#### 1. Ans: a

## Explanation:

A Boltzmann machine is a type of neural network that consists of interconnected neurons capable of making stochastic decisions. It was invented by Geoffrey Hinton and is used to learn internal representations of input. The machine contains visible and hidden neurons and can be used to learn important aspects of an unknown probability distribution.

However, due to its unconstrained connections, learning in a Boltzmann machine is slow and impractical. This limitation is overcome by Restricted Boltzmann Machines (RBMs) that implement restrictions on the connections between neurons.

## Hence, option a is correct.

#### 2. Ans: b

## Explanation:

A gravitational wave is an invisible ripple in space. **Gravitational waves travel at the speed of light (186,000 miles per second).** These waves squeeze and stretch anything in their path as they pass by.

## Hence, statement 1 is incorrect.

## What causes gravitational waves?

The most powerful gravitational waves are created when objects move at very high speeds.

## Some examples of events that could cause a gravitational wave are:

- when a star explodes asymmetrically (called a supernova)
- when two big stars orbit each other
- when two black holes orbit each other and merge

But these types of objects that create gravitational waves are far away. Sometimes, these events only cause small, weak gravitational waves. The waves are then very weak by the time they reach Earth. This makes gravitational waves hard to detect.

## How do we know that gravitational waves exist?

In 2015, scientists detected gravitational waves for the very first time. They used a very sensitive instrument called LIGO (Laser Interferometer Gravitational-Wave Observatory). These first gravitational waves happened when two black holes crashed into one another. The collision happened 1.3 billion years ago. But, the ripples didn't make it to Earth until 2015.

## Hence, statement 2 is correct.

#### 3. Ans: d

Explanation:

A detritivore is a heterotrophic organism, which obtains its nutrition by feeding on detritus. Detritus is the organic matter made up of dead plant and animal material. Detritivores may also obtain nutrition by coprophagy, which is a feeding strategy involving the consumption of faeces.

Detritivores are often invertebrate insects such as **mites, beetles, butterflies and flies; molluscs such as slugs and snails;** or soil-dwelling earthworms, **millipedes and woodlice.** Examples of detritivores in marine environments are **crustaceans** such as **crabs and lobsters, echinoderms** such as **sea stars or sea cucumbers.** Many of these marine detritivores occupy a similar niche to terrestrial soil-dwellers, living on or within the seabed known as the benthos. These organisms are often called "bottom-feeders". Alternatively, in aquatic ecosystems, stationary polychaete worms, barnacles and some corals derive their energy through filter feeding on floating organic detritus called "marine snow".

The terms "detritivore" and "decomposer" are distinct in their meaning; although the words are often used interchangeably, detritivores are technically a branch of decomposers. It is useful to note that, unlike detritivores, true decomposers such as fungi, bacteria or protists, use saprotrophic feeding, in which they absorb nutrients through extracellular digestion, rather than by oral ingestion.

Hence, option d is correct.

## 4. Ans: c

Explanation:

Biological and toxin weapons are either microorganisms like virus, bacteria or fungi, or toxic substances produced by living organisms that are produced and released deliberately to cause disease and death in humans, animals or plants.

Biological agents like anthrax, botulinum toxin and plague can pose a difficult public health challenge causing large numbers of deaths in a short amount of time. Biological agents which are capable of secondary transmission can lead to epidemics. An attack involving a biological agent may mimic a natural event, which may complicate the public health assessment and response. In case of war and conflict, high-threat pathogens laboratories can be targeted, which might lead to serious public health consequences. Biological weapons form a subset of a larger class of weapons, sometimes referred to as unconventional weapons or weapons of mass destruction, which also includes chemical, nuclear and radiological weapons. The use of biological agents is a serious concern, and the risk of using these agents in a terrorist attack is thought to be increasing.

Hence, statement 1 is correct.

Chikungunya is a mosquito-borne viral disease that causes fever and severe joint pain. It is caused by a ribonucleic acid (RNA) virus that belongs to the alphavirus genus of the family Togaviridae. The name "chikungunya" derives from a word in the Kimakonde language of southern Tanzania, meaning "to become contorted" and describes the stooped appearance of sufferers with joint pain (arthralgia).

Chikungunya virus (CHIKV) is transmitted to humans by the bites of infected female mosquitoes. Most commonly, the mosquitoes involved are **Aedes aegypti and Aedes albopictus.** These two species can also transmit other mosquito-borne viruses, including dengue and Zika viruses. They bite throughout daylight hours, although there may be peaks of activity in the early morning and late afternoon.

CHIKV was **first identified in the United Republic of Tanzania in 1952** and subsequently in other countries in Africa and Asia. Urban outbreaks were first recorded in Asia in the 1970s, but since 2004, outbreaks of CHIKV have become more frequent and widespread. The first local, mosquito-transmitted chikungunya cases in the Americas were reported in late 2013, after which large outbreaks occurred, affecting most of the countries in the region. Chikungunya has now been reported in 118 countries in Asia, Africa, Europe and the Americas.

Hence, statement 2 is correct.

#### 5. Ans: a

Explanation:

#### WEIGHT OF CRUDE:

The standard unit of measurement for oil weight is API Gravity. This scale was created by the American Petroleum Institute.

The higher the API, the lighter the oil. The lower the API, the heavier the oil.

Heavy oil evaporates slowly and contains material that will be used to make heavy products like asphalt.

Light oil requires less processing and produces a greater percentage of gasoline and diesel than heavy oil.

Hence, option a is correct.

## 6. Ans: a

Explanation:

- Bacteria and Archaea are prokaryotes, single-celled microorganisms with no nuclei.
- Archaea and Bacteria share a number of features with each other, but they are also distinct domains of life:
- Both Archaea and Bacteria are unicellular organisms.

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## Hence, statement 1 is incorrect.

- Archaea and bacterial cells lack organelles or other internal membrane-bound structures.
- Archaea and Bacteria generally have a single circular chromosome, a piece of circular, double-stranded DNA located in the nucleoid of the cell.
- Archaea and Bacteria reproduce asexually through binary fission, a process in which an individual cell reproduces its single chromosome and splits in two.

#### Hence, statement 2 is incorrect.

- **Almost all prokaryotes have a cell wall,** a protective structure that allows them to survive in extreme conditions, which is located outside of their plasma membrane.
- The composition of the cell wall differs significantly between the domains of Bacteria and Archaea:
- Bacterial cell walls are composed of peptidoglycan, a complex of proteins and sugars. Some bacteria have an outer capsule outside the cell wall.
- Archaeal cell walls are composed of polysaccharides (sugars).

## Hence, statement 3 is correct.

#### 7. Ans: b

Explanation:

# Aspirin, the world's most widely used drug, was derived from the leaves of the tropical willow, Salix alba.

The nine-banded armadillo [Dasypus novemcinctus] has been used to study **leprosy** and prepare a vaccine for the disease.

The Florida manatee [Trichechus manatus], an endangered mammal, is being used to help understand **hemophilia** 

The rose periwinkle [Cargaranthus roseus], a Madagascar plant, has yielded two potent drugs effective in treating **blood cancer**.

## Hence, option b is correct.

#### 8. Ans: d

Explanation:

Dogecoin (DOGE), Cardano (ADA), Binance Coin (BNB), Solana (SOL), Bitcoin (BTC), Ether (ETH), Filecoin (FIL), Polkadot (DOT), Polygon (MATIC), Chainlink (LINK), Theta, Chiliz (CHZ), Avalanche (AVAX) Athena and Solana are related to Cryptocurrency.

Hence, option d is correct.

9. Ans: b

Explanation:

Bt cotton is the only GM crop approved for cultivation in India.

Hence, statement 1 is incorrect.

The BT gene obtained from the soil bacterium Bacillus thuringiensis has been inserted into cotton DNA, making the modified plant resistant to bollworms.

Hence, statement 2 is correct.

10. Ans: d

Explanation:

Embryonic stem cells (ESCs) are isolated from the inner cell mass of a 5-day-old embryo, which is known as a blastocyst. These inner cell masses consist of 50–150 cells. One unique property of ESCs is pluripotency. This means that ESCs can differentiate into all three primary germ layers: ectoderm, endoderm, and mesoderm. ESCs can also differentiate into more than 220 cell types present in the human body. ESCs can maintain pluripotency for many cell divisions.

Hence, statements 1 & 3 are correct.

Adult stem cells (ASCs) are undifferentiated cells that are found throughout the body. These adult stem cells multiply by cell division to replenish dying or damaged cells or tissues. These cells are somatic stem cells because they can be found in young as well as adult stages. One of the main characteristics of ASCs is their ability to divide or self-renew for many passages, and upon differentiation, they can generate all the cell types of the organ from which they originate.

There are several types of adult stem cells:- Dental Pulp-Derived Stem Cells, Hematopoietic Stem Cells, Mammary Stem Cells, Mesenchymal Stem Cells, Neural Stem Cells, and Olfactory Adult Stem Cells.

Hence, statement 2 is correct.

11. Ans: d

Explanation:

In the Hindu tradition, the **Vedas have the status of shruti** (literally, 'that which has been heard'). They are thought to embody an eternal, self-existent truth realised by the rishis (seers) in a state of meditation or revealed to them by the gods.

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The category of smriti (literally, 'remembered') texts include the Vedanga, Puranas, epics, Dharmashastra and Nitishastra.

Hence, option d is correct.

12. Ans: a

Explanation:

The origins of Brahmi, a script written from left to right are not clear. The different stages of the Brahmi script are often labelled on the basis of dynasties, e.g., Ashokan Brahmi, Kushana Brahmi and Gupta Brahmi.

In the 6th century, **Gupta Brahmi evolved into a script known as Siddhamatrika or Kutila.** The modern north Indian scripts gradually emerged out of Siddhamatrika. Nagari or Devnagari was standardised by about 1000 CE.

Hence, option a is correct.

