Q.1) Consider the following statements with respect to the Dharwar rock system:

1. They are highly metamorphosed sedimentary rock-system.

2. The system occurs in the Himalayas and the Meghalaya Plateau.

3. Dharwar rocks are known for uranium and manganese deposits.

Which of the statements given above is/are correct?

a) 1 and 2 only

b) 1 and 3 only

c) 2 and 3 only

d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

Option d is correct. The Dharwar Rock System derived its name from the rocks found in the **Dharwar district of Karnataka.**

Statement 1 is correct. They are highly **metamorphosed sedimentary rock-system** (formed due to the metamorphosis of sediments of Archaean gneisses and schists).

1) The major rocks of the Dharwar system are hornblende, schists, quartzite, phyllites, slates, crystalline lime stones and dolomites.
2) The system is very well developed in Dharwar-Bellary-Mysore belt of Karnataka. It also occurs in Jharkhand (Ranchi, Hazaribagh), Madhya Pradesh (Balaghat, Rewa), Chattisgarh (Bastar, Dantewara, Kanker), Odisha (Sundergarh, Keonjhar) and in the Aravalli between Jaipur and Palanpur.

Statement 2 is correct. In the extra-Peninsular region, the **Dharwar system is well represented in the Himalayas** both in the central and northern zones as well as in the **Meghalayas Plateau.**

Statement 3 is correct. They are economically the most important rocks because they possess valuable minerals like high-grade iron-ore, manganese, copper, lead, gold, etc. **Manganese deposits** are found in almost all geological formations, however, it is **mainly associated with Dharwar system. Uranium deposits occur in the Dharwar rocks.**

Source: Geography, NCERT-XII, Chapter-7, Pg. 73-75, 81

Geography, D. R. Khullar, Chapter-2, Pg. 41-43

Q.2) Consider the following pairs:

Himalayan Faults	*Location*
1. Main Central Thrust	Separates the lesser Himalayas from the Sub-Himalayas
2. Main Boundary Thrust	Separates the higher Himalayas from the lesser Himalayas
3. Himalayan Frontal Thrust	Separates the Siwaliks and the Indo-Gangetic Plain

Which of the pairs given above is/are correctly matched?

a) 1 only

b) 2 and 3 only

c) 3 only

d) 1 and 3 only

Ans) c

Exp) Option c is correct.

A fault is a **fracture along which the blocks of crust on either side** have moved relative to one another parallel to the fracture. The tectonic architecture of the Himalayas is built on three prominent intra-crustal thrusts. From **north to south these thrusts are:** Main Central Thrust, Main Boundary Thrust and the Himalayan Frontal Thrust.

Pair 1 is incorrectly matched. Main Central Thrust (MCT) separates the crystalline rocks of the Higher Himalayas from the **low-grade metamorphic rocks of the Lesser Himalayas.**

Pair 2 is incorrectly matched. Main Boundary Thrust (MBT) separates the Lesser Himalayas from the Sub-Himalayas.

Pair 3 is correctly matched. Himalayan Frontal Thrust (HFT) marks the tectonic and physiographic boundary between the Siwaliks and the Indo-Gangetic Alluvium Plain (IGAP). HFT, also known as the Main Frontal Thrust (MFT), is a geological fault along the boundary of the Indian and Eurasian tectonic plates.

Knowledge Base:

The **Kopili Fault** is a 300-km northwest-southeast trending fault from the **Bhutan Himalaya to the Burmese arc.**

Source: https://www.sciencedirect.com/topics/earth-and-planetary-sciences/himalayas

Q.3) With reference to Star Campaigners in India, consider the following statements:

1. There is no law governing who can or cannot be made a star campaigner.

2. Expenditure incurred by the star campaigner is always added to a candidate's poll expenditure.

3. A political party can nominate any number of star campaigners.

Select the correct answer using the code given below:

a) 1 and 2 only

b) 1 only

c) 2 and 3 only

d) 1, 2 and 3

Ans) b

Exp) Option b is correct.

Statement 1 is correct. Currently there is **no law governing who can or cannot be made a star campaigner**. They are nominated by the concerned political parties specifying their constituencies and duration of the status. The ECI issues guidelines under the Model Code of Conduct regulating poll campaigns.

Statement 2 is incorrect. **Expenditure incurred** on electioneering **by the star campaigner** is **not added to a candidate's poll expenditure** giving him/her more scope for expenditure. However, for an individual candidate to get relief from campaign expenditure, the star campaigner has to limit oneself to general campaigning for the party.

Statement 3 is incorrect. A 'recognised' party declared as such by the Election Commission -- can nominate a **maximum of 40-star campaigners**. An un-recognised political party can nominate a **maximum of 20-star campaigners**.

