, meaning “the little boy” in Spanish.
- El Nino soon came to describe irregular and intense climate changes rather than just the warming of coastal surface waters. The El Nino event is not a regular cycle, they are not predictable in the sense that ocean tides are. They occur irregularly at two- to seven-year intervals. It occurs more frequently than La Nina.
- The cool surface water off the Peruvian coast goes warm because of El Nino.
- When the water is warm, the normal trade winds get lost or reverse their direction. Hence, the flow of moisture-laden winds is directed towards the coast of Peru from the western Pacific (the region near northern Australia and South East Asia).
- As El Niño brings rain to South America, it brings droughts to Indonesia and Australia.
- This causes heavy rains in Peru during the El Nino years robbing the Indian subcontinent of its normal monsoon rains. The larger the temperature and pressure difference, the larger the rainfall shortage in India.

39. Correct Option: (a)

Explanation:

- Statement 3 is incorrect: India allows the use of Corticosteroid therapy (Dexamethasone).

Corticosteroids

- Recently World Health Organization (WHO) issued new guidelines on the use of corticosteroids for the treatment of novel coronavirus infection.
- It recommended the use of corticosteroid therapy in patients with severe and critical Covid-19.
- Corticosteroids are low-cost antiinflammatory drugs that closely mimic cortisol, the hormone naturally produced by the adrenal glands in humans.
- They are commonly used in treatment for rheumatological inflammatory conditions: inflammations of muscles, inflammation of blood vessels and chronic arthritis.
- They are used in lung diseases, kidney inflammation, eye inflammation, and to reduce swelling associated with tumours of the brain and spine.
- Three commonly used corticosteroids are dexamethasone, hydrocortisone, and methylprednisolone.
- Dexamethasone reduces the production of the chemicals that cause inflammation and also reduces the activity of the immune system by affecting the way white blood cells function.
- During the SARS outbreak in 2003, corticosteroid therapy was used to reduce inflammatory-induced lung injury.
- India allows the use of corticosteroid therapy in covid-19 patients.

40. Correct Option: (d)

Explanation:

- Option (d) is correct: A UN Report on Zoonotic Diseases identifies seven anthropogenic driving factors leading to the emergence of zoonotic diseases — increased demand for animal protein; rise in intense and unsustainable farming; the increased use and exploitation of wildlife; unsustainable utilization of natural resources; travel

and transportation, changes in food supply chains and the climate change crisis.

UN Report on Zoonotic Diseases

- Recently, United Nations Environment Programme (UNEP) and the International Livestock Research Institute (ILRI) released a report titled “Preventing the Next Pandemic: Zoonotic diseases and how to break the chain of transmission” on July 6, 2020, celebrated as ‘World Zoonoses Day’.
- Zoonosis or zoonotic disease is a disease that has passed into the human population from an animal source directly or through an intermediary species. Zoonotic infections can be bacterial, viral, or parasitic in nature, with animals playing a vital role in maintaining such infections. Examples of zoonoses include HIV-AIDS, Ebola, malaria, rabies, West Nile fever, and the current novel coronavirus disease (COVID- 19) disease.
- As per the report about 60 per cent of known infectious diseases in humans and 75 per cent of all emerging infectious diseases are zoonotic.
- The report confirms and builds on the conclusions of the FAO-OIE-WHO Tripartite Alliance and many other expert groups that a One Health approach is the optimal method for preventing as well as responding to zoonotic disease outbreaks and pandemics. Adopting a One Health approach, which unites medical, veterinary and environmental expertise, will help governments, businesses and civil society achieve enduring health for people, animals and environments alike.

41. Correct Option: (d)

Explanation:

- All statements are correct

Vande Bharat Trains

- These train sets first revealed in 2018 captured the imagination of train

travellers even when in the prototype stage.

- The Vande Bharat trains (also called Train 18 after year of manufacturing) are 180 kmph capable air-conditioned chair car services.
- Similar to bullet trains in terms of looks, the railways currently run two such trains on the Delhi-Varanasi and Delhi-Katra routes.
- Known for faster acceleration and deceleration, the Vande Bharat trains cut travel time drastically, while also being energy efficient.
- The Vande Bharat self-propelled train set does not need any locomotive to pull it, hence also reducing the turnaround time.
- The first two Vande Bharats were manufactured at ICF, Chennai.
- Taking a decisive step towards engine-less propulsion system for passenger trains in future, India has decided to manufacture 400 new, more efficient Vande Bharat trains in the next three years.

42. Correct Option: (a)

Explanation:

- Option (a) is correct

Other Effective Area based Conservation Measures site (OECM)

- On World Wetlands Day, that is, on February 2, the Aravalli Biodiversity Park was announced as the first Other Effective Area – based Conservation Measures site, OECM site.
- OECM is not a protected area. It is governed to achieve positive outcomes.
- The outcomes are conservation of biodiversity, giving importance to cultural, socio – economic and spiritual values.
- The OECM areas were defined at the Convention on Biological Diversity that was held in 2018.
- The OECM tag is provided by the International Union for Conservation of Nature, IUCN.

- According to IUCN, the OECM sites are not protected but are rich in biodiversity.
- The Aravalli hills are the first OECM site of the country.
- The proposal to make Aravallis as the OECM was made by the National Biodiversity Authority.
- The park is spread over 390 acres. It has a semi – arid vegetation.
- It has more than 43,000 shrubs, 101,000 trees and 300 endemic plant species.
- Earlier, the park was a mining site. It was transformed into a city forest through immense efforts of environmentalists, scientists, ecologists along with the local population.
- Aravallis are considered as the green lungs of Delhi.

43. Correct Option: (a)

Explanation:

- Statement 2 is incorrect: The Parliament (under Article 32) can empower any other court to issue these writs. Since no such provision has been made so far, only the Supreme Court and the high courts can issue the writs and not any other court.
- The writs are borrowed from English law where they are known as 'prerogative writs'. They are so called in England as they were issued in the exercise of the prerogative of the King who was, and is still, described as the 'fountain of justice'.
- Later, the high court started issuing these writs as extraordinary remedies to uphold the rights and liberties of the British people.

Writs – Their Types and their Scope

- The Supreme Court (under Article 32) and the high courts (under Article 226) can issue the writs of habeas corpus, mandamus, prohibition, certiorari and quo-warranto.

Habeas Corpus

- It is an order issued by the court to a person who has detained another

person, to produce the body of the latter before it.

- The writ of habeas corpus can be issued against both public authorities as well as private individuals. The writ, on the other hand, is not issued where the:
 - o detention is lawful
 - o the proceeding is for contempt of a legislature or a court
 - o detention is by a competent court, and
 - o detention is outside the jurisdiction of the court.

Mandamus

- It is a command issued by the court to a public official asking him to perform his official duties that he has failed or refused to perform.
- The writ of mandamus cannot be issued:
 - o against a private individual or body to enforce departmental instruction that does not possess statutory force
 - o when the duty is discretionary and not mandatory
 - o to enforce a contractual obligation against the president of India or the state governors
 - o against the chief justice of a high court acting in judicial capacity.

Prohibition

- It is issued by a higher court to a lower court or tribunal to prevent the latter from exceeding its jurisdiction or usurping a jurisdiction that it does not possess.
- The writ of prohibition can be issued only against judicial and quasi-judicial authorities.
- It is not available against administrative authorities, legislative bodies, and private individuals or bodies

Certiorari

- It is issued by a higher court to a lower court or tribunal either to transfer a case pending with the latter to itself or to squash the order of the latter in a case.

- It can be issued against judicial, quasi-judicial authorities and even administrative authorities.
- It is not available against legislative bodies and private individuals or bodies.

Quo-Warranto

- It is issued by the court to enquire into the legality of claim of a person to a public office.
- The writ can be issued only in case of a substantive public office of a permanent character created by a statute or by the Constitution.
- It cannot be issued in cases of ministerial office or private office.

44. Correct Option: (d)

Explanation:

- All statements are correct
- The Supreme Court in 1969 ruled that, settlement of a boundary dispute between India and another country does not require a constitutional amendment.
- It can be done by executive action as it does not involve cession of Indian territory to a foreign country.
- Article 3 authorises the Parliament to:
 - (a) form a new state by separation of territory from any state or by uniting two or more states or parts of states or by uniting any territory to a part of any state;
 - (b) increase the area of any state;
 - (c) diminish the area of any state;
 - (d) alter the boundaries of any state; and
 - (e) alter the name of any state.
- Article 2 grants two powers to the Parliament: (a) the power to admit into the Union of India new states; and (b) the power to establish new states. The first refers to the admission of states which are already in existence, while the second refers to the establishment of states which were not in existence before.

45. Correct Option: (c)

Explanation:

- Both statements are correct

Fiat Money

- Fiat money is a government-issued currency that is not backed by a commodity such as gold. Fiat money does not have intrinsic value
- Paper currencies and metal coins are examples of fiat money. Most modern paper currencies, such as the U.S. dollar, Indian Rupee, are fiat currencies.
- Fiat money gives central banks greater control over the economy because they can control how much money is printed.
- One danger of fiat money is that governments may print too much of it, resulting in hyperinflation

46. Correct Option: (d)

Explanation:

- All statements are correct

IMF Quota system

- The IMF is a quota-based institution. An individual member country's quota broadly reflects its relative position in the world economy.
- Quotas are denominated in Special Drawing Rights (SDRs), the IMF's unit of account.
- Multiple roles of quotas:
 - o Quotas determine the maximum amount of financial resources a member is obliged to provide to the IMF.
 - o Quotas are a key determinant of the voting power in IMF decisions. Votes comprise one vote per SDR100,000 of quota plus basic votes (same for all members).
 - o Quotas determine the maximum amount of financing a member can obtain from the IMF under normal access.
 - o Quotas determine a member's share in a general allocation of SDRs.
- Quota review:
 - o The IMF's Board of Governors conducts general reviews of quotas at regular intervals not more than five years apart.
 - o Any changes in quotas must be approved by an 85 percent majority of the total voting power, and a member's

own quota cannot be changed without its consent.

- Member country quota:

Member	Quota (Millions, SDR)	Quota Share (%)	Votes	Vote Share (%)
United States	82994.2	17.46	831407	16.52
Japan	30820.5	6.48	309670	6.15
China	30482.9	6.41	306294	6.09
Germany	26634.4	5.6	267809	5.32
France	20155.1	4.24	203016	4.03
United Kingdom	20155.1	4.24	203016	4.03
Italy	15070	3.17	152165	3.02
India	13114.4	2.76	132609	2.64
Russian Federation	12903.7	2.71	130502	2.59
Brazil	11042	2.32	111885	2.22

47. Correct Option: (b)

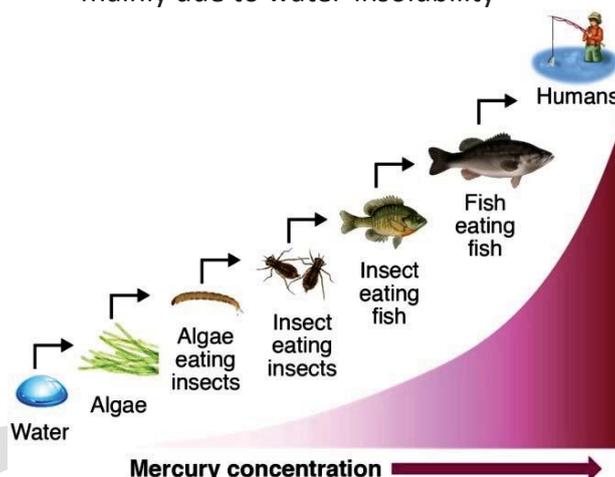
Explanation:

- Statement 2 is incorrect:
- Biomagnification is the characteristic property of stable and less reactive pollutants e.g. DDT.