13. Ans: b

Explanation:

**Ahar (Rajasthan):** It is located on the outskirts of Udaipur. An iron ring and nail occur at 1b (2100 BCE) at Ahar. It constitutes one of the earliest occurrences of iron in the sub-continent.

Hence, pair 1 is correctly matched.

Utnur (Mahbub Nagar, Telangana): It shows a wooden enclosure of cattle pen.

Hence, pair 2 is incorrectly matched.

Budihal (Gulbarga, Karnataka): It is a habitation site associated with Ash Mounds.

Hence, pair 3 is correctly matched.

**Watgal (Raichur, Karnataka):** Two carbonised seeds of betelnut (Areca Catechu) were found. It is the earliest evidence of the use of betelnuts in South Asia.

Hence, pair 4 is incorrectly matched.

14. Ans: a

Explanation:

The pravrajya ceremony marked a person's going forth from home into homelessness and his/her becoming a novice under a preceptor. It involved shaving the head and donning other robes. The novice recited the formula of taking refuge in the Buddha, dhamma and sangha, and then took the 10 vows.

The **upasampada was the ordination ceremony** when the novice became a full-fledged member of the monastic community.

Hence, option a is correct.

15. Ans: b

Explanation:

**Parishishtaparvan by Hemachandra** (12th Century) describes Chandragupta as the son of daughter of a thief of a village of peacock tamers.

Hence, pair 2 is correctly matched.

10th-century Brihatkathakosha of Harishena and 19th-century Rajavalikathe by Devendra describe the story of the death of Chandragupta Maurya by Sallekhana (ritual death by starvation).

Hence, pairs 1 & 3 are incorrectly matched.

16. Ans: a

Explanation:

The Arthashastra has a very detailed discussion of dasas (slaves) and ahitakas (those pledged to creditors when contracting a debt). Various types of slaves and situations of enslavement, temporary and permanent, are mentioned.

Hence, statement 1 is correct.

There is reference to slaves in the service of private individuals as well as the state. Kautilya lists various rules for the treatment of male and female slaves and lays down penalties for their transgression.

Hence, statement 2 is incorrect.

17. Ans: b

Explanation:

Sangam poems contain several incidental references to material culture. There are references to iron in Akananuru, Kuruntokai and Purananuru.

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Hence, statement 1 is incorrect.

**The four-fold varna classification had little application** to ancient Tamil society. The jati system was not a feature of this society either.

Hence, statement 2 is correct.

The more relevant basis of social classification was kuti. The kuti were clan-based descent groups and were central to the early Tamil system of agricultural production.

Hence, statement 3 is correct.

18. Ans: d

Explanation:

The Narada and Brihaspati Smritis describe the organisation and activities of guilds. They mention the guild chief and two, three, or five executive officers. **Guild laws were laid down in written documents.** 

Hence, statement 2 is correct.

The Brihaspati Smriti refers to guilds meting out justice to their members and suggests that these decisions should, by and large, be approved by the king. There is also mention of the philanthropic activities of guilds, for instance, providing shelter for travellers and building assembly houses, temples and gardens.

Certain inscriptions indicate the **important role of the chief of the guilds of artisans and** traders in district-level administrative bodies. The flourishing condition of guilds is indicated by inscriptions which refer to guilds as donors and bankers.

Hence, statements 1 & 3 are correct.

19. Ans: a

Explanation:

The Vijayanagar empire was divided into many provinces for the purpose of administration. The terms used for the province are Rajya, Mandala and Chavadi. The provinces were also divided into sub-divisions like Venthe, Nadu, Sima, Village and Sthala. **Each province was under a viceroy of Nayaka or Naik.** 

The village was the unit of administration. Each village was self-sufficient. The village assembly was responsible for the administration of the village. Its **hereditary officers were the village accountant (Karnam)**, village watchman, the superintendent of forced labour etc. The king had his control over villages through an officer called Mahanayakacharya.

Hence, option a is correct.

20	Ans:	•
ZU.	Ans:	а

Explanation:

**The spoils of the war were known as Ghanimah.** Legally, out of all the booty collected, one-fifth was to be kept for the state and the rest was to be distributed among the soldiers. However, it was lawful for the Sultan or Commander-in-Chief to select an animal, a sword or some other article which particularly pleased him. The share of the state was known as Khams.

Hence, option a is correct.

#### 21. Ans: b

Explanation:

Money which is available for investment and productive purposes is called money capital or financial capital. The real capital consists of machinery, raw materials, factories, fertilisers etc.

Capital is defined as a man-made instrument of production. Capital thus, consists of those physical goods which are produced for use in future production.

Hence, option b is correct.

## 22. Ans: b

Explanation:

The opportunity cost of anything is the next best alternative that could be produced instead by the same factor or by an equivalent group of factors, costing the same amount of money.

The sum of explicit and implicit costs incurred by a firm to produce a product constitutes the private cost.

The sum of private costs and the net negative externalities over positive externalities is called as social cost.

Hence, option b is correct.

## 23. Ans: a

Explanation:

Due to nature of public goods, it is difficult for markets to achieve pareto-optimality or Economic efficiency.

Public goods are characterised by non-rival and non-exclusiveness in consumption. Consumption of non-rival goods does not reduce their availability for others to consume them. On the other hand, it is difficult if not impossible to exclude non-exclusive goods from consuming who are not willing to pay for them.

Examples of public goods include: National Defence, parks, pollution control projects etc.

#### Hence, statement 1 is correct.

Due to the inability of producers of public goods to prevent those who do not pay for receiving the benefit for them, a profit-maximising firm will not produce a public good or produce little of it. This causes economic inefficiency and Pareto non-optimality.

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

#### 24. Ans: b

Explanation:

Unemployment in **developed countries** is due to lack of aggregate demand which leads to **under utilisation of capacity.** 

Whereas, in developing countries, unemployment arises because **the capacity and effective demand have never been great enough**.

According to Brahmananda and C.N Vakil, the basic cause of unemployment in developing countries is the deficiency of the availability of essential consumer goods, often called wage goods.

Hence, option b is correct.

25. Ans: b

Explanation:

Money supply= Currency Notes (Cu) + Demand Deposit (DD)

In developed countries substantial part of money supply is in the form of bank deposits. Bank money, especially demand deposits against which cheques can be drawn, this is also called credit money.

Hence, option b is correct.

26. Ans: b

Explanation:

A soft interest rate policy does not always, especially during a recession, achieve much success in stimulating private investment. This is because when there are sluggish demand conditions, the existing fixed capital is underutilised, it is not profitable to make more investments for expanding fixed capital stock, private enterprises are therefore not willing to make further investments despite lower interest rates.

Hence, statement 1 is incorrect.

Priority sector guidelines of RBI for sectors such as agriculture, small and medium enterprises **are aimed at boosting private investment**.

Hence, statement 2 is incorrect.

When an industry faces a demand recession, public investment is an ideal tool to develop infrastructure and to increase the demand for industrial products through the operation of a multiplier. This will stimulate private investment. **The policy of raising public investment will crowd in private investment rather than crowding it out.** 

Hence, statement 3 is correct.

27. Ans: d

Explanation:

In case of anticipated inflation, a worker can enter into contracts in such a way that he will be able to prevent the erosion of his real income with automatic revision of his money wage depending on the anticipated rate of inflation.

Hence, statement 1 is incorrect.

Unanticipated inflation harms creditors and benefits debtors and in this way redistributes income in favour of the debtors. The value of money declines due to inflation. For creditors (including financial institutions such as banks and insurance companies) who enter into an agreement with the borrowers to provide loans at a fixed nominal rate of interest, the real value of money in terms of goods and services which they will receive at the end of the period would be much less if during the period prices rise sharply. The debtors or borrowers gain because they would return the loan-money when its real value has declined greatly due to an unexpected rapid rate of inflation.

Hence, statement 2 is correct.

28. Ans: d

Explanation:

When the government borrows from the public in the money market, it will compete with businessmen who also borrow for private investment. The government borrowing will raise the demand for laonable funds which in a free market economy, if rate of interest is not administered by the Central Bank, will drive up the rate of interest. The rise in the rate of interest will reduce or crowd out some private investment expenditure and interest-sensitive consumer spending for durable goods.

## Hence, statement 1 is incorrect.

Creation of New Money: The more effective way of financing budget deficit is the creation of new money. By creating new money to finance the deficit, the crowding out of private investment can be avoided, and a full expansionary effect rise in government expenditure can be realised. Thus, the creation of new money for financing budget deficit or what is called monetisation of budget deficit has a greater expansionary effect than that of borrowing by the government.

Hence, statement 2 is correct.

#### 29. Ans: a

Explanation:

There are four well-known methods by which disequilibrium in the Balance of Payments is corrected by the government:

- 1. Trade policy measures: Expanding exports and restraining imports
- 2. Expenditure-reducing policies: Tight monetary policy, contractionary fiscal policy.
- 3. Expenditure-switching policies: Devaluation
- 4. Exchange control

Depreciation is automatic and market-determined but not by the government.

Hence, option a is correct.

#### 30. Ans: c

Explanation:

A relatively higher rate of inflation causing rise in prices of the goods in India as compared to that in the USA will make US goods relatively cheaper and the Indian goods expensive. This will serve as an incentive for Indian individuals and firms to increase their imports of goods from USA.

However, at the same time due to higher price level American people will find Indian goods more expensive and, as a result, will reduce their imports of Indian goods. This will cause a decline in exports of goods from India to the USA. Thus, as a result of a higher rate of inflation in India, the US dollar will appreciate and the Indian rupee will depreciate.

Hence, statement 1 is correct.

As a result of depreciation or devaluation and, consequently, increase in exports and decline in imports, net exports will rise, and therefore, the net aggregate demand for domestically produced goods will increase.

Hence, statement 2 is correct.