Source: https://www.indiatoday.in/india/story/who-is-a-star-campaigner-why-is-this-status-significant-in-elections-1737308-2020-11-02

https://www.thehindu.com/elections/tamil-nadu-assembly/election-commission-bars-dmks-a-raja-from-campaigning-for-48-hours/article34213233.ece

Q.4) In the context of the deserts in India, the term "Rohi" refers to:

a) Sand dunes with an elevation of 150 m moving in considerable shapes and sizes.

b) Tracts of infertile land north of the Luni river.

c) Fertile tracts of the Rajasthan plains.

d) Red and yellow soils found in the Punjab and Haryana plains.

Ans) c

Exp) Option c is correct.

Option c is correct. The **Indian desert,** also known as the **Thar Desert or the Great Indian Desert,** are located to the **north-west of the Aravali hills.** It covers Western Rajasthan and extends to the adjacent parts of Pakistan.

1) **Bagar refers to the semi-desert area which is west of Aravallis.** It is drained by Luni in the south whereas the northern section has a number of short seasonal streams.
2) The **tract north of the Luni river is known as thali or sandy plain.** Luni is a seasonal stream which flows towards the south-west to the Rann of Kutch.
3) **Rohi are the fertile tract of the Rajasthan plains (Green patches).**
4) **Bluffs, locally known as dhaya,** are the main topographical feature of the **Punjab-Haryana plains.**

Source: Geography, D. R Khullar, Chapter-3, Pg. 76

Q.5) Consider the following statements about the Galathea Bay:

1. The bay is located in the Great Nicobar Islands.
2. It is a nesting site of Giant Leatherback turtle species.
3. The entire Galathea Bay Wildlife Sanctuary was recently de-notified.
4. The Jarawas are the indigenous tribes inhabiting near the Galathea Bay.

Which of the statements given above is/are correct?

a) 1 and 2 only
b) 1, 2 and 3 only
c) 2 and 4 only
d) 3 and 4 only

Ans) b

Exp) Option b is correct.

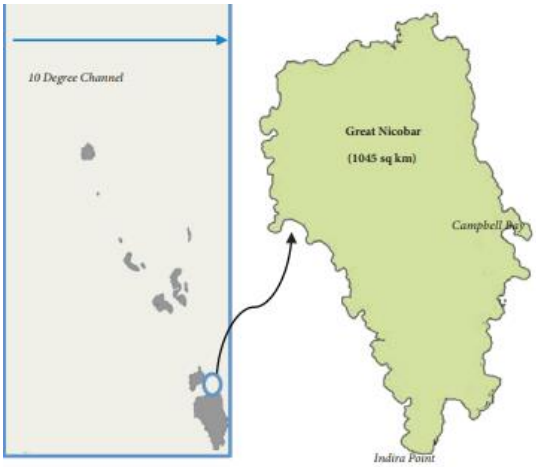
Statement 1 is correct. The **Galathea Bay** is found adjacent to Galathea National Park in **Great Nicobar Island.** **Great Nicobar Biosphere Reserve (GNBR),** which has been declared as one of the World Network of Biosphere Reserves by UNESCO, **comprises of the Galathea National Park and the Campbell Bay National Park.**

Statement 2 is correct. It is an iconic nesting site of the **Giant Leatherback**, the world's largest marine turtle, in India.

Statement 3 is correct. The Standing Committee of the National Board for Wildlife (NBWL) **denotified the entire Galathea Bay Wildlife Sanctuary** based on the NITI Aayog's Great Nicobar Development plan. The plan aims to promote the holistic development of Greater Nicobar by building port and other related infrastructure.

Statement 4 is incorrect. The **Mongoloid Shompen Tribe,** about 200 in number, live in the Great Nicobar biosphere reserve, including Galathea Bay. The **Mongoloid tribe, Nicobarese** used to live in settlements along the west coast. However, **after the tsunami in 2004, they were relocated to Afra Bay in the North Coast and Campbell Bay.**

The **Jarawa tribe** inhabits the Western region of South Andaman and Middle Andaman Islands.



Knowledge Base:

The proposal for denotification of any Sanctuary/National Park requires recommendation of the National Board for Wildlife as per the provisions of the Wild Life (Protection) Act, 1972 and thereafter, approval from the Supreme Court.

Source: https://www.thehindu.com/sci-tech/energy-and-environment/green-panel-allows-great-nicobar-plan-to-advance/article34521310.ece

Q.6) The term 'Vagir' was seen recently in news, which of the following statements describes it?

a) It is India's first indigenously developed air droppable container.

b) It is a Kalvari-class submarine built as a part of Project-75.

c) It is a close-range air to surface ballistic missile developed by DRDO.

d) It is a nano satellite to study microorganisms in space.

Ans) b

Exp) Option b is correct.