Biomagnification

- Biomagnification, also known as bio amplification or biological magnification, is any concentration of a toxin, such as pesticides, in the tissues of tolerant organisms at successively higher levels in a food chain. This increase can occur as a result of:
 - o Persistence – where the substance cannot be broken down by environmental processes
 - o Food chain energetics – where the substance’s concentration increases progressively as it moves up a food chain

- o Low or non-existent rate of internal degradation or excretion of the substance
- mainly due to water-insolubility



Biomagnifiable Substances

- Two main groups of substances biomagnify. Both are lipophilic and not easily degraded. Novel organic substances are not easily degraded because organisms lack previous exposure and have thus not evolved specific detoxification and excretion mechanisms, as there has been no selection pressure from them. These substances are consequently known as “persistent organic pollutants” or POPs.
- Metals are not degradable because they are elements.
- Organisms, particularly those subject to naturally high levels of exposure to metals, have mechanisms to sequester and excrete metals.
- Problems arise when organisms are exposed to higher concentrations than usual, which they cannot excrete rapidly enough to prevent damage. Some persistent heavy metals are especially dangerous and harmful to the organism’s reproductive system.
- CPCB calculation of Air Quality
 - o The revised CPCB air quality standards necessitate that the concept of AQI in India is examined afresh.
 - o The revised National Ambient Air Quality Standards (CPCB 2009) are notified for 12 parameters – PM10, PM2.5, NO2, SO2, CO, O3, NH3, Pb, Ni,

As, Benzo(a)pyrene, and Benzene.
o Although AQI is usually based on criteria pollutants (i.e. PM10, PM2.5, SO2, NO2, CO and O3), a new approach to AQI which considers as many pollutants from the list of notified pollutants as possible is desirable.

48. Correct Option: (a)

Explanation:

- Statement 2 is incorrect: Paris agreement was agreed upon at COP 21 in 2015.
- Statement 3 is incorrect: COP26 focuses on climate change and limiting carbon emission to restrict average global temperature rise to 1.5°C at the end of this century.

Agenda of the CoP26

What do we need to achieve at COP26?

- Secure Global Net Zero By Midcentury And Keep 1.5 Degrees Within Reach: Countries are being asked to come forward with ambitious 2030 emissions reductions targets (NDCs) that align with reaching net zero by the middle of the century.
- To deliver on these stretching targets, countries will need to accelerate the phase-out of coal, encourage investment in renewables, curtail deforestation and speed up the switch to electric vehicles.
- Adapt To Protect Communities And Natural Habitats: The climate is already changing and it will continue to change even as we reduce emissions, with devastating effects.
- At COP26 we need to work together to enable and encourage countries affected by climate change to protect and restore ecosystems, build defences, put warning systems in place and make infrastructure and agriculture more resilient to avoid loss of homes, livelihoods and lives.
- Mobilize Finance: To realise our first two goals, developed countries must deliver on their promise to raise at least \$100bn in climate finance per year.

- International financial institutions must play their part and we need to work towards unleashing the trillions in private and public sector finance required to secure global net zero.
- Work Together to Deliver: We can only rise to the challenges of climate change by working together. At COP26 we must finalise the Paris Rulebook (the rules needed to implement the Paris Agreement, in CoP-21, 2015).
- And, we have to turn our ambitions into action by accelerating collaboration between governments, businesses and civil society to deliver on our climate goals faster.

49. Correct Option: (d)

Explanation:

- All Statements are correct

Anglo-Burmese Relations

- In the beginning of the 19th century, Burma was a free country and wanted to expand westward.
- The expansionist urges of the British, fuelled by the lure of the forest resources of Burma, market for British manufactures in Burma and the need to check French ambitions in Burma and the rest of South-East Asia, resulted in three Anglo-Burmese Wars, and in the end, the annexation of Burma into British India in 1885.

50. Correct Option: (d)

Explanation:

- All statements are correct

The decline of the Mughal Empire in India

The combination of varied political, social, and economic factors led to the decline and the downfall of the Mughal Empire such as:

- Weak Successors: None of Aurangzeb's successors could give any stability to the empire. They were absolutely inefficient and most of them were puppets in the hands of powerful nobles who ran the administration on their behalf. The wars

of succession that plagued Delhi from c.1707 to 1719 CE too weakened the empire.

- Power usurping Nobility: A major factor for the disintegration of the Mughal Empire was the infighting between the nobles. They had assumed a lot of powers and the course of politics and state activities were guided by their individual interests. The accession of weak rulers at the centre made them strong contenders for power.
- Ineffective Mughal Army, Neglect of Naval Power, and Foreign invasions: The Mughal army gradually became inefficient and demotivated after losing many important battles. The neglect of naval power by the Mughals also cost them dearly. Further, the external invasions of Nadir Shah and Ahmad Shah Abdali not only took a heavy toll of the imperial treasury but also laid open the inefficiencies of the military and political administration.
- Lack of Strong finances: Due to the emergence of many autonomous states, the revenue sources depleted, and due to continuous wars the treasury was further emptied.
- Orthodox rule of Aurangzeb: The religious and Deccan policies of Aurangzeb contributed to the empire's decline. He was ambitious and wanted to increase the geographical limits of his empire with a hard-headed attitude towards the Marathas, Rajputs, and the Jats which turned away these loyal warriors. His religious policy too alienated the Hindus, which certainly had an adverse effect on the stability of the empire.

51. Correct Option: (b)

Explanation:

- Statement 1 is incorrect: Equatorial Low-Pressure Belts is a low-pressure belt extending from 0 to 5° North and South of the Equator.

- Statement 2 is incorrect: The winds from the subtropical region blow towards the Equator as Trade winds and another wind blow towards Sub-Polar Low-Pressure as Westerlies.

Pressure Belts of Earth

- On the earth's surface, there are seven pressure belts. There is a pattern of alternate high and low-pressure belts over the earth. This is due to the spherical shape of the earth, different parts of the earth are heated unequally.
- The Equatorial Low-Pressure Belt is a low-pressure belt extending from 0 to 5° North and South of the Equator. The sun rays are vertical here, therefore there is intense heating. The air expands and rises as convection current causing low pressure to develop here. This low-pressure belt is also called as doldrums because it is a zone of total calm without any breeze.
- Subtropical High-Pressure Belts about 30° North and South of the Equator lie in the area where the ascending equatorial air currents descend thus creating an area of high pressure. The area is also called the Horse latitude. Winds always blow from high pressure to low pressure. So the winds from the subtropical region blow towards the Equator as Trade winds and another wind blow towards Sub-Polar Low-Pressure as Westerlies.
- Circum-Polar Low-Pressure Belts are belts located between 60° and 70° in each hemisphere. This zone is marked by the ascent of warm Subtropical air over cold polar air blowing from poles.
- Due to the earth's rotation, the winds surrounding the Polar region blow towards the Equator. Centrifugal forces operating in this region create the low-pressure belt appropriately called the Circumpolar Low-Pressure Belt. This region is marked by violent storms in winter.
- Polar High-Pressure Areas are at the North and South Poles, between 70° to

90° North and South, the temperatures are always extremely low. The cold descending air gives rise to high pressures over the Poles.

- These areas of Polar high pressure are known as the Polar Highs. These regions are characterized by permanent Ice Caps.

52. Correct Option: (a)

Explanation:

- Statement 2 is incorrect: The yield of the crops in the country is low in comparison to the international level even though green revolution has tremendously increased the productivity.
- On the basis of main source of moisture for crops, the farming can be classified as irrigated and rainfed (barani).
- There is difference in the nature of irrigated farming as well based on objective of irrigation, i.e., protective or productive. The objective of protective irrigation is to protect the crops from adverse effects of moisture deficiency which often means that irrigation acts as a supplementary source of water over and above the rainfall.
- The strategy of this kind of irrigation is to provide soil moisture to maximum possible area. Productive irrigation is meant to provide sufficient soil moisture in the cropping season to achieve high productivity. In such irrigation the water input per unit area of cultivated land is higher than protective irrigation.
- Rainfed farming is further classified on the basis of adequacy of soil moisture during cropping season into dryland and wetland farming.
- In India, the dryland farming is largely confined to the regions having annual rainfall less than 75 cm. These regions grow hardy and drought resistant crops such as ragi, bajra, moong, gram and guar (fodder crops) and practise various measures of soil moisture conservation and rain water harvesting.

- In wetland farming, the rainfall is in excess of soil moisture requirement of plants during rainy season. Such regions may face flood and soil erosion hazards. These areas grow various water intensive crops such as rice, jute and sugarcane and practise aquaculture in the fresh water bodies.

Agricultural Productivity and Yield:

- There has been a significant increase in agricultural output and improvement in technology during the last fifty years.
- Production and yield of many crops such as rice and wheat has increased at an impressive rate.
- Expansion of irrigation has played a very crucial role in enhancing agricultural output in the country.
- Modern agricultural technology has diffused very fast in various areas of the country.
- Consumption of chemical fertilizers has increased by 15 times since mid-sixties.
- However, the yield of the crops in the country is low in comparison to the International level. Per hectare output of most of the crops such as rice, wheat, cotton and oilseeds in India is much lower than that of U.S.A., Russia and Japan. Because of the very high pressure on the land resources, the labour productivity in Indian agriculture is also very low in comparison to international level.

53. Correct Option: (b)

Explanation:

- Statement 2 is incorrect: Cryptocurrency is a specific type of virtual currency, which is decentralized and protected by cryptographic encryption techniques. Decentralization implies that there is no central authority where records of transactions are maintained. Instead, transaction data is recorded and shared across multiple distributor networks, through independent computers. This technology is known as Distributed Ledger Technology.

Crypto-Currencies

- Recently, RBI barred banks and financial institutions from dealing in cryptocurrencies. It said it had decided to ringfence RBI-regulated entities from the risk of dealing with entities associated with virtual currencies. The RBI-regulated entities are required to cease business relations with the entities dealing with virtual currencies within three months.
- At the same time, the RBI has formed a panel which will submit a report by June on the desirability and feasibility of introducing a virtual currency backed by the government.
- Virtual currency is a digitally tradable form of value, which can be used as a medium of exchange or acts as a store of value or a unit of account. It does not have the status of a legal tender. A legal tender is guaranteed by the central government and all parties are legally bound to accept it as a mode of payment.
- A high-level Inter-Ministerial Committee was constituted in November 2017 to study the issues related to virtual currencies observed that cryptocurrencies cannot replace traditional currencies due to several issues associated with them. These include:
 - o Cryptocurrencies are subjected to market fluctuations
 - o Cryptocurrencies are decentralized, which makes them difficult to regulate
 - o Cryptocurrency design has several vulnerabilities which leave consumers open to risk of phishing cyber-attacks and ponzi schemes. Further, transactions are irreversible, meaning there is no way to redress wrong transactions
 - o Cryptocurrencies require large amount of storage and processing power, which can have unfavorable consequences on country's energy resources
 - o Cryptocurrencies provide greater anonymity making them more

vulnerable to money-laundering and terrorist funding activities.