#### 31. Ans: b

## Explanation

#### **Newer Alluvium**

- It is composed of newer alluvium and forms the flood plain along the river banks. Every year, a new layer of alluvium is deposited by the flood of the river.
- It remains near the vicinity of the river channels.
- This type of geomorphological feature is also called "Khadar."

# Elevated pieces of land

- It denotes the elevated piece of land situated along the bank of the Ganga River, especially in the upper Ganga-Yamuna doab.
- This has been forming due to the accumulation of wind-blown sands during the hot, dry months of the year.
- This type of geomorphological feature is also called "Bhur."

## Marshy tract

- It is a 15-30 km wide marshy tract in the south of the pebble-studded rock belt running parallel to it.
- This Marshy tract is more prominent in the eastern part of the plain than in the west because the eastern part receives a higher amount of rainfall.
- This type of geomorphological feature is also called "Tarai."
- Most of the Tarai land mainly in Punjab, Uttar Pradesh, and Uttrakhand turned into agricultural land.

## Pebble-studded rock belt

- It is composed of old alluvium from the Middle Pleistocene age and forms the alluvial terrace above the flood plains' level.
- It is often impregnated with calcareous concretions known as Kankar.
- This type of geomorphological feature is also called "Bhangar."

## Hence, option b is correct.

#### 32. Ans: b

Explanation:

## The Lakshadweep Island

 It is located in the Arabian Sea, comprising a group of 25 small islands.

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- They are widely scattered over an area of 108.78 sq km extending from 8\*N to 12\*20'N and 71\*45'E to 74\*E about 200-500 km southwest of the Kerala coast.
- The islands north of 11\*N are known as the Amindivi Islands, while those south of this latitude are called Cannanore Islands, with Minicoy Island in the extreme south.
- All the tiny islands are of coral origin and are surrounded by fringing reefs. The largest and the most advanced is the Minicoy island, with an area of only 4.53 sq km.

## Hence, statement 1 is correct.

- Most of the islands have low elevations and do not rise more than five meters above sea level.
- Their topography is flat, and relief features, such as hills, streams, valleys, etc, are conspicuous by their absence.

Hence, statement 2 is correct, but statement 2 doesn't explain statement 1.

33. Ans: d

Explanation:

**The Chambal** rises 15 km southwest of Mhow in the highlands of **the Janapao hills**(700m) in the Vindhya range in Madhya Pradesh and follows a northwesterly course through the Malwa plateau. It has some important tributaries: banas, sindh, betwa, dhasan, and ken.

**The Son River** springs from the **Amarkantak plateau.**Its important tributaries are: johillla, gopat, rihand, kanhar, koel.

**The Damodar River** rises in the hills of **the Chotanagpur plateau.** It is also known as the **'sorrow of Bengal'.** Its timportant tributaries are: barakar, bokaro, konar, haharo, jamunia, ghari, guaia, khadia and bhera.

**The Ghaghra River** originates near the **Gurla Mandhata Peak**, south of Manasarovar in Tibet. Its important tributairs are: sarla, sarju, rapti.

Hence, option d is correct.

34. Ans: b

## **Explanation:**

**The Strait of Hormuz:-** A channel linking the Persian Gulf (west) with the Gulf of Oman and the Arabian Sea (southeast). The strait separates Iran (north) from the Arabian Peninsula (south). It contains the **islands of Qeshm (Qishm)**, Hormuz, and **Hengām (Henjām)** and is of great strategic and economic importance, especially as oil tankers collecting from various ports on the Persian Gulf must pass through the strait.

**The Straits of Tiran:-** It is a narrow sea passage between the Sinai and Arabian peninsulas, connecting the Gulf of Aqaba and the Red Sea.

Access to Jordan's only seaport of Aqaba and to Israel's only Red Sea seaport of Eilat is through the Gulf of Aqaba, which gives the Straits of Tiran strategic importance

**The Strait of Malacca:-** It is a narrow stretch of water connecting the Andaman Sea (Indian Ocean) and the South China Sea (Pacific Ocean). It is between the Malay Peninsula (Peninsular Malaysia) to the northeast and the Indonesian island of Sumatra to the southwest.

**The Strait of Gibraltar:-** It is a channel connecting the Mediterranean Sea with the Atlantic Ocean, lying between southernmost Spain and northwesternmost Africa

Hence, option b is correct.

#### 35. Ans c

Explanation:

The Gondwanas consist of **sandstones with some shales and clays**. They are of continental origin, fluviatile and lacustrine deposits laid down in geosynclinal troughs on ancient plateau surfaces. As the sediments accumulated, the loaded troughs subsided which led to thick deposits of fresh water and subaerial sediments into which were embedded the terrestrial plants and animals. These **flat sedimentary strata**, some 6,000 m thick, are laid down from the start of the Permian period some 250 million years ago.

## Hence, statement 1 is incorrect.

The Gondwana rocks have rich deposits of iron ore, copper, **uranium**, and antimony.

## Hence statement 2 is correct.

In the extra-peninsular region, the Gondwana rocks are found in Kashmir, Darjeeling, and **Sikkim**.

Hence, statement 3 is correct.

36. Ans: b

Explanation:

In summer when the sun is overhead, its rays fall almost vertically on the Earth, concentrating its heat on a <u>small area</u>. Therefore, the temperature rises and summers are always warm.

Hence, statement 1 is incorrect.

In winter the oblique rays of the sun come through the atmosphere less directly and have much of their heat absorbed by atmospheric impurities and water vapour. The sun's rays fall faintly and spread over a great area.

Hence, statement 2 is correct.

37. Ans: d

Explanation:

#### **AGHIL PASS**

**Aghil Pass lies in the North of K2 peak** [the highest peak in India and the second highest peak in the world]. This pass is situated at an elevation of about 5000m above sea level and **joins the Ladakh region of India with the Xinjiang [Sinkiang] Province of China.** Being located at a high altitude and surrounded by lofty mountains, it remains snow-covered during the winter season and is closed from November and May.

Hence, both statements 1 and 2 are incorrect.

38. Ans: c

Explanation:

The salinity of the soil can be reduced by adding gypsum. Chemical fertilisers in the absence of organic manure are harmful to the soil. Unless the soil gets enough humus, chemicals harden it and reduce its fertility in the long run.

Hence, both statements 1 and 2 are correct.

#### 39. Ans: a

Explanation:

- Forest soils are mainly found on the hill slopes covered by forests. These soils occupy about 8.67 percent of the total land area of India.
- The formation of these soils is mainly governed by the characteristic deposition of organic matter derived from forest growth.

## Hence, statement 2 is correct.

- These soils are heterogeneous in nature, and their character changes with parent rocks, ground- configuration, and climate. Consequently, they differ greatly even if they occur in close proximity to one another.
- Forest soils are very rich in humus but deficient in potash, phosphorus, and lime. Therefore, they require a lot of fertilisers for high yields.

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• They are especially suitable for the plantation of Tea, coffee, spices, and tropical fruits in Karnataka, Tamil Nadu, and Kerala and wheat, maize, barley, and temperate fruits in Jammu and Kashmir, Himachal Pradesh, and Uttarakhand.

Hence, statement 1 is correct.

#### 40. Ans: a

Explanation:

Heat is redistributed across the planet through the Hadley, Ferrel and Polar cells. The Hadley cells move heat away from the equator and the Polar cells move heat towards the poles. The Ferrel cells are created by the interaction of the Hadley and Polar cells.

Because of the coriolis effect, the surface winds of the Hadley, Ferrel and Polar cells are diverted to the right in the northern hemisphere and to the left in the southern hemisphere. As a result, the prevailing surface winds blow from the east in the tropics and in polar regions and from the west in temperate latitudes.

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

#### 41. Ans: d

Explanation:

The Governor-General of the two Dominions became the Constitutional Heads of the two Dominions as in the case of the other Dominions. This was corollary from 'Dominion Status' which had been denied to India by the Government of India Act, 1935, but conceded by the Indian Independence Act, 1947.

## Hence, statement 1 is correct.

According to the adaptations under the Independence Act, there was no longer any Executive Council as under the Act of 1919 or 'counsellors' as envisaged by the Act of 1935.

The Governor-General or the Provincial Governor was to act on the advice of a Council of Ministers having the confidence of the Dominion Legislature or the Provincial Legislature, as the case might be.

The words "in his discretion", "acting in his discretion" and "individual judgement" were effaced from the Government of India Act, 1935, wherever they occurred, with the result that there was now no sphere in which these Constitutionalism Heads could act without or against the wishes of the Ministers. Similarly, the powers of the Governor-General to require Governors to discharge certain functions as his agents were deleted from the Act.

## Hence, statement 3 is correct.

The Governor-General and the Governors lost extraordinary powers of legislation so as to compete with the Legislature, by passing Acts, Proclamations and Ordinances for ordinary legislative purposes, and also the power of certification. The Governor's power

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to suspend the Provincial Constitution was taken away. The Crown also lost its right of veto and so the Governor-General could not reserve any bill for the signification of His Majesty's pleasure.

Hence, statement 2 is correct.

42. Ans: d

Explanation:

The Bill of Rights under the US Constitution, the Declaration of the Rights of Man and of the Citizen 1789 (France), the Nehru Report of 1928, the Irish Constitution of 1935, the post-war Constitutions of Japan and Burma and the Universal Declaration of Human Rights, 1948 influenced Part III of the Indian Constitution.

Hence, option d is correct.

43. Ans: b

Explanation:

**The expression "executive power" is not defined in the Constitution.** Article 73 merely defines the matters with respect to which the executive authority of the Union extends. Executive authority can be said to be the authority to carry out the executive functions of the government. Ordinarily, it refers to the residue of governmental functions that remain after legislative and judicial functions are taken away.

Hence, statement 1 is incorrect.

The executive function comprises both the determination of the policy as well as carrying it into execution. This includes the initiation of legislation, the maintenance of order, the promotion of social and economic welfare, the direction of foreign policy, the carrying on or supervision of the general administration of the State.