Statement b is correct. Vagir is part of the **six Kalvari-class submarines** being **built in India.** The submarines, designed by French naval defence and energy company DCNS, are being built as part of Indian Navy's **Project-75.** These submarines can undertake missions like **anti- surface warfare, anti-submarine warfare, intelligence gathering, mine laying, and area surveillance.**

Source: https://economictimes.indiatimes.com/news/defence/indian-navys-fifth-scorpene-class-submarine-vagir-launched/articleshow/79188295.cms

Q.7) Consider the following pairs:

Lakes	*States*
1. Deepor Beel	Assam
2. Tso Kar Lake	Sikkim
3. Agastya Lake	Karnataka

Which of the pairs given above is/are correctly matched?

a) 1 and 3 only

b) 1 only

c) 2 and 3 only

d) 3 only

Ans) a

Exp) Option a is correct.

Pair 1 is correctly matched. Deepor Beel is located to the south-west of Guwahati city, in Kamrup district of **Assam.** It is a **permanent freshwater lake** and **drains into the Brahmaputra river.** It was designated a Ramsar site in 2002 for sustaining a range of aquatic life forms besides 219 species of birds.

Pair 2 is incorrectly matched. The **Tso Kar Basin** is a high-altitude wetland complex, consisting of two principal waterbodies, **Startsapuk Tso, a freshwater lake** of about 438 hectares to the south, and **Tso Kar itself, a hypersaline lake** of 1800 hectares to the north, situated in the Changthang region of **Ladakh.** It is called **Tso Kar, meaning white lake,** because of the white salt efflorescence found on the margins due to the evaporation of highly saline water. India has added **Tso Kar Wetland Complex as its 42nd Ramsar site,** which is a second one in the Union Territory (UT) of Ladakh.

Pair 3 is correctly matched. The **Agastya Lake** is a lake bounded to the south by the **Badami Cave Temples and to the north by the Badami Fort (Karnataka).**

Source: https://pib.gov.in/PressReleasePage.aspx?PRID=1683303

https://blog.forumias.com/community-fishing-banned-at-deepor-beel/

Q.8) With reference to the Lakshadweep islands, consider the following statements:

1. Lakshadweep forms a part of vast submarine mountain ridge together with Maldives and Chagos islands.

2. Nine-degree channel separates the main Lakshadweep archipelago from Minicoy islands.

3. No Particularly Vulnerable Tribal Groups (PVTGs) are identified in Lakshadweep.

4. The entire island has been declared as an organic agricultural area under the Participatory Guarantee System.

Which of the statements given above is/are correct?

a) 1 and 2 only

b) 1, 3 and 4 only

c) 3 and 4 only

d) 1, 2, 3 and 4

Ans) d

Exp) Option d is correct.

Statement 1 is correct. Lakshadweep islands is a group of 36 coral islands located in the Arabian Sea. These are **coral islands located off the coast of Kerala.** It is a uni-district Union Territory (UT) and comprises 12 atolls, three reefs, five submerged banks, and ten inhabited islands.

Maldives, Lakshadweep and Chagos are three island groups in the Indian Ocean that together form a vast submarine mountain range, the Chagos-Laccadive Plateau.

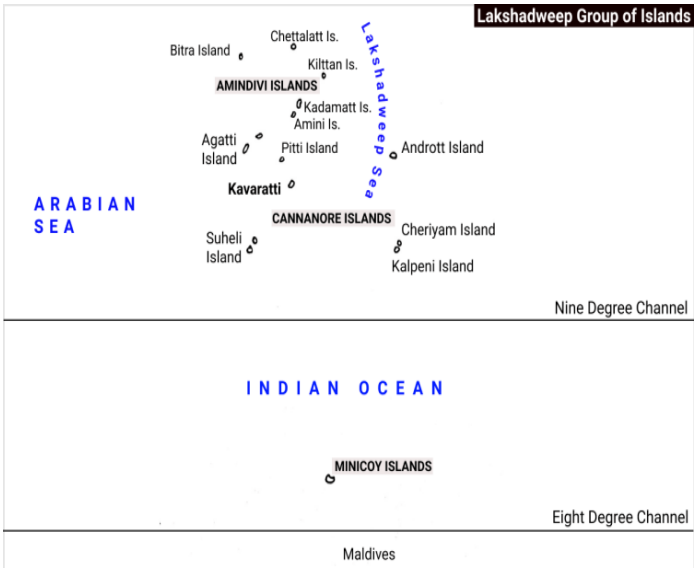
The Maldives-Lakshadweep-Chagos Archipelago is composed entirely of low atolls, associated coralline structures, and sandy islands, which have grown upon the crest of the submarine Chagos-Laccadive Ridge.

Statement 2 is correct. Nine-degree channel separates the main Lakshadweep archipelago from Minicoy islands. It is so named as it lies on the 9-degree Latitude, north of the equator.