54. Correct Option: (d)

Explanation:

- Statement 1 is incorrect: Singapore became the first country to approve the use and sale of lab grown meat.
- Statement 2 is incorrect: Lab-grown meat, also known as cultured meat, is meat that is prepared from the regeneration of cell animal cultures and not from the plant-based proteins.

Lab Grown Meat:

- Singapore has become the first country to approve serving of labgrown or cultured meat in country's restaurants.
- Lab-grown meat, also known as cultured meat, is meat that is prepared from the regeneration of cell animal cultures, instead of slaughtered animals.
- Significance of lab-meat Lab-meat will effectively eliminate the need to consume so much livestock, resulting in a 46% reduction in energy consumption required for them.
- Furthermore, it will also reduce water usage.
- In addition, the methane gas emission from livestock will be reduced and will help in managing global warming effect.
- As an alternative to traditional meat products that could feed a lot more people, reduce the threat of zoonotic diseases, and mitigate the environmental impact of meat consumption.

Mock Meat:

- Mock meat or vegan meat are plant proteins that are processed to resemble meat.
- They do not contain any animal fat or animal proteins, unlike lab-grown meat.

55. Correct Option: (a)

Explanation:

- Option (a) is correct

Spot-Billed Pelican

- Recently Andhra Pradesh State Forest Department has approached experts from Wildlife Institute of India (WII-Deharadun), Bombay Natural History Society (BNHS) and Zoological Survey of India (ZSI-Kolkata), for preventing mass mortality of spot-billed pelicans in Naupada swamp at Telineelapuram, Srikakulam district.
- Telineelapuram is a designated Important Bird Area (IBA), where pelicans have been succumbing to 'Nematode infestation' since December 2021. Total death toll has crossed 160.
- The spot-billed pelicans or grey pelican are scientifically called as *Pelecanus philippensis*. They are a member of pelican family.
- The species breed in South Asia from southern Iran to east India to Indonesia.
- The bird lives in coastal waters and large inland, especially large lakes. Breeding population of these species is limited to India, Cambodia and Sri Lanka. In non-breeding season they are recorded in Myanmar, Nepal, Laos, Thailand and Vietnam.
- IUCN red list has listed the species in Near Threatened list.
- While in Wildlife (Protection) Act, 1972, it is a Schedule IV species. Thus, its hunting is prohibited but penalty for any violation is less.

56. Correct Option: (d)

Explanation:

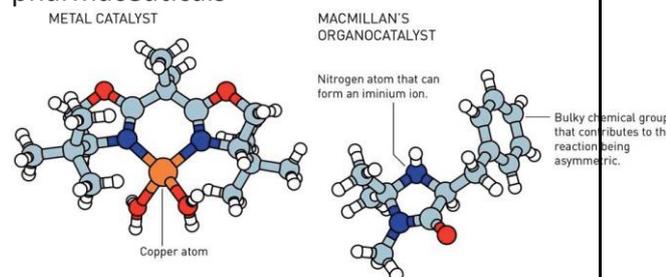
- Statement 1 is incorrect: Organocatalysts are small molecules, often contain common elements such as oxygen, nitrogen, sulphur or phosphorus.

Nobel Prize 2021 in Chemistry

- Many research areas and industries are dependent on chemists' ability to construct molecules that can form elastic and durable materials, store energy in batteries or inhibit the progression of diseases. This work requires catalysts, which are substances that control and

accelerate chemical reactions, without becoming part of the final product. For example, catalysts in cars transform toxic substances in exhaust fumes to harmless molecules.

- Our bodies also contain thousands of catalysts in the form of enzymes, which chisel out the molecules necessary for life.
- Catalysts are thus fundamental tools for chemists, but researchers long believed that there were, in principle, just two types of catalysts available: metals and enzymes.
- Benjamin List and David MacMillan are awarded the Nobel Prize in Chemistry 2021 because in 2000 they, independent of each other, developed a third type of catalysis. It is called asymmetric organocatalysis and builds upon small organic molecules.
- Organic catalysts have a stable framework of carbon atoms, to which more active chemical groups can attach. These often contain common elements such as oxygen, nitrogen, sulphur or phosphorus.
- This means that these catalysts are both environmentally friendly and cheap to produce.
- The rapid expansion in the use of organic catalysts is primarily due to their ability to drive asymmetric catalysis. When molecules are being built, situations often occur where two different molecules can form, which – just like our hands – are each other's mirror image. Chemists will often only want one of these, particularly when producing pharmaceuticals



1 David MacMillan worked with metal catalysts that were easily destroyed by moisture. He therefore started to wonder whether it was possible to develop a more durable type of catalyst.

2 He designed some simple molecules that could create iminium ions. One of these proved to be excellent at asymmetric catalysis.

Why asymmetric organocatalysts are better than Enzymes and Metals?

- Enzymes, which are a type of protein, consist of hundreds of amino acids, and are known as bio-catalysts because they catalyse biological reactions. However, not all amino acids are involved in a chemical reaction.
- The ability to hold electrons or donate them makes metals excellent catalysts. However, metal catalysts are easily destroyed by moisture and oxygen, rendering them less durable as catalysts, and also, they can be harmful to the environment.
- As a result, there was a need for catalysts which are safe for the environment, and asymmetric organocatalysis is the perfect solution to this problem.

57. Correct Option: (c)

Explanation:

- Statement 2 is incorrect: The Sikh weddings are governed through Anand marriage act of 1909.

Uniform Civil Code (UCC)

- In India, almost every community has its own set of personal rules about marriage and divorce. Although several different sects live as citizens of the same nation, India's family laws range from one faith to the next. This is because the customs, social usage, and religious interpretation of these societies as they live their lives are heavily influenced by the religion they were born into and the laws that govern society.
- Marriage, divorce, property, and inheritance are among the codified personal laws:
 - o The 1872 Indian Christian Marriage Act (applicable to the whole of India except areas of erstwhile Travancore-cochin Manipur and Jammu & Kashmir);
 - o The Cochin Christian Civil Marriage Act of 1920 (which applies to Travancore Cochin areas);
 - o The Anand Marriage Act of 1909

- governs Sikh weddings;
- o The Muslim Personal Law (Shariat) Application Act of 1937 (which establishes Shariat legislation applicable to Muslims in India);
- o The Parsi Marriage and Divorce Act (Parsi Marriage and Divorce Act) (Parsi Marriage and Divorce Act)
- o Hindu Marriage Act of 1955 (applicable not just to Hindus, Buddhists, and Jains, but also to non-Hindus, Buddhists, and Jains also to anybody who is not a Muslim, Christian, Parsi, or Jew controlled by a different set of rules).
- The Uniform Civil Code (UCC) is a vision to contribute to a uniformly structured legislature that will reserve all the aspects revolving around the personal religious and civil laws of every religion in India. It will grant uniform personal laws to every religion to attain secularism and will override personal laws of different religions, races, caste, etc.
- Dr. Ambedkar wanted to introduce an Uniform Civil Code in India, during the constitutional debates by getting inspired by the western world where such Uniform Civil Code already in societies, with the object of bringing uniformity and unity in society.
- He said that, 'I personally do not understand why religion should be given this vast, expansive jurisdiction, so as to cover the whole of life and to prevent the legislature from encroaching upon that field. After all, what are we having this liberty for? We are having this liberty in order to reform our social system, which is so full of inequities, discriminations and other things, which conflict with our fundamental rights.'
- During the constituent assembly debates, the founding fathers of the constitution like Dr.B.R. Ambedkar recommended a uniform civil code to be included initially in Article 35 of the Constitution of India, 1949 and personal

laws must be kept out of the ambit of UCC however he also acknowledged that such implementation of UCC must be voluntary.

- However, the Muslim representatives emphasized keeping personal religious laws that were founded on the pillars of religious customs. Consequently, only Article 44 of the Constitution of India could comprise the concept of UCC.

Narasu Appa Mali case

- In the State of Bombay v. Narasu Appa Mali, the Bombay High Court held that personal laws are inconsistent with the fundamental rights (i.e., personal laws cannot be defined as laws under Article 13).

58. Correct Option: (d)

Explanation:

- Option (d) is correct

National Commission on Schedule Tribes (NCSTs)

- The National Commission for Scheduled Tribes (NCST) was established by amending Article 338 and inserting a new Article 338A in the Constitution through the Constitution (89th Amendment) Act, 2003.
- By this amendment, the erstwhile National Commission for Scheduled Castes and Scheduled Tribes was Functions of National Commission on Schedule Tribes (NCSTs)
- To investigate & Monitor matters relating to Safeguards provided for STs under the Constitution or under other laws or under Govt. Order, to evaluate the working of such Safeguards.
- To inquire into specific complaints relating to Rights & Safeguards of STs;
- To participate and advise in the Planning Process relating to Socio-economic development of STs, and to evaluate the progress of their development under the Union and any State;
- To submit report to the President annually and at such other times as the Commission may deem fit, upon/working

of Safeguards, Measures required for effective implementation of Programmers/Schemes relating to Welfare and Socio economic development of STs;

- To discharge such other functions in relation to STs as the President may, subject to the provisions of any law made by Parliament, by rule specify;

59. Correct Option: (b)

Explanation:

- Statement 4 is incorrect: Recovery of loans is a non-debt capital receipt.

Financing of fiscal deficit

- Following are the sources of financing fiscal deficit which are known as debt receipts:
 - o Market borrowings which also includes G-sec and T Bills.
 - o Securities against small savings.
 - o State provident funds.
 - o Receipts from internal debt and public account.
 - o External debt receipts.
- o Borrowings by the Government: This includes all long-term loans raised by the government inside the country (i.e., internal borrowings) and outside the country (i.e., external borrowings).
- Internal borrowings might include the borrowings from the RBI, Indian banks, financial institutions, etc.
- Similarly, external borrowings might include the loans from the World Bank, the IMF, foreign banks, foreign governments, foreign financial institutions, etc.
- Other Receipts by the Governments:
 - o This includes many long-term capital accruals to the government through the Provident Fund (PF), Postal Deposits, various small saving schemes (SSSs) and the government bonds sold to the public (Indira Vikas Patra, Kisan Vikas Patra, Market Stabilisation Bond, etc.).
 - o Such receipts are nothing but a kind of loan on which the government needs to pay interests on their maturities.

60. Correct Option: (a)

Explanation:

- Statement 2 is incorrect: India has not implemented Tarapore committee recommendations and India has not implemented the recommendations of the Tarapore committee. India is allowing fully current account convertibility and partial capital account convertibility.