Hence, statement 2 is correct.

Under the provision of Articles 74(1), 75(2) and 75(3), the President cannot exercise executive powers without the aid and advice of the Council of Ministers even after he has dissolved the Legislature. The Council of Ministers remains in office even when the Lok Sabha is dissolved. When the Lok Sabha is dissolved, the President cannot rule with the help of advisers.

Hence, statement 3 is incorrect.

#### 44. Ans: a

Explanation:

#### **PESA** act

4(e) every Gram Sabha shall—

- (i) approve the plans, programmes and projects for social and economic development before such plans, programmes and projects are taken up for implementation by the Panchayat at the village level;
- (ii) be responsible for the identification or selection of persons as beneficiaries under the poverty alleviation and other programmes

## Hence, statement 1 is correct.

- 4(m) While endowing Panchayats in the Scheduled Areas with such powers and authority as may be necessary to enable them to function as institutions of self-government, a **State**Legislature shall ensure that the Panchayats at the appropriate level and the Gram

  Sabha are endowed specifically with—
- (i) the power to enforce prohibition or to regulate or restrict the sale and consumption of any intoxicant;
- (ii) the ownership of minor forest produce;
- (iii) the power to prevent alienation of land in the Scheduled Areas and to take appropriate action to restore any unlawfully alienated land of a Scheduled Tribe;
- (iv) the power to manage village markets by whatever name called;
- (v) the power to exercise control over money lending to the Scheduled Tribes;
- (vi) the power to exercise control over institutions and functionaries in all social sectors;
- (vii) the power to control over local plans and resources for such plans including tribal subplans;

Hence, statements 2 & 3 are incorrect.

45. Ans: b

Explanation:

## **Collective Responsibility**

Article 75(3) provides that the Council of Ministers shall be collectively responsible to the House of the People. The principle of collective responsibility does not mean that every Minister must take an active part in the formulation of policy or that he should be present in the committee room whenever a policy decision is taken. It merely conveys the idea that all the Ministers must present a united front to Parliament.

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

The Council of Ministers is responsible collectively to the House of the People as much as each Minister is also jointly responsible to it. The entire Cabinet normally accepts responsibility for the acts of any of its members. **The censure of one Minister is the censure of all and, hence, all must resign simultaneously.** 

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Hence, statement 3 is correct.

46. Ans: d

Explanation:

Relevant provision of Representation of the People Act, 1951
Section 68, Representation of the People Act, 1951 deals with the scenario when the person is chosen as a member of both the Houses of Parliament and has not taken his seat in either of them. Such a person has a choice to decide within 10 days as to which House's membership he wishes to retain and upon intimation of such a decision by him, he automatically vacates the membership in the other House. However, if he fails to intimate within the stipulated time, then he ceases to be a member of the Council of States.

Hence, statement 1 is incorrect.

Section 69 deals with a scenario of a member having been elected in one House of Parliament and having taken his seat therein is also elected to the other House of Parliament. If a person already a member of the House of the People is chosen as a member of the Council of States, then his seat in the House of the People (on the date of election) shall become vacant and vice-versa.

Hence, statement 2 is incorrect.

47. Ans: b

Explanation:

Financial Bills are of three kinds: Money Bills, other Financial Bills and Bills involving expenditure. A money Bill is a Bill containing only those matters mentioned in Article 110(1). A Financial Bill is a Money Bill to which the provisions of general legislation are also added apart from one or more matters of Article 110(1). Therefore, all Money Bills are Financial Bills but all Financial Bills are not Money Bills.

In two respects, Money Bills and Financial Bills do not differ. **Both of them can originate only in the Lok Sabha** and cannot be introduced without the recommendation of the President.

Hence, statement 1 is incorrect.

Financial Bills and other Bills involving expenditure differ from Money Bills insofar as the former can be amended or rejected by the Rajya Sabha like an ordinary Bill. The Rajya Sabha cannot amend or reject Money Bills. In respect of Financial Bills other than Money Bills, if there is a deadlock between the Lok Sabha and Rajya Sabha, it can be resolved by a joint session of the two Houses but the same is inapplicable to Money Bills.

Hence, statement 2 is correct.

The President and the Governors are mandated to give unconditional assent to Money Bills; whereas, in respect of the Financial Bill they have discretion not only to withhold assent but also to send the Bill for reconsideration.

Hence, statement 3 is incorrect.

48. Ans: c

Explanation:

from the executive.

One of the Directive Principles of State Policy lays down that the State shall take steps to separate the judiciary from the Executive in the public services of the State. The object behind this Directive Principle is to secure the independence of the judiciary

Hence, statement 1 is correct.

Unlike the Supreme Court, the constitution does not empower the High Courts to review their own decisions; however, the Supreme Court has held that the High Courts being the court of record and part of the superior judiciary of India are vested with inherent power to review their own decisions to remedy injustice or to correct error committed by them or to prevent miscarriage of justice.

Hence, statement 2 is incorrect.

Like the Supreme Court, the High Courts are courts of record and vested with all the powers of such courts including the power to punish for their contempt. As a court of record, the High Court has to preserve its record for eternity.

Hence, statement 3 is correct.

49. Ans: d

Explanation:

English historian, George Grote is widely associated with the evolution of the principle of constitutional morality, which implies inter alia **showing respect to the authority and paramountcy of the Constitution.** 

Professor A.V Dicey characterised 'constitutional conventions' as 'constitutional morality'.

The Supreme Court in Navtej Singh Johar vs. Union of India observed that the concept of constitutional morality is not limited to the mere **observance of the core principles of constitutionalism** as the magnitude and sweep of constitutional morality is not confined to the provisions and literal text which a Constitution contains, **rather it embraces within** 

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itself virtues of a wide magnitude such as that of ushering a pluralistic and inclusive society, while at the same time adhering to the principle of constitutionalism.

Hence, option d is correct.

50. Ans: c

Explanation:

The **Directive Principles of State Policy** is a vision document which was carefully crafted by the founding fathers of the Indian Constitution. It reflects the ideal constitutional formula of achieving historical consensus in post-colonial India which had to **achieve freedom from social and economic inequalities on the one hand and removal of monopoly over political power,** on the other, through effective empowerment of teeming half-naked millions **by means of decentralisation of democratic process** and articulation of the general will.

Hence, option c is correct.

## 51. Ans: c

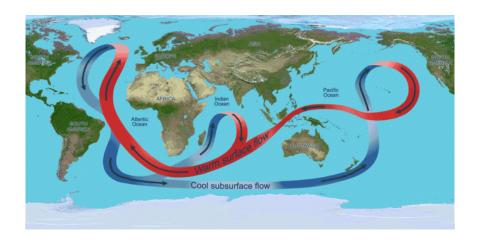
Explanation:

The world's oceans represent a continuous fluid, and as with any fluid, denser water in the oceans will tend to sink and less dense water rise throughout the world. The waters in the northern parts of the North Atlantic Ocean are unusually dense, both because they are cooled in the northern latitudes and because they are relatively salty: the result of greater evaporation than the input of freshwaters in precipitation and rivers. Consequently, these waters sink, and other waters from further south move forward on the surface to replace them.

The waters moving north in the Atlantic originate in the tropical waters of the Indian and Pacific oceans, and flow through the South Atlantic Ocean on their way to the North Atlantic. This flow, bringing warm waters into the North Atlantic Ocean, is a main driver behind the Gulf Stream and helps to maintain a temperate climate far into the north of Europe.

The deep waters of the North Atlantic Ocean flow southward at depth, through the South Atlantic Ocean and into the Indian and Pacific Oceans. There, they rise to the surface to replace the waters flowing on the surface toward the North Atlantic Ocean.

The great conveyor belt of ocean circulation is critical to redistributing heat across the Earth. It is also very important in helping to mitigate human-driven global change: the cold North Atlantic waters absorb very large quantities of carbon dioxide from the atmosphere before they sink, and once these waters have sunk, that carbon dioxide stays trapped in the deep ocean water masses for centuries before eventually coming back to the surface and being released.



#### Hence, statement 1 is correct.

Climate scientists fear that the great conveyor belt may slow in response to global warming and indeed there is some evidence that this may already have started.

Hence, statement 2 is incorrect.

#### 52. Ans: c

Explanation:

The crucial importance of geographic isolation in allowing populations to diverge underselection can't be ignored. The geographic distributions of species, genera, families, and even higher taxonomic categories of plants and animals often reflect this geographic divergence. All species of lemurs, for example, are found on the island of Madagascar and nowhere else.

## Hence, statement 1 is correct.

Similarly, 230 species in the genus Eucalyptus (gum tree) occur naturally in Australia (and two or three in Indonesia and Malaysia). The lemurs and the gum trees occur where they do because they evolved there- not because these are the only places where they could survive and prosper.

Hence, statement 2 is incorrect.

## 53. Ans: b

Explanation:

**Temperate Grassland** is the natural vegetation over large areas in every continent except Antarctica. These include the tall grass **prairie of North America** and **pampas of South America**, where rainfall is moderate and soils are rich, and the short grass **steppes of Russia**, typical of drier, more semiarid conditions. Temperate grasslands now only cover

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some 5% of the Earth's land surface, but another 9% used to be temperate grasslands but is no dominated by agriculture instead.

Temperate grasslands experience seasonal drought, but grazing animals also have a powerful impact. **Populations of invertebrates, such as grasshoppers, are often very large and their biomass may exceed that of grazing vertebrates.** The latter include bison (Bison bison), pronghorn antelope (Antilocapra americana), and gophers (Thmomys bottae) in North America, and saiga antelope (Saiga tatarica) and marmots (Marmota bobac) in Russia.

Hence, option b is correct.

#### 54. Ans: d

Explanation:

The quality of water can be assessed by a number of parameters. These include dissolved oxygen (DO), biological oxygen demand (BOD), chemical oxygen demand (COD), most probable number (MPN), and total dissolved solids (TDS).

- **1. Dissolved Oxygen:** It is the amount of oxygen gas that is dissolved in a water source. Large amount of DO is an indicator of good-quality water.
- **2. Biological Oxygen Demand:** BOD is the measure of oxygen used by microorganisms such as bacteria in order to decompose the organic matter including sewage, dead plant leaves, and food waste. Under polluted conditions, the BOD will be high.
- **3. Chemical Oxygen Demand:** It is the amount of oxygen required to degrade or break down the organic chemical compounds of wastewater.
- **4. Most Probable Number:** Water polluted with organic wastes such as sewage/sludge has high population of bacteria including Escherichia coli and coliforms. This method predicts the number of the organisms present in a waterbody.
- **5. Total Dissolved Solids:** It is a measure of the amount of salts and solids dissolved in water. The quality of water is degraded in case excessive amounts of TDS are present.

Hence, option d is correct.

## 55. Ans: a

Explanation:

#### Grasscover in India

Indian grasslands have been classified into the following eight types:

- **1. Sehimia-Dichanthium type:** The dominant grasses are Sehimia, Dichanthium, Chrysopogon and Themeda. These grasslands are widespread in the black soils of Maharashtra, M.P., South-western parts of U.P. and parts of Tamilnadu and Karnataka.
- **2. Dichanthium-Cenchrus type:** The most extensively distributed type of grassland on the sandy loam soils of the plains of the Punjab, Eastern M.P., Coastal Maharashtra and

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Tamilnadu. The dominant species are Dichanthium annulatum and Cenchrus ciliaris which are the most important fodder grasses.

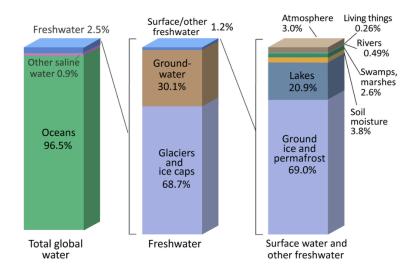
- **3. Phragmitis-Saccharum type:** Located in marshy localities of the Terai areas of northern U.P., Bihar, West Bengal, Assam and Tamilnadu. The dominant species are Phragmites karka, Saccharum spontaneum, Imperata cylindrical etc.
- **4. Bothriochloa type:** Found on high rainfall paddy fields of the Lonavala tract of Maharashtra. The dominant species is Bothriochloa odorata.
- **5.** Cymbopogon type: Restricted to the low hills of the Western Ghats, Vindhyas, Satpura, Aravali and Chota Nagpur. The dominant grass is Cymbopogon, others are Themeda, Heteropogon and Aristida.
- **6.** Arundinella type: It is found in high hills of the Western Ghats, Nilgiris and throughout the lower regions of the Himalayas. The dominant species are Arundinella spp. followed by Themeda anathera and Chrysopogon spp.
- **7. Deyeuxia-Arundinella type:** It is found in temperate regions of the Upper Himalayas between 2000 m to 3000 m and spread from Assam to Punjab and Himachal Pradesh. The dominant grasses are Deyeuxia, Arundinella, Brachypodium, Bromus and Festuca.
- **8.** Deschampsia-Deyeuxia type: These grasslands are restricted to the alpine regions of the Himalayas (above 3000 m). The climate is very cold and soils are thin. Deschampsia, Deyeuxia, Poa, Stipa, Glyceria and Festuca are more common genera.

Hence, only 1st pair is correctly matched.

56. Ans: b

Explanation:

## Where is Earth's Water?



This bar chart shows how almost all of Earth's water is saline and is found in the oceans. Of the small amount that is actually freshwater, only a relatively small portion is available to sustain human, plant, and animal life.

- The first bar shows how only 2.5% of Earth's water is freshwater the amount needed for life to survive.
- The middle bar shows the breakdown of freshwater. Almost all of it is locked up in ice and in the ground. **Only a little more than 1.2% of all freshwater is surface water,** which serves most of life's needs.
- The right bar shows the breakdown of surface freshwater. Most of this water is locked up in ice, and **another 20.9% is found in lakes. Rivers make up 0.49% of surface freshwater.** Although rivers account for only a small amount of fresh water, this is where humans get a large portion of their water from.

Hence, option b is correct.

#### 57. Ans: a

Explanation:

Khijadia Wildlife Sanctuary: This freshwater wetland near the coast of the Gulf of Kutch in Gujarat State was formed following the creation of a bund (dike) in 1920 to protect farmland from saltwater ingress. As one of the important waterbird habitats in North-West India, the Site provides breeding, feeding and roosting grounds for a wide range of resident aquatic and also land-based birds. It provides habitat for over 310 bird species, including 125 waterbirds; over 165,000 individual waterbirds have been counted.

**Nalsarovar Bird Sanctuary in Gujarat:** A natural freshwater lake (a relict sea) that is the largest natural wetland in the Thar Desert Biogeographic Province and represents a dynamic environment with salinity and depth varying depending on rainfall. The area is

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home to 210 species of birds, with an average of 174,128 individuals recorded there during the winter and 50,000 in the summer.

**Nanda Lake, Maharashtra:** It comprises intermittent freshwater marshes that lie adjacent to one of the major tributaries of the Zuari River. They are linked to the adjacent river channel by a sluice gate, which when closed enables the flooding of the marshes. This wetland supports a wide variety of migratory waterbirds and many other important plants and animals.

**Sirpur Wetland, Madhya Pradesh:** It is a human-made wetland that has stabilised and acquired near-natural characteristics in the last two centuries. Commonly named Pakshi Vihar (bird sanctuary), the Site is a shallow, alkaline, nutrient-rich lake that floods during the monsoon to a maximum depth of two metres.

Hence, option a is correct.

58. Ans: c

Explanation:

## Pygmy hogs

Females build a nest out of thatch in which to give birth, and the infants remain hidden within for about one week.

Pygmy hogs are generally active during the day, spending six to eight hours per day foraging by rooting among soil and leaf litter. Throughout the year, they build sleeping nests by piling dry grasses over dish-like depressions dug into the soil (this daily nesting is a unique behaviour among pigs).

Pygmy hogs are found in tall grass habitats, usually near water. Although once found throughout the southern base of the Himalayas, they are now confined to areas surrounding Manas National Park in Assam, India.

Hence, statement 1 is correct.

Diet: Omnivorous: roots, leaves, grasses, fruits, and seeds, as well as invertebrates and possibly eggs and carrion. They eat everything but on a smaller scale (insects, small reptiles, rodents, eggs, roots, tubers, berries, fruit).

Hence, statement 2 is incorrect.

Family group: Small maternal groups of one or more adult females and their young, usually totalling 4-6 animals. Adult males are often solitary, and may loosely associate with females.

Hence, statement 3 is correct.

59. Ans: d

Explanation:

A chain of mountains running parallel to India's western coast, approximately 30-50 km inland, the Ghats **traverse the States of Kerala, Tamil Nadu, Karnataka, Goa, Maharashtra and Gujarat.** These mountains cover an area of around 140,000 km<sup>2</sup> in a 1,600 km long stretch that is interrupted only by the 30 km Palghat Gap.

## Hence, statement 1 is incorrect.

Animal diversity is exceptional in western ghats, with amphibians (up to 179 species, 65% endemic), reptiles (157 species, 62% endemic), and fishes (219 species, 53% endemic). Invertebrate biodiversity, once better known, is likely also to be very high (**with some 80% of tiger beetles endemic**).

India has 241 species of tiger beetles, which is the third-highest number of species in the world.

Tiger beetles play a crucial role in managing other insect populations and maintaining ecosystem balance, as the majestic beetles are the friends of farmers.

"Tiger beetle is an indicator species of environmental and ecological health. The trends, diversity, and individual numbers of tiger beetles determine the quality of habitats available for biodiversity and for agriculture."

While some have restricted distribution, some have pan-India distribution ranging from moist forests to scrublands.

Hence, statement 2 is incorrect.

60. Ans: b

Explanation:

The Great Himalayan National Park Conservation Area is located in the western part of the Himalayan Mountains in the northern Indian State of Himachal Pradesh.

Hence, statement 1 is incorrect.

The 90,540 ha property includes the upper mountain glacial and snow melt water source origins of the westerly flowing Jiwa Nal, Sainj and Tirthan Rivers and the north-westerly flowing Parvati River which are all headwater tributaries to the River Beas and subsequently, the Indus River.

It lies within the ecologically distinct Western Himalayas at the junction between two of the world's major biogeographic realms, the Palearctic and Indomalayan Realms.

The Great Himalayan National Park Conservation Area displays distinct broadleaf and conifer forest types.

Lower altitude valleys provide for more complete protection of endangered species such as the Western Tragopan and the Musk Deer.

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Hence, statement 2 is correct.

61. Ans: c

Explanation:

The Bletchley Declaration is an agreement signed by countries including the US, the UK, China, Australia, Brazil, India, and the European Union. **The countries have mutually agreed that while AI has the potential to transform and enhance human well-being, peace, and prosperity,** it also poses significant risks, including in those domains of daily life.

Hence, option c is correct.

62. Ans: a

Explanation:

The C5+1 is a diplomatic summit that has been held every year since 2015 between the foreign ministers of the **five Central Asian countries of Kazakhstan**, **Kyrgyzstan**, **Tajikistan**, **Turkmenistan**, **and Uzbekistan**, **with the United States Secretary of State** to discuss and work on common issues of concern to improve and strengthen the U.S. relationship with the five Central Asian states.

Hence, option a is correct.

63. Ans: b

Explanation:

China's People's Liberation Army (PLA) over the past four years has been stepping up the operational tempo of military exercises around two strategically pivotal waterways—the Bashi Channel and Miyako Strait—that guard the exit from or entry into the China Seas.