Capital and Current account Convertibility

- Current Account Convertibility allows free inflows and outflows of foreign currency for all purposes including resident Indians buying foreign goods and services (imports), Indians selling foreign goods and services (exports), Indians receiving and sending remittances, accessing foreign currency for travel, study abroad, medical tourism purposes etc.
- On the other hand, Capital Account Convertibility is widely regarded as the hallmark of developed countries. It is also seen as the major comfort factor for foreign investors since it allows them to reconvert local currency back into their own currency and move out from India.
- To attract foreign investment, many developing countries went in for CAC in the 1980s, not realising that free mobility of capital leaves countries open to both sudden and huge inflows and outflows, both of which can be potentially destabilising. More importantly, unless you have the institutions, particularly financial institutions capable of dealing with such huge flows, countries may not be able to cope as was demonstrated by the East Asian crisis of the late 90s.

61. Correct Option: (c)

Explanation:

- Both statements are correct

Photochemical smog

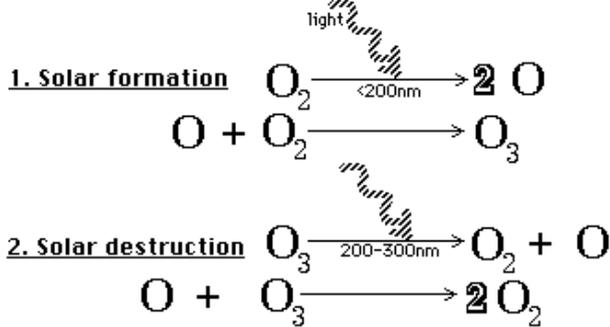
- Photochemical smog is a type of smog produced when ultraviolet light from the sun reacts with nitrogen oxides in the

atmosphere. It is visible as a brown haze, and is most prominent during the morning and afternoon, especially in densely populated, warm cities.

- Cities that experience this smog daily include Los Angeles, Sydney, Mexico City, Beijing, and many more.
- It forms in the morning when a tremendous number of people are driving their vehicles to work. Nitrogen oxides produced in the car engine are introduced into the atmosphere, which may combine with water to form nitric acid or react with sunlight to produce singular oxygen atoms, which then combine with molecular oxygen to produce ozone. The nitric acid may precipitate to the Earth resulting in acid rain, or remain in the smog.
- Due to the direct production of it by vehicles, the smog forms over cities where many people may encounter its adverse health effects.
- Hotter days mean more photochemical smog, especially in the densely populated cities such as those mentioned above. As more and more urban populations arise around the globe, this problem is only expected to increase.
- When exposed to ultraviolet radiation, NO₂ goes through a complex series of reactions with hydrocarbons to produce the components of photochemical smog—a mixture of ozone, nitric acid, aldehydes, peroxyacyl nitrates (PANs) and other secondary pollutants.
- NO₂, ozone and PANs are called photochemical oxidants because they can react and oxidize certain compounds in the atmosphere or within a person's lungs that are not normally oxidized. Even small traces of these chemicals can affect the respiratory tract of humans and animals, and damage crops and trees.

Formation and decomposition of stratospheric ozone

- Following photochemical reactions show the solar formation and destruction of O₃ in the stratosphere.



62. Correct Option: (c)

Explanation:

- Pair 2 is incorrectly matched: Ropar Wetland is a human-made wetland of lake and river formed by the construction of a barrage for diversion of water from the Sutlej River.

Ramsar sites in India

Ropar Wetland Situated in: Punjab

- A human-made wetland of lake and river formed by the construction of a barrage for diversion of water from the Sutlej River.

Nandur Madhmeshwar Situated in: Maharashtra

- Construction of the Nandur Madhmeshwar Wetland at the confluence of the Godavari and Kadwa Rivers helped create a thriving wetland.

Hokersar Wetland Situated in: Union Territory of J&K

- It is only 10 km from Srinagar.
- It is a natural perennial wetland contiguous to the Jhelum basin.

63. Correct Option: (d)

Explanation:

- Statement 1 is incorrect: Hauz-i-Khas or Hauz i-ilahi was built during the reign of Alauddin Khilji.
- Statement 2 is incorrect: Alai Darwaza was built during the reign of Alauddin Khilji.

- Statement 3 is incorrect: Jamaat Khana Masjid is the largest structure in the Nizam-ud-Din Auliya Shrine Complex built by Khizr Khan, son of Sultan Alauddin Khilji.

Alauddin Khilji contribution to Architecture

- The reign of Alla-ud-Din Khilji ushered in a new era in mediaeval architecture.
- The majority of these monuments were constructed in the Arabian architectural style. Ala ud-Din was a visionary builder who began work on a massive minar near the Qutab Minar.
- He was successful in finishing AlaiDarwaza, one of Islamic architecture's most prized jewels.
- Ala'i Darwaza is the southern gateway of the Quwwat-ul-Islam Mosque in Qutb complex, Mehrauli, Delhi, India.
- This structure comprises of a square hall with arched doors on each of its four sides, which is covered by a dome. The structure was constructed of red stone, with a white marble veneer. It has beautiful designs and calligraphic inscriptions.
- This darwaza was only a small component of Ala-ud-major Din's architectural project, which, if completed, would have been one of the most impressive architectural feats of Muslim authority in India.
- Ala-ud-Din erected a Hauz-i-Khas or Hauz i-Ilahi, a tank of almost 70 acres, in 1296 A.D. It was surrounded by a stone and brick wall and provided water to the city throughout the year.
- Ala-ud-Din Khilji also built Siri, which was a significant structure (the second of the 7 cities of Delhi). The building of this city, which was located to the north of Qutab, began in 1303 A.D.
- The magnificent mosque Jamait Khanm, erected within the enclosure of Nizam-udDin Aulia's shrine, was another important structure of Ala-ud-Din.
- The Jamat Khana Masjid or Khilji Mosque is the earliest mosque in Delhi that continues to be used for worship.

- Built by Khizr Khan, son of Sultan Alauddin Khilji (Khilji Dynasty) in 1315-1325 AD, the mosque is the largest structure in the Nizamuddin Basti Dargah enclosure (Nizam-udDin Auliya Shrine Complex).
- Hazrat Nizamuddin Auliya's tomb is a square-shaped room with a dome-shaped roof ornamented with vertical black marble stripes and topped with an elegant lotus cap.

64. Correct Option: (a)

Explanation:

- Option (a) is correct

Raja Rammohan Roy

- Raja Rammohan Roy (1772-1833), often called the father of Indian Renaissance and the maker of Modern India, was a man of versatile genius.
- Rammohan Roy believed in the modern scientific approach and principles of human dignity and social equality.
- He put his faith in monotheism. In 1804, he wrote Tuhfat-ul-Muwahhidin (A Gift to Monotheists) in Persian with an introduction in Arabic. The Tufat was the first work of Ram Mohan Roy in which he discard any belief that is "remote from reason and repugnant to experience" and put forward the Idea that people must worship a single God.
- He also translated into Bengali the Vedas and the five Upanishads to prove his conviction that ancient Hindu texts support monotheism.
- In 1814, he set up the Atmiya Sabha (or Society of Friends) in Calcutta to propagate the monotheistic ideals of the Vedanta and to campaign against idolatry, caste rigidities, meaningless rituals and other social ills. Strongly influenced by rationalist ideas, he declared that Vedanta is based on reason and that, if reason demanded it, even a departure from the scriptures is justified.
- He founded the Brahmo Sabha in August 1828; it was later renamed Brahmo

Samaj. Through, the Sabha he wanted to institutionalise his ideas and mission.

- He did not want to establish a new religion.
- He only wanted to purify Hinduism of the evil practices which had crept into it.

65. Correct Option: (d)

Explanation:

- Option (d) is correct: Vesuvius volcano is located in Europe.

Ring of Fire Belt

- The Ring of Fire also referred to as the Circum-Pacific Belt, is a path along the Pacific Ocean characterized by active volcanoes and frequent earthquakes.
- The majority of Earth's volcanoes and earthquakes take place along the Ring of Fire.
- Mount Semeru, also known as "The Great Mountain", is the highest volcano in Java, Indonesia's. It recently erupted in January 2021. Mount Pinatubo volcano is located about 90 km northwest of Manila, Philippines. It erupted in 1991 for the first time in 600 years.
- Mount Ruiz volcano is in the Cordillera Central of the Andes in westcentral Colombia.
- It is noted for its two eruptions in 1985 which were among the most destructive in recorded history.
- Vesuvius volcano is the only active volcano in mainland Europe and it is not present in the Ring of fire belt.
- Vesuvius is located on Italy's west coast and is most famous for the 79 AD eruption which destroyed the Roman cities of Pompeii and Herculaneum.

66. Correct Option: (c)

Explanation:

- Statement 1 is incorrect: Alaska current is a warm current.

Ocean Currents

- Ocean currents are the continuous flow of a huge amount of water in a definite direction.

- They are like river flow in oceans. The ocean currents may be classified based on their depth as surface currents and deep water currents.
- They can also be classified based on temperature.
- Cold currents bring cold water into warm water areas.
- These currents are usually found on the west coast of the continents in the low and middle latitudes (true in both hemispheres).
- Examples of cold currents include Benguela current, West wind drift, Humboldt (Peru) current, California current, Canaries current, Labrador current, Falkland current etc.
- Warm currents bring warm water into cold water areas and are usually observed on the east coast of continents in the low and middle latitudes.
- Examples of warm currents include Alaska current, North Atlantic Drift, Gulf Stream, Agulhas current, Brazilian current, Kuroshio current etc.

67. Correct Option: (b)

Explanation:

- Statement 2 is incorrect: Human to human transmission is possible but occurs rarely.

Monkeypox Virus

- Singapore has reported its first case of the rare monkeypox virus brought in by a Nigerian man who authorities said may have been infected by bushmeat he ate at a wedding.
- Monkeypox is a member of the Orthopoxvirus genus in the family Poxviridae. It is a rare viral zoonosis (a virus transmitted to humans from animals) with symptoms similar to those seen in the past in smallpox patients, although it is clinically less severe.
- Monkeypox occurs sporadically in central and western parts of Africa's tropical rainforest.
- Human monkeypox was first identified in humans in 1970 in the Democratic

Republic of Congo (then known as Zaire) in a 9-year-old boy in a region where smallpox had been eliminated in 1968. Since then, the majority of cases have been reported in rural, rainforest regions of the Congo Basin and western Africa, particularly in the Democratic Republic of Congo, where it is considered to be endemic.

- Human monkeypox infections have only been documented three times outside of Africa, in the United States, the United Kingdom and Israel, according to the US-based Centers for Disease Control and Prevention.
- Infection of index cases results from direct contact with the blood, bodily fluids, or cutaneous or mucosal lesions of infected animals.
- Secondary, or human-to-human, transmission can result from close contact with infected respiratory tract secretions, skin lesions of an infected person or objects recently contaminated by patient fluids or lesion materials.
- Transmission occurs primarily via droplet respiratory particles usually requiring prolonged face-to-face contact, which puts household members of active cases at greater risk of infection.
- Transmission can also occur by inoculation or via the placenta (congenital monkeypox).
- There is no evidence, to date, that person-to-person transmission alone can sustain monkeypox infections in the human population.
- Monkeypox, a virus similar to the human smallpox which was eradicated in 1980, does not spread easily from person to person, but can in rare cases be fatal.