The Bashi Channel, connecting the South China Sea with the western Pacific Ocean, runs between the Philippines' northern island of Luzon and the Taiwanese island of Orchid. The Miyako Strait runs between the Japanese islands of Miyako and Okinawa and provides a small passageway with international waters and airspace through Japan's exclusive economic zone. Both waterways constitute the principal entryway for the People's Liberation Army Navy (PLAN) into the Pacific Ocean.

Hence, option b is correct.

#### 64. Ans: b

Explanation:

Following the 1948 War, UNRWA was established by United Nations General Assembly Resolution 302 (IV) of 8 December 1949 to carry out direct relief and work programs for Palestine refugees. The Agency began operations on 1 May 1950.

Hence, statement 2 is correct.

The United Nations Relief and Works Agency for Palestine Refugees (UNRWA) is funded almost entirely by voluntary contributions from UN Member States. UNRWA also receives some funding from the Regular Budget of the United Nations, which is used mostly for international staffing costs. The Agency's services encompass education, health care, relief and social services, camp infrastructure and improvement, microfinance and emergency assistance, including in times of armed conflict.

Hence, statement 1 is incorrect.

65. Ans: c

Explanation:

On September 15, 2020, leaders across the Middle East signed the Abraham Accords. This landmark agreement normalized diplomatic relations between Israel and the United Arab Emirates and Bahrain, then later a renewal in ties with Morocco. **The Abraham Accords are a game changer in the Middle East,** providing new opportunities for direct flights, people-to-people exchanges, business partnerships, and government agreements that have all led to investment and growth in the area.

Hence, option c is correct.

66. Ans: d

Explanation:

**Haiti has long endured a great degree of social and political instability,** which has culminated in an acute security crisis characterized by failing governance after the 2021 assassination of President Jovenel Moïse. Violence soared over the course of 2023 as gangs consolidated control of more than 80 percent of Haiti's capital, Port-au-Prince.

Hence, pair 1 is correctly matched.

Democratic Republic of Congo-In the aftermath of flawed, violent national elections in the Democratic Republic of Congo (DRC; the Congo) in December 2023, severe clashes between the military and insurgents—most prominently, M23 and the Allied Democratic Forces (ADF)—continue in eastern DRC.

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Hence, pair 2 is correctly matched.

**Al-Shabaab in Somali remains one of al-Qaeda's strongest and most successful affiliates.** The terrorist organization continues to exploit the Somalian government's limited state capacity and the country's dire humanitarian crises to launch indiscriminate attacks against government forces, foreign peacekeepers, and civilians.

**Yemen- Fighting between Houthi rebels and the Saudi coalition** that backs Yemen's internationally recognized government has largely subsided, but Houthis have repeatedly attacked ships transiting the Red Sea in response to Israel's war on Hamas.

Hence, pair 3 is incorrectly matched.

67. Ans: a

Explanation:

The CHIPS and Science Act marks a substantial ramp-up of industrial policy in the United States. The act is intended to lure microchip manufacturing back to the United States after several decades of individual companies offshoring the technology. Top 4 Semiconductor manufacturing countries:

- Japan
- Taiwan
- USA
- China

Hence, option a is correct.

68. Ans: b

Explanation:

The Economic Community of West African States (ECOWAS) is arguably the most successful model of regional governance in Africa. Headquartered in Lagos, Nigeria, the bloc was established in 1975 to deepen economic integration across West Africa. By 2024, the body consisted of fifteen members representing more than 400 million people in "all fields of economic activity, particularly industry, transport, telecommunications, energy, agriculture, natural resources, commerce, monetary and financial questions, social and cultural matters," as its mission states.

**Burkina Faso, Mali, and Niger decide to leave ECOWAS**- In a joint statement on January 28, the three countries, all founding members of ECOWAS who have seen military takeovers in the past three years, announced they were leaving the block.

Hence, option b is correct.

69. Ans: b

Explanation:

The Munich Security Conference is the world's leading forum for debating international security policy. It is a venue for diplomatic initiatives to address the world's most pressing security concerns. **It's a not-for-profit organisation established in 1963.** 

## Hence, statement 1 is incorrect.

The MSC's objective is to build trust and contribute to the peaceful resolution of conflicts by sustaining a continuous, curated, and informal dialogue within the international security community. Today, the MSC is the world's leading forum for debating international security policy. The MSC conceives of its conferences as a type of "marketplace of ideas" where initiatives and solutions are developed, and opinions are exchanged. It provides a venue for official and non-official diplomatic initiatives and ideas to address the world's most pressing security concerns. **Heads of states, international organizations, representatives of armed forces, science, civil society, and business participate in the conference.** 

The MSC also offers protected space for informal meetings between officials and thus—as its original motto has it—builds peace through dialogue. In addition to its annual flagship conference, the MSC regularly convenes high-profile events on particular topics and regions and publishes the Munich Security Report, an annual digest of relevant figures, maps, and research on crucial security challenges.

Hence, statement 2 is correct.

70. Ans: b

Explanation:

It is an international treaty that provides a regulatory framework for the use of the world's seas and oceans, inter alia, to ensure the conservation and equitable usage of resources and the marine environment and to ensure the protection and preservation of the living resources of the sea.

Hence, statement 1 is correct.

UNCLOS also addresses such other matters as sovereignty, rights of usage in maritime zones, and navigational rights.

Hence, statement 2 is correct.

India and China are signatories to this treaty, but not the USA.

Hence, statement 3 is incorrect.

## 71. Ans: b

Explanation:

**Siachen Glacier in the Nubra Valley** occurs in the Karakoram Range in Ladakh, its the largest Glacier outside the polar and sub-polar regions. **Lolofond and Tearm Shehr are its tributaries**.

Hence, option b is correct.

#### 72. Ans: b

Explanation:

List of bauxite-producing states of India -

- **Odisha** [Largest producer of Bauxite in India]
- Gujarat
- Jharkhand
- Chhattisgarh
- Madhya Pradesh
- Maharashtra

Hence, option b is correct.

73. Ans: b

Explanation:

The Jhelum rises in spring at Verinag in the southeastern part of the Kashmir Valley. It flows northwards from its source to Wular Lake. The river flows through the Pir Panjal Range below Baramula. A number of tributaries notably the Lidar, the Sind, and the Pohru, which rise in Kashmir, join the main river at Muzaffarabad. Kishaganga joins it on its right bank. Thereafter, it joins the India – Pakistan boundary for 170 km and emerges at the Potwar Plateau near Mirpur. It joins the Chenab at Trimmu.

Hence, option b is correct.

74. Ans: b

Explanation:

**Littoral and Swamp Forest.** These forests occur in and around the deltas, estuaries, and creeks prone to tidal influences and as such are also known as delta or tidal forests, confined to the deltas of the Ganga, the Mahanadi, the Godavari, the Krishna, and the Cauvery. They can survive and grow both in fresh as well as brackish water. The most pronounced and the densest is the Sunderban in the Ganga delta where the predominant

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species Sundri (Heriteera ) grows abundantly. It provides hard and durable timber. The important species found in these forests are Sundri, burguiera, sonneratia, agar, bhendi, keora, nipa, amur, bhara, **Rhizophora**, screw pines, canes, and Plams, etc.

**The tropical dry deciduous forests** are widely distributed over a large area. They occur in an irregular wide strip running north-south from the foot of the Himalayas to Kanniyakumari except in Rajasthan, Western Ghats, and West Bengal. The important species are teak, axlewood, tendu, basal, rosewood, amaltas, palas, haldu, kasi, and bel, lendi, common bamboo, **red sanders**, anjair, harra, laurel, satinwood, papra, achar, **sal** khair, ghont, etc.

Chir or Chil is most dominant tree in Moist subtropical pine fortests.

Hence, option b is correct.

75. Ans: d

Explanation:

Reh, kallar, usar, thur, rakar, karl, and chopan are many undecomposed rocks and mineral fragments which on weathering liberate sodium, magnesium and calcium salts and sulphuric acid. Some of the salts are transported in solution by the rivers, which percolate in the sub-soils of the plains. In canal-irrigated areas and areas of high subsoil water table, the injurious salts are transferred from below to topsoil by the capillary action as a result of evaporation in dry seasons. The accumulation of these salts makes the soil infertile and renders it unfit for agriculture.

Hence, option d is correct.

76. Ans: d

Explanation:

A Tsunami is an ocean wave produced by an event at the sea, like an earthquake, landslide, or volcanic eruption. A tsunami is not a single wave but a series of waves generated by the geological changes near or below the ocean floor. These waves may reach enormous sizes and have been known to travel across the oceans.

## Factors for the formation of Tsunami

- **(i) Undersea earthquakes:** The most destructive tsunamis are generated by massive undersea earthquakes, occurring at a depth of less than 50 km with the epicenter on the ocean floor.
- **(ii) Landslides:** Tsunamis waves are also generated by the displacement of seawater resulting from landslides as well as rock falls, icefalls, etc.
- (iii) **Volcanic Eruption:** Whenever a violent volcanic eruption takes place under the sea, it causes sudden displacements of a large volume of seawater and tsunami waves are formed

**(iv) Meteroites and Asteroids:** There is a potential danger of a Tsunami being formed by the fall of meteorites and asteroids in the oceans.

Hence, option d is correct.

77. Ans: a

Explanation:

#### **Essentials of a Federal Constitution**

There are certain attributes which every Federal Constitution must contain. They aresupremacy of the Constitution, division of powers between the Centre and the States, written Constitution, rigid meaning procedures and independent and impartial Supreme Court.

#### **Exceptions to Federalism:**

Article 1: It is argued that unlike other classical federations, India is said to be the union of states.

Article 3: Parliament is empowered to reorganise States by either uniting two or more States or dividing a State into two or more States or liquidating a State into Union Territories.

Article 249: It empowers the Rajya Sabha to empower Parliament to pass law on any subject-matter mentioned in the State List by a resolution supported by not less than two-thirds of the members present and voting on the grounds of public interest.

Other exceptions to federalism are Articles 250, 252, 253, 256, 257, 353, 356, 357 and 360.