68. Correct Option: (d)

Explanation:

- All statements are correct

Neutron Stars

- Neutron stars are formed when a massive star runs out of fuel and collapses.

- The very central region of the star – the core – collapses, crushing together every proton and electron into a neutron.
- If the core of the collapsing star is between about 1 and 3 solar masses, these newly-created neutrons can stop the collapse, leaving behind a neutron star.
- Stars with higher masses will continue to collapse into stellar-mass black holes.
- A solar mass is the mass of the sun.
- Astronomers use a solar mass as a basic unit of mass. Since most things in space are big and heavy — such as stars, galaxies, and black holes — it makes more sense to talk about such cosmic objects in terms of solar masses as opposed to a much smaller unit, such as kilogram
- This collapse leaves behind the densest object known – an object with the mass of a sun squished down to the size of a city.
- Since neutron stars began their existence as stars, they are found scattered throughout the galaxy in the same places where we find stars. And like stars, they can be found by themselves or in binary systems with a companion.
- Many neutron stars are likely undetectable because they simply do not emit enough radiation.
- The Bill provides that such Rules must be consistent with the Rules of Procedure and Conduct of Business in the Lok Sabha.
- Inquiry by the Assembly into administrative decisions: The Bill prohibits the Legislative Assembly from making any rule to enable itself or its Committees to: (i) consider the matters of day-to-day administration of the NCT of Delhi and (ii) conduct any inquiry in relation to administrative decisions. Further, the Bill provides that all such rules made before its enactment will be void.
- Assent to Bills: The Act requires the LG to reserve certain Bills passed by the Legislative Assembly for the consideration of the President. These Bills are those: (i) which may diminish the powers of the High Court of Delhi, (ii) which the President may direct to be reserved, (iii) dealing with the salaries and allowances of the Speaker, Deputy Speaker, and members of the Assembly and the Ministers, or (iv) relating to official languages of the Assembly or the NCT of Delhi.
- The Bill requires the LG to also reserve those Bills for the President which incidentally cover any of the matters outside the purview of the powers of the Legislative Assembly.
- LG's opinion for executive actions: The Act specifies that all executive action by the government, whether taken on the advice of the Ministers or otherwise, must be taken in the name of the LG.
- The Bill adds that on certain matters, as specified by the LG, his opinion must be obtained before taking any executive action on the decisions of the Minister/ Council of Ministers.
- According to Article 239AB the President may by order suspend the operation of any provision of article 239AA or of all or any of the provisions of any law made in pursuance of that article for such period and subject to

69. Correct Option: (c)

Explanation:

- Both statements are correct
- The Government of National Capital Territory of Delhi (Amendment) Bill, 2021**
- Restriction on laws passed by the Assembly: The Bill provides that the term “government” referred to in any law made by the Legislative Assembly will imply Lieutenant Governor (LG).
 - Rules of Procedure of the Assembly: The Act allows the Legislative Assembly to make Rules to regulate the procedure and conduct of business in the Assembly.

such conditions as may be specified in such law and make such incidental and consequential provisions as may appear to him to be necessary or expedient for administering the National Capital Territory in accordance with the provisions of article 239 and article 239AA.

70. Correct Option: (c)

Explanation:

- Statement 2 is incorrect: This phenomenon is common in some arthropod taxa such as Crustacea and Arachnida. It is very rare in Odonates.

Gynandromorphism

- Recently, a rare biological phenomenon i.e. Gynandromorphism has been spotted in a dragonfly, the Scarlet Skimmer (*Crocothemisservilia*), which is found in the Kole wetlands, Kerala.
- Gynandromorphs are chimeric individuals having both male and female tissues, and are viewed by the scientific community as a genetic aberration.
- Even though common in some arthropod taxa such as Crustacea and Arachnida, the paper says it is very rare in Odonates and only 30 individuals from seven families have been reported with the condition worldwide.
- Gynandromorphs are usually born due genetic aberration
- Genetic aberrations are chromosomal disorder or mutation which is due to a missing, extra, or irregular portion of chromosomal DNA.

Importance of the Study of gynandromorphism:

- It helps in finding the genetic diversity in related species which further contributes to the conservation and preservation.
- It also aids in discovery of disease and other changes in the specific species due to factors like climate change and ecological evolutions.
- Further, the study of gynandromorphs could offer clues as to why some human

diseases strike one gender more than the other.

71. Correct Option: (c)

Explanation:

- Option (c) is correct

Writs

- Writs are a written order from the Supreme Court or High Court that commands constitutional remedies for Indian Citizens against the violation of their fundamental rights.
- Article 32 in the Indian Constitution deals with constitutional remedies that an Indian citizen can seek from the Supreme Court and High Court against the violation of his/her fundamental rights.
- The Supreme Court of India is the defender of the fundamental rights of the citizens. For that, it has original and wide powers. It issues five kinds of writs for enforcing the fundamental rights of the citizens.

The five types of writs are:

- Habeas Corpus: is used to enforce the fundamental right of individual liberty against unlawful detention. Through Habeas Corpus, the Supreme Court/High Court orders one person who has arrested another person to bring the body of the latter before the court.
- Mandamus: This writ is used by the court to order the public official who has failed to perform his duty or refused to do his duty, to resume his work.
- Prohibition: A court that is higher in position issues a Prohibition writ against a court that is lower in position to prevent the latter from exceeding its jurisdiction or usurping a jurisdiction that it does not possess. It directs inactivity.
- Certiorari: This writ is issued by a court higher in authority to a lower court or tribunal ordering them either to transfer a case pending with them to itself or quash their order in a case. It is issued on the grounds of an excess of jurisdiction or lack of jurisdiction or error of law.

- Quo-Warranto: Supreme Court or High Court issues this writ to prevent illegal usurpation of a public office by a person.

72. Correct Option: (a)

Explanation:

- Option (a) is correct

Terms in Preamble and their meaning

- Justice: It is necessary to maintain order in society that is promised through various provisions of Fundamental Rights and Directive Principles of State Policy provided by the Constitution of India. It comprises three elements, which is social, economic, and political.
- Social Justice – Social justice means that the Constitution wants to create a society without discrimination on any grounds like caste, creed, gender, religion, etc.
- Economic Justice – Economic Justice means no discrimination can be caused by people on the basis of their wealth, income, and economic status. Every person must be paid equally for an equal position and all people must get opportunities to earn for their living.
- Political Justice – Political Justice means all the people have an equal, free and fair right without any discrimination to participate in political opportunities.
- Equality: The term 'Equality' means no section of society has any special privileges and all the people have been given equal opportunities for everything without any discrimination. Everyone is equal before the law.
- Liberty: The term 'Liberty' means freedom for the people to choose their way of life, have political views and behavior in society. Liberty does not mean freedom to do anything, a person can do anything but in the limit set by the law.
- Fraternity: The term 'Fraternity' means a feeling of brotherhood and an emotional attachment with the country

and all the people. Fraternity helps to promote dignity and unity in the nation.

73. Correct Option: (a)

Explanation:

- Statement 2 is incorrect: CAR is decided by central banks and bank regulators to prevent commercial banks from taking excess leverage and becoming insolvent in the process.

CAR

- Capital Adequacy Ratio (CAR) is the ratio of a bank's capital to its risk. It is also known as the Capital to Risk (Weighted) Assets Ratio (CRAR). In other words, it is the ratio of a bank's capital to its risk-weighted assets and current liabilities.
- This ratio is utilized to secure depositors and boost the efficiency and stability of financial systems all over the world.
- The CAR or the CRAR is computed by dividing the capital of the bank with aggregated risk-weighted assets for credit risk, operational risk, and market risk.
- This is calculated by summing a bank's tier 1 capital and tier 2 capitals and dividing the total by its total risk-weighted assets.
- That is:

$$\text{Tier 1 CAR} = \frac{\text{Eligible Tier 1 capital funds}}{\text{Market Risk RWA} + \text{Credit Risk RWA} + \text{Operational Risk RWA}}$$

$$\text{Total CAR} = \frac{\text{Eligible Total capital funds}}{\text{Credit Risk RWA} + \text{Market Risk RWA} + \text{Operational Risk RWA}}$$

74. Correct Option: (b)

Explanation:

- Statement 1 is incorrect: If the quantity demanded of a product changes greatly in response to changes in its price, it is termed "elastic." That is, the demand point for the product is stretched far from its prior point.

Price Elasticity of Demand

- The price elasticity of demand is the percentage change in the quantity

demand of a good or service by the percentage change in the price. In other words, the price elasticity of demand is the rate at which the demand increases or decreases with the corresponding change in price.

- The demand for a product can either be elastic or inelastic. When the change in demand is seen to be proportionately larger in comparison to the change in price, then it is said to be elastic. When the change in demand is smaller than the change in price, then it is said to be inelastic.
- The slope of the demand curve is the price elasticity of demand. As the demand curve steepens, there is a rapid change in demand, which shows elasticity. Whereas a flatter curve leads to the change in demand at a slow rate, thereby denoting inelastic demand.
- Mathematically, the price elasticity of demand is represented as follows:
 - o Price elasticity of demand (PED) = $\frac{\% \Delta \text{ in } Q_d}{\% \Delta \text{ in } P}$
 - Where, $\% \Delta \text{ in } Q_d$ = Percentage change in the quantity demanded, and $\% \Delta \text{ in } P$ = Percentage change in price
 - o The PED or price elasticity of demand is always negative. In other words, it means that there exists an inverse relationship between the price and the demand.
 - o The value of PED, which is less than one, is considered as relatively inelastic demand, while a value more than one suggests relatively elastic demand.
- Factors determining the price elasticity of demand
- Many factors determine the demand elasticity for a product, including price levels, the type of product or service, income levels, and the availability of any potential substitutes.
- High-priced products often are highly elastic because, if prices fall, consumers are likely to buy at a lower price.
- Compared to essential goods, luxury items are highly elastic.

- Goods with many alternatives or competitors are elastic because, as the price of the good rises, consumers shift purchases to substitute items.

75. Correct Option: (c)

Explanation:

- Option (c) is correct

Four Types of Ecosystem Services

- The Millennium Ecosystem Assessment (MA), a major UN-sponsored effort to analyze the impact of human actions on ecosystems and human well-being, identified four major categories of ecosystem services: provisioning, regulating, cultural and supporting services.

• Provisioning Services

When people are asked to identify a service provided by nature, most think of food. Fruits, vegetables, trees, fish, and livestock are available to us as direct products of ecosystems. A provisioning service is any type of benefit to people that can be extracted from nature. Along with food, other types of provisioning services include drinking water, timber, wood fuel, natural gas, oils, plants that can be made into clothes and other materials, and medicinal benefits.

• Regulating Services

Ecosystems provide many of the basic services that make life possible for people. Plants clean air and filter water, bacteria decompose wastes, bees pollinate flowers, and tree roots hold soil in place to prevent erosion. All these processes work together to make ecosystems clean, sustainable, functional, and resilient to change. A regulating service is the benefit provided by ecosystem processes that moderate natural phenomena. Regulating services include pollination, decomposition, water purification, erosion and flood control, and carbon storage and climate regulation.

• Cultural Services

As we interact and alter nature, the

natural world has in turn altered us. It has guided our cultural, intellectual, and social development by being a constant force present in our lives. The importance of ecosystems to the human mind can be traced back to the beginning of mankind with ancient civilizations drawing pictures of animals, plants, and weather patterns on cave walls. A cultural service is a nonmaterial benefit that contributes to the development and cultural advancement of people, including how ecosystems play a role in local, national, and global cultures; the building of knowledge and the spreading of ideas; creativity born from interactions with nature (music, art, architecture); and recreation.

- **Supporting Services**
The natural world provides so many services, sometimes we overlook the most fundamental. Ecosystems themselves couldn't be sustained without the consistency of underlying natural processes, such as photosynthesis, nutrient cycling, the creation of soils, and the water cycle. These processes allow the Earth to sustain basic life forms, let alone whole ecosystems and people. Without supporting services, provisional, regulating, and cultural services wouldn't exist.

76. Correct Option: (b)

Explanation:

- Statement 1 is incorrect: The Act prohibits the claim to Intellectual Property Rights, without the prior approval from the National Biodiversity Authority, on inventions based on biological resources obtained from India.

Biological diversity act, 2002

- The act was enacted in 2002, it aims at the conservation of biological resources, managing its sustainable use and enabling fair and equitable sharing benefits arising out of the use and knowledge of biological resources with the local communities.

Salient Features of the Act

The Act prohibits the following activities without the prior approval from the National Biodiversity Authority:

- Any person or organisation (either based in India or not) obtaining any biological resource occurring in India for its research or commercial utilisation.
- The transfer of the results of any research relating to any biological resources occurring in, or obtained from, India.
- The claim of any intellectual property rights on any invention based on the research made on the biological resources obtained from India.

Exemptions from the Act

- The Act excludes Indian biological resources that are normally traded as commodities. Such exemption holds only so far the biological resources are used as commodities and for no other purpose.
- The act also excludes traditional uses of Indian biological resources and associated knowledge and when they are used in collaborative research projects between Indian and foreign institutions with the approval of the central government.
- Uses by cultivators and breeds, e.g. farmers, livestock keepers and bee keepers and traditional healers e.g. vaid and hakims are also exempted.

77. Correct Option: (b)

Explanation:

- Option (b) is correct

Conquest of Sindh

- The conquest of Sindh occurred as a result of the growing Anglo-Russian rivalry in Europe and Asia and the consequent British fears that Russia might attack India through Afghanistan or Persia. To counter Russia, the British Government decided to increase its influence in Afghanistan and Persia.

- It further felt that this policy could be successfully pursued only if Sindh was brought under British control. The commercial possibilities of the river Sindh were an additional attraction.
- The roads and rivers of Sindh were opened to 'British trade by a treaty in 1832.
- The chiefs of Sindh, known as Amirs, were made to sign a Subsidiary Alliance in 1839.
- And finally, in spite of previous assurances that its territorial integrity would be respected, Sindh was annexed in 1843 under the governor-generalship of Lord Ellenborough.
- Sindh accepted subsidiary alliance in 1839. Despite this, it was annexed in 1843.

78. Correct Option: (c)

Explanation:

- Option (c) is correct

Loknayak Jayaprakash Narayan

- He was born on October 11, 1902, in the remote village of Sitabdiara, Saran, Bihar.
- He went to the US for education, where he was deeply influenced by Marxist ideology.
- However, he rejected the ultimate solution of "revolution" to bring down capitalism as being advocated by the Marxists and instead advocated Socialism.
- He joined the Indian National Congress in 1929 at the invitation of Jawaharlal Nehru and was imprisoned in 1932 for participation in the civil disobedience movement.
- He played a key role in the formation of the Congress Socialist Party (1934), a leftwing group within the Congress Party.
- He left the Congress Party in 1948 and initiated an anti-Congress Campaign.
- In 1952- formed the Praja Socialist Party (PSP).

- In 1954- he started the Bhoodan Yajna Movement of Vinoba Bhave, which demanded land redistribution to the landless.
- In 1959, he fought for "reconstruction of Indian polity" by means of a four-tier hierarchy of village, district, state, and union councils (Chaukhamba Raj).
- He started a program for social transformation named 'Sampoorna Kranti' (total revolution) in 1974 against corruption in public life. This program targeted the Indira Gandhi Regime as she was found guilty of violating electoral laws by the Allahabad High Court.
- The objective was to bring in a change in the existing society that is in tune with the ideals of the Sarvodaya (Gandhian philosophy- progress for all).
- He was posthumously awarded India's highest civilian award, the Bharat Ratna (1999), for his "invaluable contribution to the freedom struggle and upliftment of the poor and downtrodden"

79. Correct Option: (d)

Explanation:

- Statement 1 is incorrect: Gabbro is an example of igneous rocks.
- Statement 2 is incorrect: In sedimentary rocks, the layers of deposits retain their characteristics even after lithification.
- Statement 3 is incorrect: Process of banding is related to Metamorphic rocks.

Rocks

- Granite, gabbro, pegmatite, basalt, volcanic breccia and tuff are some of the examples of igneous rocks.
- The word 'sedimentary' is derived from the Latin word sedimentum, which means settling. Rocks (igneous, sedimentary and metamorphic) of the earth's surface are exposed to denudational agents, and are broken up into various sizes of fragments.

- Such fragments are transported by different exogenous agencies and deposited.
- These deposits through compaction turn into rocks. This process is called lithification.
- In many sedimentary rocks, the layers of deposits retain their characteristics even after lithification. Hence, we see a number of layers of varying thickness in sedimentary rocks like sandstone, shale etc.
- Sometimes minerals or materials of different groups are arranged into alternating thin to thick layers appearing in light and dark shades.
- Such a structure in metamorphic rocks is called banding and rocks displaying banding are called banded rocks.
- Types of metamorphic rocks depend upon original rocks that were subjected to metamorphism.
- Metamorphic rocks are classified into two major groups — foliated rocks and nonfoliated rocks.
- Gneissoid, granite, syenite, slate, schist, marble, quartzite etc. are some examples of metamorphic rocks.

80. Correct Option: (b)

Explanation:

- Statement 2 is incorrect: Dependency ratio represents both older people and children in the population.

Census

- This 'population explosion' happens because death rates are brought down relatively quickly through advanced methods of disease control, public health, and better nutrition.
- The rate of natural increase or the growth rate of population refers to the difference between the birth rate and the death rate. When this difference is zero (or, in practice, very small) then we say that the population has 'stabilised', or has reached the 'replacement level', which is the rate of growth required for

new generations to replace the older ones that are dying out.

- Sometimes, societies can experience a negative growth rate – that is, their fertility levels are below the replacement rate.
- The dependency ratio is a measure comparing the portion of a population which is composed of dependents (i.e., elderly people who are too old to work, and children who are too young to work) with the portion that is in the working age group, generally defined as 15 to 64 years.
- The dependency ratio is equal to the population below 15 or above 64, divided by population in the 15-64 age group; the ratio is usually expressed as a percentage the growth rate of India's population has not always been very high.
- Between 1901–1951 the average annual growth rate did not exceed 1.33%, a modest rate of growth. In fact between 1911 and 1921 there was a negative rate of growth of – 0.03%.
- This was because of the influenza epidemic during 1918–19 which killed about 12.5 million persons or 5% of the total population of the country.
- The growth rate of population substantially increased after independence from British rule going up to 2.2% during 1961-1981.
- Since then although the annual growth rate has decreased it remains one of the highest in the developing world.
- The impact of the demographic transition phase is clearly seen in the graph where they begin to diverge from each other after the decade of 1921 to 1931.

Table: The Population of India and its Growth During the 20th Century

Year	Total Population (in millions)	Average Annual Growth Rate (%)	Decadal Growth Rate (%)
1901	238	—	—
1911	252	0.56	5.8
1921	251	-0.03	-0.3
1931	279	1.04	11.0
1941	319	1.33	14.2
1951	361	1.25	13.3
1961	439	1.96	21.6
1971	548	2.22	24.8
1981	683	2.20	24.7
1991	846	2.14	23.9
2001	1028	1.95	21.5
2011	1210	1.63	17.7

81. Correct Option: (b)

Explanation:

- Statements 1 is incorrect: FASTag is a device that employs Radio Frequency Identification Technology (RFID).

FASTag

- FASTag is a device that employs Radio Frequency Identification Technology (RFID), which is directly attached to the windscreen and linked to the prepaid account for payment.
- It has a validity up to 5 years and rechargeable.
- It has economic, social and environmental benefits as well.
- It provides the non-stop movement across the toll plaza and reduces the fuel cost too.
- Indian Highway Management Company Limited (IHMCL), a venture formed by National Highway Authority of India (NHAI) and National Payment Corporation of India (NPCI) along with the toll plaza concessionaries is implementing it.

82. Correct Option: (d)

Explanation:

- Option (d) is correct

Convention on the Conservation of Migratory Species of Wild Animals:

- It is an environmental treaty of the United Nations which provides a global platform for the conservation and sustainable use of migratory animals and their habitats.
- CMS brings together the States through which migratory animals pass, the Range States, and lays the legal foundation for internationally coordinated conservation measures throughout a migratory range.
- Migratory species which are endangered are listed on Appendix I of the Convention.
- Migratory species which have an unfavourable conservation status or would significantly benefit from international co-operation are listed in Appendix II of the Convention.

About CMS COP13:

- The Thirteenth Meeting of the Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals (CMS COP13) was hosted by Indian in Gandhinagar.
- Ten new species were added to CMS Appendices at COP13.
- Following seven species were added to Appendix I, which provides the strictest protection:
 - o The Asian Elephant
 - o Jaguar
 - o Great Indian Bustard
 - o Bengal Florican
 - o Little Bustard
 - o Antipodean Albatross
 - o The Oceanic White-tip Shark.
 - o The Urial, Smooth Hammerhead Shark and the Tope Shark were listed for protection under Appendix II, which covers migratory species that have an unfavourable conservation status and would benefit from enhanced

international cooperation and conservation actions.

- CMS COP13 also adopted the Gandhinagar Declaration which calls for migratory species and the concept of 'ecological connectivity' to be integrated and prioritized in the new Framework.

83. Correct Option: (b)

Explanation:

- Statement 1 is incorrect: In Shanti Bhushan case, the Supreme Court held that CJI is the master of roaster.

Important Judicial Judgements

- Shanti Bhushan v Supreme Court of India through its Registrar and another in Writ Petition refused pointblank to declare that the function of allocating cases and assigning benches should be exercised by the collegium of five senior Judges instead of the Chief Justice of India.
- The Supreme Court has held that the office of the Chief Justice of India comes under the definition of 'public authority' in the Right to Information Act, upholding the 2010 landmark judgment of the Delhi high court bringing the CJI's office under the RTI

84. Correct option: (b)

Explanation:

- Option (b) is correct

BOP

- There are three components of balance of payment viz current account, capital account, and financial account. The total of the current account must balance with the total of capital and financial accounts in ideal situations.
- The balance of payments (BOP) is a statement of all transactions made between entities in one country and the rest of the world over a defined period of time, such as a quarter or a year.