Hence, option a is correct.

78. Ans: a

Explanation:

The concept of fraternity has been borrowed in our Constitution from the French Constitution. The Preamble secures to all its citizens, fraternity, assuring the dignity of the individual and unity and integrity of the nation. It is the principle which gives unity and solidarity to social life.

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

Mazzini wrote that- "All privilege is a violation of equality. **All arbitrary rules are violations of liberty.** Every act of egotism is a violation of fraternity.

Hence, statement 3 is incorrect.

Test prepared by Kranti Sir [Director MAX IAS]

#### 79. Ans: a

Explanation:

The writ of habeas corpus has been considered to be the bulwark of personal liberty. It is primarily designed to secure a person from unlawful restraint mainly of the State and in certain cases, even by the private parties.

Hence, statement 1 is incorrect.

An application for a writ of habeas corpus can be made by any person on behalf of the detenu including a stranger as well as by the detenu himself.

Hence, statement 2 is correct.

Where the petition of habeas corpus has been rejected by the High Court, a fresh petition can be filed in the Supreme Court under Article 32.

Hence, statement 3 is incorrect.

80. Ans: d

Explanation:

When the Judiciary brings a change in the meaning of the text of the Constitution by interpretation, though the text remains unchanged, such a case may be characterised as an informal amendment of the Constitution. For example, the Supreme Court has interpreted the right to life and personal liberty guaranteed by Article 21. It has recognised a number of unenumerated Fundamental rights as part of this right like the right to shelter, a clean environment, food, livelihood, etc. Of late, the Supreme Court and High Courts have invoked the doctrines of transformative constitutionalism and constitutional morality to make society more equal, just and fair.

Similarly, the court has created a safety wall of the **basic structure** to prevent complete obliteration of the ethos of the Constitution.

Hence, option d is correct.

#### 81. Ans: a

Explanation:

The American Constitution is based on the **principle of separation of powers** which means that the executive, legislative, and judicial powers must be performed by three organs of the government. **Under a presidential system, the Executive is completely independent of the Legislature.** In a presidential system, the chief executive is the real executive.

## Hence, statement 1 is correct.

The powers vested in the American President are meant to be exercised by him at his discretion. The American Congress cannot dictate to the President the political or administrative policy to be followed by him. It cannot control him in any direct legal way.

#### Hence, statement 2 is incorrect.

The American President appoints the members of his Cabinet who are responsible to hima and not to the Congress and he can dismiss them at will. **Neither the American President nor the members of his Cabinet have any responsibility for initiating Bills** or securing their passage through the Congress.

Hence, statement 3 is incorrect.

82. Ans: c

Explanation:

## 21st Amendment (1967)

Amendment of the **Eighth Schedule of the Constitution with addition of Sindhi** in the languages of India.

Hence, option c is correct.

83. Ans: a

Explanation:

The Reserve Bank of India in consultation with the Government of India and the Securities & Exchange Board of India finalised rules for Foreign Portfolio Investors (FPIs) whose investments would be reclassified as Foreign Direct Investment (FDI) the moment it breaches the 10% stake threshold in an Indian company, under the Foreign Exchange Management (Non-debt Instruments) Rules, 2019.

Hence, statement 1 is correct.

# Singapore is the top investor of FDI in India- Mauritius, US, Japan and Netherlands are in the top five list.

In fiscal year 2023-24, Singapore emerged as the largest source of FDI into India, despite a 31.55% drop in inflows to \$11.77 billion.

The total FDI- which includes equity inflows, reinvested earnings and other capital- equity inflows into india fell to \$44.42 billion in 2023-24, a 3.49% decrease from \$46.03 billion in the previous year.

Overall FDI decreased by 1% to \$70.95 billion from \$71.35 billion.

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

Hence, statement 2 is incorrect.

84. Ans: d

Explanation:

**Human resources constitute the ultimate basis of production,** human beings are the active agents who accumulate capital, exploit natural resources, build social, economic and political organisations, and carry forward national development. A country which is unable to develop the skills and knowledge of its people and to utilise them effectively in the national economy will be unable to develop anything else.

Hence, option d is correct.

85. Ans: a

Explanation:

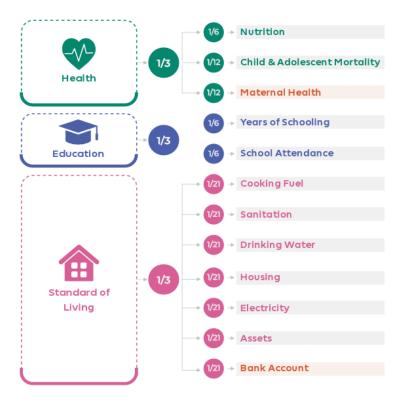
Historically, poverty estimation has predominantly relied on income as the sole indicator. However, the Global Multidimensional Poverty Index (MPI), based on the Alkire-Foster (AF) methodology, captures overlapping deprivations in health, education, and living standards. It complements income poverty measurements because it measures and compares deprivations directly.

The global MPI Report is jointly published by the Oxford Poverty and Human Development Initiative (OPHI) and the United Nations Development Programme (UNDP).

NITI Aayog, as the nodal agency for MPI, has been responsible for constructing an indigenized index for monitoring the performance of States and Union Territories in addressing multidimensional poverty.

Like the global MPI, India's national MPI has three equally weighted dimensions – Health, Education, and Standard of living – which are represented by 12 indicators. These are depicted by the following graphic:

## Indicators and their weights



#### Sub-indices of the National MPI

The indices of the national MPI comprise:

- **i) Headcount ratio (H):** How many are poor? Proportion of multidimensionally poor in the population, which is arrived at by dividing number of multidimensionally poor persons by total population.
- **ii) Intensity of poverty (A):** How poor are the poor? Average proportion of deprivations which is experienced by multidimensionally poor individuals. To compute intensity, the weighted deprivation scores of all poor people are summed and then divided by the total number of poor people.

MPI value is arrived at by multiplying the headcount ratio (H) and the intensity of poverty (A), reflecting both the share of people in poverty and the degree to which they are deprived.

 $MPI = H \times A$ 

Hence, option a is correct.

86. Ans: a

Explanation:

The Special Drawing Right (SDR) is an interest-bearing international reserve asset created by the IMF in 1969 to supplement other reserve assets of member countries.

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

## Hence, statement 1 is correct.

The SDR is based on a basket of international currencies comprising the U.S. dollar, Japanese yen, euro, pound sterling and Chinese Renminbi. It is not a currency, nor a claim on the IMF, but is potentially a claim on freely usable currencies of IMF members.

## Hence, statement 3 is incorrect.

The value of the SDR is set daily by the IMF on the basis of fixed currency amounts of the currencies included in the SDR basket and the daily market exchange rates between the currencies included in the SDR basket.

SDRs are only allocated to IMF members that elect to participate in the SDR Department. Currently all members of the IMF are participants in the SDR Department.

SDRs can be held and used by member countries, the IMF, and certain designated official entities called "prescribed holders" —but it cannot be held, for example, by private entities or individuals.

Its status as a reserve asset derives from the commitments of members to hold and exchange SDRs and accept the value of SDRs as determined by the Fund.

## Hence, statement 2 is incorrect.

## 87. Ans: b

## Explanation:

The World Trade Organization (WTO) is the only global international organization dealing with the rules of trade between nations. At its heart are the WTO agreements, negotiated and signed by the bulk of the world's trading nations and ratified in their parliaments. The goal is to ensure that trade flows as smoothly, predictably and **freely as possible.** 

The WTO operates a global system of trade rules, it acts as a forum for negotiating trade agreements, it settles trade disputes between its members and it supports the needs of developing countries.

All major decisions are made by the WTO's member governments: either by ministers (who usually meet at least every two years) or by their ambassadors or delegates (who meet regularly in Geneva).

The primary purpose of the WTO is to open trade for the benefit of all.

Ministerial conferences usually take place every two years.

Hence, statement 1 is incorrect.

The General Council is the top day-to-day decision-making body. It meets a number of times a year in Geneva.

The WTO has over 160 members representing 98 per cent of world trade. Over 20 countries are seeking to join the WTO.

Hence, statement 2 is correct.

88. Ans: a

Explanation:

Liabilities	Assets	
Capital	Cash and balances with RBI	
Reserve and surplus	Balances with other banks and money at call and short notice	
Deposits	Investment in government and other securities	
Borrowings	Advances	
	Fixed assets	

Hence, option a is correct.

89. Ans: d

Explanation:

The first Mongol invasion of India took place in the reign of Iltutmish. The Mongols appeared on the banks of the river Indus in 1221 under the command of their leader Changiz Khan (1162-1227). They came to India under the following circumstances: Jalal-ud-Din Mangbarni, the last Shah of Khwarism of Khiya, sought shelter from the Mongols in the Doab between the Indus and the Jhelum. Changiz Khan came in hot pursuit of Jalal-ud-Din up to the Indus.

Hence, statement 1 is incorrect.

Ala-ud-Din had to face more than a dozen Mongol invasions. Those invasions started from the end of 1296 A.D and continued upto 1308 A.D. In 1303 A.D., the Mongols attacked India under the leadership of Targhi. They were 100,000 strong and marched to Delhi and besieged it. Ala-ud-Din was away to Chittor and when he came back he had to encamp himself in the Fort of Siri.

Hence, statement 2 is incorrect.

90. Ans: a

Explanation:

## Indigo Revolt- 1859

The beginning was made by the ryots of Govindpur village in Nadia district under the leadership of Digambar Biswas and Bishnu Biswas, ex-employees of a planter. Din Bandhu Mitra's play, Neel Darpan, gained fame for vividly portraying the oppression by the planters. A significant feature of the Indigo Revolt was the role of the **intelligentsia of Bengal which organised a powerful campaign in support of the rebellious peasantry.** 

Hence, statement 1 is correct.