Current Account

- The current account is used to monitor the inflow and outflow of goods and services and current transfer (including remittances) between countries. This

account covers all the receipts and payments made with respect to raw materials and manufactured goods.

- It also includes receipts from engineering, tourism, transportation, business services, stocks, and royalties from patents and copyrights. When all the goods and services are combined, together they make up to a country's Balance Of Trade (BOT).
- There are various categories of trade and transfers which happen across countries. It could be visible or invisible trading, unilateral transfers or other payments/receipts.
 - Trading in goods between countries are referred to as visible items and import/export of services (banking, information technology etc) are referred to as invisible items.
 - Unilateral transfers refer to money sent as gifts or donations to residents of foreign countries. This can also be personal transfers like – money sent by relatives to their family located in another country.

Capital Account

- All capital transactions between the countries are monitored through the capital account. Capital transactions include the purchase and sale of assets (non-financial) like land and properties.
- The capital account also includes the flow of taxes, purchase and sale of fixed assets etc. by migrants moving out/into a different country.
- The deficit or surplus in the current account is managed through the finance from the capital account and vice versa. There are 3 major elements of a capital account:
 - o Loans and borrowings – It includes all types of loans from both the private and public sectors located in foreign countries.
 - o Investments – These are funds invested in the corporate stocks by non-residents.
 - o Foreign exchange reserves – Foreign

exchange reserves held by the central bank of a country to monitor and control the exchange rate does impact the capital account.

Financial Account

- The flow of funds from and to foreign countries through various investments in real estates, business ventures, foreign direct investments etc. is monitored through the financial account. This account measures the changes in the foreign ownership of domestic assets and domestic ownership of foreign assets.
- On analyzing these changes, it can be understood if the country is selling or acquiring more assets (like gold, stocks, equity etc).

85. Correct Option: (c)

Explanation:

- Option (c) is correct: The above statements describe Wheat crop.

Cultivation of Kharif/ Rabi Crops - Condition for growth

- Cotton: Cotton is a plant that needs a long frost-free period, a lot of heat and plenty of sunshine. It prefers warm and humid climates. Cotton seeds will have a small germination rate, if the soil temperature is below 15°C. During active growth, the ideal air temperature is 21-37°C.
- Rice: Rice crop needs a hot and humid climate. It is best suited to regions which have high humidity, prolonged sunshine and an assured supply of water. The average temperature required throughout the life period of the crop ranges from 21 to 37°C.
- Wheat: It grows best when temperatures are warm, from 21° to 24° C, but not too hot. Wheat also needs a lot of sunshine, especially when the grains are filling. Areas with low humidity are better since many wheat diseases thrive in damp weather. The amount of rainfall required for wheat cultivation varies between 30 cm and 100 cm.

- Maize: A temperature of 21°C- 27°C and 50-100cm rainfall is suitable for its cultivation. Alternate spells of rains and sunny weather are ideal for maize. It is a Kharif Crop but in some states like Bihar, it is grown in the rabi season also. It grows well in alluvial and red soils with good drainage

86. Correct Option: (b)

Explanation:

- Option (b) is correct
- ##### **Swarajists**
- Swarajists like C.R. Das, Motilal Nehru and Ajmal Khan wanted an end to the boycott of legislative councils so that the nationalists could enter them to expose the basic weaknesses of these assemblies and use these councils as an arena of political struggle to arouse popular enthusiasm.
 - They wanted, in other words, to 'end or mend' these councils, i.e., if the government did not respond to the nationalists' demands, then they would obstruct the working of these councils.
 - They argued that in a time of political vacuum, council work would serve to enthuse the masses and keep up their morale.
 - To avoid a 1907 type split, the Swarajists were allowed to contest elections as a group within the Congress.
- ##### **Some of their achievements were:**
- With coalition partners, they out-voted the government several times, even on matters relating to budgetary grants, and passed adjournment motions.
 - They agitated through powerful speeches on self-government, civil liberties and industrialization.
 - Vithalbai Patel was elected speaker of Central Legislative Assembly in 1925.
 - The defeat of the Public Safety Bill in 1928 which was aimed at empowering the Government to deport undesirable and subversive foreigners.

- They exposed the hollowness of the Montford scheme.
- Swarajists failed to support the peasants' cause in Bengal and thus lost support among Muslim members who were pro peasant.

87. Correct Option: (a)

Explanation:

- Statement 3 is incorrect: The report rejected parliamentary responsibility at the centre. The governor-general was to have complete power to appoint the members of the cabinet and the Government of India would have complete control over the high court.
- Statement 4 is incorrect: It suggested that the Indian army should be Indianised though British forces must be retained.

Simon Commission Recommendations

- The Simon Commission published a two volume report in May 1930.
- It proposed the abolition of dyarchy and the establishment of representative government in the provinces which should be given autonomy.
- It said that the governor should have discretionary power in relation to internal security and administrative powers to protect the different communities.
- The number of members of provincial legislative council should be increased.
- The report rejected parliamentary responsibility at the centre. The governor general was to have complete power to appoint the members of the cabinet and the Government of India would have complete control over the high court.
- It also recommended that separate communal electorates be retained (and extended such electorates to other communities) but only until tensions between Hindus and Muslims had died down. There was to be no universal franchise.

- It accepted the idea of federalism but not in the near future; it suggested that a Consultative Council of Greater India should be established which should include representatives of both the British provinces as well as princely states.
- It suggested that the North-West Frontier Province and Baluchistan should get local legislatures, and both NWFP and Baluchistan should have the right to be represented at the centre.
- It recommended that Sindh should be separated from Bombay, and Burma should be separated from India because it was not a natural part of the Indian subcontinent.
- It also suggested that the Indian army should be Indianised though British forces must be retained.

88. Correct Option: (c)

Explanation:

- Statement 1 is incorrect: ZBNF discourages intensive irrigation and deep ploughing.

Zero Budget Natural Farming (ZBNF)

- Zero Budget Natural Farming (ZBNF) is a set of farming methods, and also a grassroots peasant movement, which has spread to various states in India.
- It has attained wide success in southern India, especially the southern Indian state of Karnataka where it first evolved; with efforts of Subhash Palekar and farmers' associations.
- Zero Budget farming promises to end a reliance on loans and drastically cut production costs, ending the debt cycle for desperate farmers.
- The "four wheels" of ZBNF are:
 - o Jiwamrutha: a fermented microbial culture of cow dung and urine (of desi breeds), jaggery, pulses flour, water and soil from the farm bund which acts as a catalytic agent to promote the activity of micro-organisms.
 - o Bijamrita: a mix of cow dung and urine, water, bund soil and lime that

is used as a seed treatment solution prior to sowing.

- o Mulching: practice of covering soil with a layer of dried straw or fallen leaves to conserve soil moisture.
- o Waaphasa: providing water to maintain the required moisture-air balance.

- The ZBNF method also promotes soil aeration, minimal watering, intercropping, bunds and topsoil and discourages intensive irrigation and deep ploughing.

89. Correct Option: (c)

Explanation:

- Both statements are correct

Objectives of the GISAT-1 (mission)

- To provide near real-time imaging of large area region of interest at frequent intervals
- For quick monitoring of natural disasters, episodic events, and any short-term events
- To obtain spectral signatures for agriculture, forestry, mineralogy, disaster warning, cloud properties, snow & glaciers, and oceanography
- The Satellite is configured around a modified I-2k bus carrying multispectral and hyperspectral payloads in different bands with improved spatial and temporal resolution.

Payload Imaging sensors	Spectral Bands	Resolution
Multi-Spectral Visible & Near-InfraRed (6 bands).	42 m	
Hyper-Spectral Visible & Near-InfraRed (158 bands).	318 m	
191 m		

Hyper-Spectral Wave-InfraRed Targeted Geosynchronous Transfer Orbit: Short (256bands).

Perigee: 170 km.
 Apogee: 36,297 km
 Inclination: 19.4°

- According to the ISRO, the GSLVF10 launch took place at 05.43 IST as scheduled. Performance of the first and second stages was normal. However, cryogenic upper stage ignition did not happen due to a technical anomaly.
- The ISRO has confirmed that this mission could not be accomplished as planned.

Geosynchronous Satellite Launch Vehicle F10 (GSLV-F10)

- The GSLV Mark II is the largest launch vehicle built by India until now. The GSLV expands to the geosynchronous satellite launch vehicle. As its name suggests, it can launch satellites that will travel in orbits that are synchronous with the Earth's orbit.
- These satellites can weigh up to 2,500 kg and are first launched into transfer orbits that have a distance from Earth of 170 km at the closest approach and about 35,975 km at the furthest approach which is close to the height of the geosynchronous orbit.
- From this transfer orbit, the satellite gets set free into a geosynchronous orbit.

90. Correct Option: (d)

Explanation:

- Option (d) is correct

Solid State Battery

- The solid-state lithium-metal battery replaces the polymer separator used in conventional lithium-ion batteries with a solid-state separator.
- Lithium ion batteries use aqueous electrolyte solutions to keep anode and cathode apart. On the other hand, solid-state battery uses solid electrolyte that plays the role of separator as well.
- Replacement of separator enables carbon or silicon anode used in conventional lithium ion batteries to be replaced with a lithium-metal anode.
- The lithium metal anode is more energy dense than conventional anodes, which

allows the battery to store more energy in the same volume.

- The advantages of the solid-state battery technology include higher cell energy density (by eliminating the carbon anode), lower charge time (by eliminating the need to have lithium diffuse into the carbon particles in conventional lithium-ion cells), ability to undertake more charging cycles and thereby a longer life, and improved safety.
- Despite improvements in technology over the last decade, issues such as long charging times and weak energy density persist. While lithium-ion batteries are seen as sufficiently efficient for phones and laptops, they still lack the range that would make EVs a viable alternative to internal combustion engines.
- A solid-state battery can increase energy density per unit area since only a small number of batteries are needed. For that reason, a solid-state battery is perfect to make an Electric Vehicle (EV) battery system of module and pack, which needs high capacity.

Why in News?

- Car manufacturer Volkswagen plans to have production running for solid-state batteries by 2025 via the partnership with QuantumScape.

91. Correct Option: (d)

Explanation:

- Statement 1 is incorrect: The right to property was abolished by 44th amendment 1978.
- Statement 2 is incorrect: Article 31B saves the acts and regulations included in IX schedule from being invalidated on ground of contravention of any of the fundamental rights.

Fundamental Rights under Constitution of India

- The 44th Amendment of 1978 deleted the right to property from the list of fundamental rights. After that, Article 300-A was added to the Constitution

that states that no one shall be deprived of his property, except by authority of law.