Missionaries were another group which extended active support to the indigo ryots in their struggle. The Government's response to the Revolt was rather restrained and not harsh as in the case of civil rebellions and tribal uprisings.

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

91. Ans: d

Explanation:

The 1857 revolt started in Meerut and after capture of Delhi, the Revolt spread to different parts of the country: Kanpur, Lucknow, Benaras, Allahabad, Bareilly, Jagdishpur and Jhansi. The Revolt was not confined to the major centres. It had embraced almost every cantonment in the Bengal and a few in Bombay. Only the Madras army remained totally loyal.

## Hence, statement 1 is incorrect.

The conditions of service in the Company's army and cantonments increasingly came into conflict with the religious beliefs and prejudices of the sepoys, who were predominantly drawn from the upper caste Hindus of the North Western Provinces and Oudh. Initially, the administration sought to accommodate the sepoys' demands: facilities were provided to them to live according to the dictates of their caste and religion. But the extention of the Army's operation not only to various parts of India, but also to countries outside, it was not possible to do so anymore.

Moreover, caste distinctions and segregation within a regiment were not conducive to the cohesiveness of a fighting unit. The administration thought of an easy way out: discourage the recruitment of Brahmins; this apparently did not succeed and, by the middle of the nineteenth century, the upper castes predominated in the Bengal Army.

Hence, statement 2 is incorrect.

92. Ans: b

Explanation:

The Bengal Land Revenue Commission was popularly known as the Floud Commission.

The Tebhaga struggle: In late 1946, the share-croppers of Bengal began to assert that they would no longer pay a half share of their crop to the jotedars but only one-third and that before decision the crop would be stored in their khamars (godowns) and not that of the jotedars. There were no doubt encouraged by the fact that the Bengal Land Revenue Commission, popularly known as the Floud Commission, had already made this recommendation in its report to the government.

The tebhaga movement, led by the Bengal Provincial Kisan Sabha, soon developed into a clash between jotedars and bargadars with the bargadars insisting on storing the crop in their own khamars.

The movement received a great boost in late January 1947 when the Muslim League Ministry led by Suhrawardy published the Bengal Bargadars Temporary Regulation Bill in the Calcutta Gazette on 22 January 1947. Encouraged by the fact that the demand for tebhaga could no longer be called illegal, peasants in hitherto untouched villages and areas joined the struggle.

This resulted in innumerable clashes. The jotedars appealed to the government, and the police came in to suppress the peasants. Repression continued and by end of February the movement was virtually dead.

Hence, option b is correct.

93. Ans: c

Explanation:

Nehru pointed to the inadequacy of the nationalist ideology and stressed the need to inculcate a new, socialist or Marxist ideology, which would enable the people to study their social condition scientifically.

Hence, statement 1 is correct.

Under the Gandhian strategy, which may be described as Struggle-Truce-Struggle (S-T-S), phases of a vigorous extra-legal mass movement and confrontation with colonial authority alternate with phrases, during which direct confrontation is withdrawn, political concessions or reforms from the colonial regime are unwillingly worked and silent political work are carried on among the masses within the existing legal framework.

Nehru did not subscribe to this strategy and believed that the Indian National movement had reached a stage where there should be a permanent confrontation and conflict with imperialism till it was overthrown.

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Hence, statement 2 is incorrect.

94. Ans: b

Explanation:

The story of Champaran began in the early nineteenth century when **European planters** had involved the cultivators in agreements that forced them to cultivate indigo on 3/20th of their holdings (known as the tinkathia system).

Hence, statement 1 is incorrect.

Towards the end of the nineteenth century, German synthetic dyes forced indigo out of the market and the European planters of Champaran, keen to release the cultivators from the obligation of cultivating indigo, tried to turn their necessity to their advantage by securing enhancements in rent and other illegal dues as a price for the release.

Hence, statement 2 is correct.

95. Ans: b

Explanation:

# Tilling can cause carbon loss because it can cause carbon dioxide to be released immediately.

Conservation tillage, a generic term implying all tillage methods that reduce runoff and soil erosion in comparison with plow-based tillage, is known to increase Soil Organic Carbon content of the surface layer.

## Carbon sequestration techniques

## **Direct Air Capture**

Direct air capture encompasses land-based processes that directly remove carbon dioxide from the air via filtration. Carbon dioxide is then transported to storage reservoirs in solid or liquid form, where it is durably stored for hundreds to thousands of years.

## Microalgal cultivation

The large-scale farming of seaweed, also known as microalgal cultivation or aquaculture, draws down carbon dioxide from the atmosphere as part of the process of photosynthesis that occurs as the seaweed grows.

# Ocean Alkalinity Enhancement (Enhanced Weathering)

Ocean Alkalinity Enhancement through enhanced weathering can be done by spreading mined materials with high pH (alkaline) on land or in the ocean. This process can speed up the natural weathering of these alkaline materials, increasing the alkalinity of the ocean, resulting in the ocean to absorb more carbon dioxide from the atmosphere.

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

#### Ocean Fertilization

Ocean fertilisation is the **addition of nutrients such as iron,** nitrogen, and phosphorus to the surface of the ocean to stimulate the growth of phytoplankton that naturally absorb carbon dioxide during photosynthesis.

#### Coastal Blue Carbon

The process by which **coastal blue carbon ecosystems (e.g. seagrass, mangroves, and salt marshes) sequester and store carbon.** Coastal blue carbon ecosystems absorb carbon from the atmosphere via photosynthesis.

Hence, option b is correct.

96. Ans: c

Explanation:

#### Lithium-Ion Batteries

Lithium-ion batteries are currently used in most portable consumer electronics such as cell phones and laptops because of their high energy per unit mass and volume relative to other electrical energy storage systems. They also have a high power-to-weight ratio, high energy efficiency, good high-temperature performance, long life, and low self-discharge.

Most components of lithium-ion batteries can be recycled, but the cost of material recovery remains a challenge for the industry. Most of today's all-electric vehicles and PHEVs use lithium-ion batteries, though the exact chemistry often varies from that of consumer electronics batteries.

Hence, both statements 1 & 2 are correct.

97. Ans: b

Explanation:

"According to the 5th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), the cryosphere, comprising snow, river and lake ice, sea ice, glaciers, ice shelves and ice sheets, and frozen ground, plays a major role in the Earth's climate system through its impact on the surface energy budget, the water cycle, primary productivity, surface gas exchange and sea level and is a fundamental control on the physical, biological and social environment over a large part of the Earth's surface.

Hence, statement 1 is incorrect.

The cryosphere is a natural integrator of climate variability and provides one of the most visible signatures of climate change. Observations show that there has been a continued net loss of ice from the cryosphere, although there are significant differences in the rate of loss between cryospheric components and regions.

Test prepared by Kranti Sir [Director MAX IAS]

The Government launched the National Action Plan on Climate Change (NAPCC) in June 2008 to achieve its goals and to deal with the issues related to climate change.

NAPCC comprises eight missions in specific areas of solar energy, enhanced energy efficiency, sustainable habitat, water, sustaining Himalayan ecosystems, Green India, sustainable agriculture, and strategic knowledge for climate change.

Hence, statement 2 is correct.

98. Ans: a

Explanation:

#### Black carbon

- Black carbon is the most prominent short-lived climate pollutant.
- Black carbon particles are released by the burning of fossil fuels, wood, and other biomass fuels. This process also releases CO2, carbon monoxide, volatile organic compounds, and organic carbon. The complex mixture of gases and particulate matter that arises from this process is often referred to as soot
- Black carbon lasts only days to weeks in the atmosphere but has significant direct and indirect impacts on the climate, snow and ice, agriculture, and human health.
- Black carbon contributes to warming by being very effective at absorbing light and heating its surroundings.
- When suspended in the atmosphere, black carbon contributes to warming by converting incoming solar radiation to heat, in the same way, asphalt surfaces create islands of heat in urban areas. Black carbon also influences cloud formation and impacts regional weather and rainfall patterns.
- When deposited on ice and snow, black carbon particles reduce surface albedo (the ability to reflect sunlight) and heat the surface. This effect is estimated to have contributed to 0.04°C of warming since 1750. The Arctic and glaciated regions such as the Himalayas are particularly vulnerable to melting as a result.

Hence, option a is correct.

99. Ans: a

**Explanation:** 

Global Biodiversity Framework Fund (GBFF)

Established in response to decisions from the Convention on Biological Diversity COP15, the Global Biodiversity Framework Fund (GBFF) will scale up financing for the implementation of the Kunming-Montreal Global Biodiversity Framework.

Hence, statement 1 is correct.

The GBFF aims to help countries achieve the Kunming-Montreal Global Biodiversity Framework goals and targets with a strategic focus on strengthening national-level biodiversity management, planning, policy, governance, and finance approaches. **The fund was ratified by 186 countries and launched at the Seventh GEF Assembly in Vancouver, Canada in August 2023.** 

Governments, non-profits, and the private sector can now contribute their funds here to ensure that the world meets the goals and targets of the Kunming-Montreal Global Biodiversity Framework (GBF) formulated by the Convention on Biological Diversity (CBD) by 2030.

Honce	statement	2 is	incorrect
пенсе.	siatement	<b>4</b> 15	incorrect.

100. Ans: d

Explanation:

## "30x30" Target

- The Kunming-Montreal Global Biodiversity Framework (GBF) was adopted during the fifteenth meeting of the Conference of the Parties (COP 15) in December 2022. This historic Framework supports the achievement of the Sustainable Development Goals.
- Kunming-Montreal Global Biodiversity Framework (KMGBF) Target 3, or "30x30" for its objective to conserve at least 30% of the planet by the year 2030.
- The GBF aims to address biodiversity loss, restore ecosystems, and protect indigenous rights. The plan includes concrete measures to halt and reverse nature loss, including putting 30 per cent of the planet and 30 per cent of degraded ecosystems under protection by 2030.

Hence, option d is correct.