- According to the Doctrine of Eminent Domain, the state will acquire any personal property for public use; property is taken for public use and compensation is paid to the owner.
- After 1978, in the area of property, there were only four constitutional provisions i.e., A. 31, 31B, 31C and 300A. Though Articles 31A, 31B and 31C are included in the chapter of fundamental rights they cannot be called as fundamental rights in the real sense, as they do not confer fundamental right but impose certain restriction on right to property.
- The main object of these provisions was to provide immunity to various laws curtailing property rights.

92. Correct Option: (d)

Explanation:

- All statements are correct

Tribunal Reforms Bill

- Part XVII of the constitution deals with the official language in Articles 343 to 351.
- Its provisions are divided into four heads - Language of the Union, Regional languages, Language of the judiciary and texts of laws and Special directives.
- Hindi written in Devanagari script is to be the official language of the Union.
- But, the form of numerals to be used for the official purposes of the Union has to be the international form of Indian numerals and not the Devanagari form of numerals.
- However, for a period of fifteen years from the commencement of the Constitution (i.e., from 1950 to 1965), the English language would continue to be used for all the official purposes of the Union for which it was being used before 1950.

- Even after fifteen years, the Parliament may provide for the continued use of English language for the specified purposes.
- At the end of five years, and again at the end of ten years, from the commencement of the Constitution, the President should appoint a commission to make recommendations with regard to the progressive use of the Hindi language, restrictions on the use of the English language and other related issues.
- A committee of Parliament is to be constituted to examine the recommendations of the commission and to report its views on them to the President.
- Accordingly, in 1955, the President appointed an Official Language Commission under the chairmanship of B.G. Kher.
- The commission submitted its report to the President in 1956.
- The report was examined by a committee of Parliament constituted in 1957 under the chairmanship of Gobind Ballabh Pant.
- However, another Official Language Commission (as envisaged by the constitution) was not appointed in 1960.
- Subsequently, the Parliament enacted the Official Language Act in 1963.
- The act provides for the continued use of English (even after 1965), in addition to Hindi, for all official purposes of the Union and also for the transaction of business in Parliament.
- This act enables the use of English indefinitely (without any time-limit).
- Further, this act was amended in 1967 to make the use of English, in addition to Hindi, compulsory in certain cases.

93. Correct Option: (c)

Explanation:

- Statement 2 is incorrect: The trees shed their leaves during the spring.

Tropical Wet Deciduous Forests

- The South Western Ghats moist deciduous forests is a tropical moist broadleaf forest eco region of southern India.
- It covers the southern portion of the Western Ghats range and the Nilgiri Hills between 250 and 1000 meters elevation in Kerala, Karnataka and Tamil Nadu states.
- It includes the southern ranges of the Western Ghats, including the Agastyamalai and Anamalai, and the eastward spurs of the Nilgiri Hills and Palani Hills.
 - The trees drop their leaves during the spring
 - The main species found in these forests are teak, sal, laurel, rosewood, amla, jamun, bamboo, etc.
 - It is comparatively easy to exploit these forests due to their high degree of gregariousness (more pure stands).

Climatic Conditions

- Annual rainfall should be 100 to 200 cm.
- Mean annual temperature of about 27°C
- The average annual relative humidity of 60 to 75 per cent.
- Spring and summer are dry

94. Correct Option: (c)

Explanation:

- Both statements are correct

Chemical Oxygen Demand (COD):

- The amount of oxygen that is required for the chemical oxidation of the organic and inorganic chemicals present in the wastewater by utilising oxidising agents like Potassium permanganate, Potassium dichromate etc. is called as chemical oxygen demand (COD).
- COD is the oxygen demand that is consumed by both inorganic and organic matter present in the wastewater sample.
- The chemical oxygen demand is expressed as the mass of oxygen consumed over the volume of the

solution. Its SI unit is milligrams per liter (mg/l).

Biochemical Oxygen Demand (BOD):

- COD is a measure of total organic molecules dissolved in waste water whereas the concept of BOD came after cities started dumping their waste water into the water bodies and this led to depletion of oxygen and then death of water bodies.
- BOD/COD ratio is a measure of food value. If the ratio is higher, it has higher food and less toxicity. Most important point is a fact that biochemical oxygen demand (BOD) is not due to food organics, it is due to nitrates.
- Even nitrates, alone can cause oxygen depletion from water and invite mosquito breeding.

95. Correct Option: (c)

Explanation:

- Option (c) is correct

Rehnumai Mazdayasan Sabha

- It was formed in 1851 by Naoroji Furdonji, Dadabhai Naoroji, SS Bengalee and J.B Wacha in order to bring about religious reforms in the Parsi community of Bombay.
- It was also known as the Religious Reform Association.
- Its main agenda was to campaign against the entrenched orthodoxy in the religious field.
- It also initiated the modernisation of Parsi social customs regarding the education of women, marriage and position of women in general.

96. Correct Option: (a)

Explanation:

- Option (a) is correct

Doctrines of Jainism

- Jainism taught five doctrines -
 - o Non-violence;
 - o Not to speak a lie;
 - o Not to steal;
 - o Not to acquire property;

o Observance of continence (brahmacharya)

- Jainism attached the utmost importance to ahimsa or non-injury to living beings.
- Jainism recognised the existence of gods but placed them lower than jina.
- However, it did not condemn the varna system as Buddhism did.
- According to Mahavira, a person is born in high or low varna as per the sins or virtues of his previous birth. Through meritorious work, members of lower castes can also attain liberation.
- Triratna of Jainism - According to Jainism, freedom can be obtained from the worldly bonds without any rituals but by following -
 - o Right knowledge
 - o Right Faith
 - o Right Actions

Doctrines of Buddhism

- Buddha did not believe in fruitless controversies as regarding the soul (atman) and Brahman. He rather addressed himself to the worldly problems.
- Gautama Buddha recommended the eight-fold path (ashtangika marga) for the elimination of human misery.
- It consisted of right observation, right determination, right speech, right action, right livelihood, right exercise, right memory and right meditation.
- Main code of social conduct by Buddha are -
 - o Do not covet the property of others;
 - o Do not commit violence;
 - o Do not use intoxicants;
 - o Do not speak a lie; and
 - o Do not indulge in corrupt practices.

97. Correct Option: (a)

Explanation:

- Statement 3 is incorrect: 'Bartaman Bharat' was the only Bengali language magazine of Ramakrishna Mission and was written by Swami Vivekananda.

Ishwar Chandra Vidyasagar

- Ishwar Chandra Vidyasagar (1820-1891) was one of the pillars of the Bengal renaissance who managed to continue the social reforms movement that was started by Raja Rammohan Roy in the early 1800s.
- Vidyasagar started a movement in support of widow remarriage which resulted in the legalisation of widow remarriage.
- He was also a crusader against child marriage and polygamy.
- The Hindu Widows' Remarriage Act of 1856 was passed mainly by the efforts of Vidyasagar. It legalised the marriage of widows and declared issues from such marriages as legitimate.
- Vidyasagar cited Vedic texts to prove that the Hindu religion sanctioned widow remarriage.
- He was the secretary of Bethune School in Calcutta (established in 1849) and was one of the pioneers of higher education for women in India.
- He wrote two books 'Upakramonika' and 'Byakaran Koumudi', interpreting complex notions of Sanskrit grammar in an easy legible Bengali language.

98. Correct Option: (d)

Explanation:

- Option (d) is correct

Ukraine

- Ukraine has become the new pivot of the US-Russia tension amid talks of US adding Ukraine to its NATO grouping.
- Ukraine is the second-largest European country, after Russia. Its capital Kiev is located on the Dnieper River in northcentral Ukraine.
- Geographically it is bordered by Belarus to the north, Russia to the east, the Sea of Azov and the Black Sea to the south, Moldova and Romania to the southwest, and Hungary, Slovakia, and Poland to the west. In the far southeast, Ukraine is separated from Russia by the Kerch

Strait, which connects the Sea of Azov to the Black Sea.

- The landscape of Ukraine consists mostly of steppes and plateaus.
- It is crossed by rivers such as the Dnieper, Seversky Donets, Dniester and the Southern Bug which flow south into the Black Sea and the smaller Sea of Azov.
- The country's only mountains are the Carpathian Mountains in the west and the Crimean Mountains on Crimea peninsula. Mount Roman-Kosh is the Crimean Mountains' highest point.
- The snow melt from the mountains feeds the rivers, and natural changes in altitude form sudden drops in elevation and give rise to waterfalls.
- The podzolized soils occupy about one-fifth of the country's area, mostly in the north and northwest.
- The chernozems of central Ukraine, among the most fertile soils in the world, occupy about two-thirds of the country's area.
- The smallest proportion of the soil cover consists of the chestnut soils of the southern and eastern regions.

99. Correct Option: (d)

Explanation:

- Option (d) is correct

Desertification

- Causes of desertification:
 - o Loss of Soil Cover
 - o Loss of soil cover, mainly due to rainfall and surface runoff, is one of the biggest reasons for desertification. It is responsible for 11.01% of the desertification in the country.
 - o Cutting forests adversely affect the soil and cause degradation. As urbanization increases, the demand for resources is also increasing.
 - o Vegetation Degradation - Vegetation degradation is defined as, "the temporary or permanent reduction in the density, structure, species composition or productivity of

vegetation cover". It is found to be responsible for 9.15% of desertification in the country.

o Water Erosion - It results in Badland Topography which itself is an initial stage of desertification.

- Badlands are a type of dry terrain where softer sedimentary rocks and clay-rich soils have been extensively eroded.

- In 2011-13, water erosion was responsible for 10.98% of desertification in the country.

o Wind Erosion - Sand encroachment by wind reduces fertility of the soil making the land susceptible to desertification. It was found to be responsible for 5.46% of the desertification in India.

o Climate Change - It may exacerbate desertification through alteration of spatial and temporal patterns in temperature, rainfall, solar radiation and winds.

authority, on 11th April Martial Law was clamped with General Dyers in command.

- On 13th April, a peaceful, unarmed crowd (mostly visitors from nearby villages to attend Baisakhi celebration) which had collected in an enclosed ground (Jallianwala Bagh) to attend a public meeting oblivious of the ban was brutally massacred without warning.
- The Jallianwala Bagh massacre shocked the entire nation with horror and fired patriotic minds with aggressive determination for vengeance.
- Gandhi, overwhelmed by the total atmosphere of violence withdrew the movement on 18th April after confessing a 'Himalayan Blunder'.

100. Correct Option: (a)

Explanation:

- Option (a) is correct

Anti-Rowlatt Satyagraha

- M. K Gandhi started campaign against Rowlatt bill and set up Satyagraha Sabha on 24th February 1919 in Bombay.
- The Rowlatt Act empowers the British regarding the suspension of the right of Habeas Corpus.
- During this agitation, Gandhi gave the famous quote "It is my firm belief that we shall obtain salvation only through suffering and not by reforms dropping on us from the English they use brute, we soul force".
- The country witnessed a remarkable political awakening in India during March and April 1919. There were hartals, strikes, processions and demonstrations.
- In Amritsar, the local leaders Kitchlew and Satyapal were deported (9th April).
- The arrest of the local leaders led to attacks on the symbols of British