Eight-degree channel separates Minicoy group of islands with Maldives. It is so named as it lies on the 8-degree Latitude, north of the equator.

Statement 3 is correct. The entire indigenous population has been classified as Scheduled Tribes because of their economic and social backwardness. There are **no Scheduled Castes in this Union Territory.** Also, there are **no Particularly Vulnerable Tribal Group (PVTGs)** found in the area.

Statement 4 is correct. Recently, the **entire Lakshadweep group of islands has been declared as an organic agricultural area** under the Participatory Guarantee System (PGS) of India.



Knowledge Base:

Other facts about Lakshadweep islands:

1) **Major sub-group of islands are:**
   - Cannanore (Laccadive) islands
   - Minicoy islands
   - Amindivi islands
   - **Amindivi Islands are the northernmost while Minicoy Island is the southernmost.**
2) **Muslims constitute more than 93% of the population** and the majority of them belong to the Shafi School of the Sunni sect.
3) Malayalam is spoken in all the islands except Minicoy where people speak Mahl (a variant of Divehi language spoken in the Maldives). The society in all islands is matriarchal.
4) The soils of these islands are structure less, formed by coral detritus and as such the soil fertility and **water holding capacity are extremely poor.**
5) Coconut trees are the main agricultural crop and fisheries is the main economic activity.

Source: https://blog.forumias.com/places-in-news-part-6-prelims-capsules-2021/

Q.9) The 'Great Barrington Declaration', recently in news, is related to which of the following?

a) It is a movement against Covid-19-related lockdown regulations.

b) It is an agreement to end gender discrimination in new age World.

c) It is an agreement for 'shared vision and benefit of all from AI'.

d) It is a movement against the animal cruelty especially against domestic animals.

Ans) a

Exp) Option a is correct.

Statement a is correct. As many as 6,000 researchers and health experts and around 50,000 members of the public have joined hands to start a movement called **the Great Barrington Declaration against Covid-19-related lockdown regulations. It is** believed that lockdown policies have **debilitating effects on physical, mental well-being of individuals and** can do 'irreparable damage, with the underprivileged disproportionately harmed. The movement **started in the United States** and soon it gained momentum across the world.

Source: https://www.thehindubusinessline.com/news/6000-researchers-health-experts-join-hands-for-anti-covid-19-lockdown-movement/article32801274.ece

Q.10) Which of the following is the correct sequence of tributaries of Ganga from east to west?

a) Kosi, Gomti, Gandak, Ghaghara

b) Gomti, Ghaghara, Kosi, Gandak

c) Ghaghara, Gandak, Gomti, Kosi

d) Kosi, Gandak, Ghaghara, Gomti

Ans) d

Exp) Option d is correct.

Option d is correct. The **Ganga rises in the Gangotri glacier** near Gaumukh (3,900 m) in the Uttarkashi district of Uttarakhand. Here, it is known as the Bhagirathi. It cuts through the Central and the Lesser Himalayas in narrow gorges. At Devprayag, the Bhagirathi meets the Alaknanda; hereafter, it is known as the Ganga. From east to west the tributaries of Ganga are: **Kosi, Gandak, Gomati and Yamuna.**

Source: Geography, NCERT-XI, Chapter-3, Pg. 25 and Atlas

Q.11) Which of the following geological events have shaped the present drainage system of Peninsular India?

1. Slight tilting of the Peninsular block from northwest to the south eastern direction

2. Submergence of the western flank of the Peninsula below the sea

3. Upheaval of the Himalayas

Select the correct answer using the code given below:

a) 1 and 2 only

b) 2 only

c) 2 and 3 only

d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

Option d is correct. Peninsular rivers are characterised by f**ixed course, absence of meanders and non-perennial flow of water.** Three major geological events in the distant past have shaped the present drainage systems of Peninsular India:

Statement 1 is correct. Slight tilting of the Peninsular block from northwest to the south eastern direction gave orientation to the entire drainage system towards the Bay of Bengal during the same period.

Statement 2 is correct. Subsidence of the western flank of the Peninsula leading to its submergence below the sea during the early tertiary period. Generally, it has disturbed the symmetrical plan of the river on either side of the original watershed.

Statement 3 is correct. Upheaval of the Himalayas when the northern flank of the Peninsular block was subjected to subsidence and the consequent trough faulting. The Narmada and the Tapi flow in trough faults and fill the original cracks with their detritus materials. Hence, there is a lack of alluvial and deltaic deposits in these rivers.

Knowledge Base:

Most of the **major peninsular rivers except Narmada and Tapi flow from west to east.**

1) The **Chambal, the Sind, the Betwa, the Ken, the Son,** originating in the northern part of the Peninsula **belong to the Ganga River system.**
2) The other major river systems of the peninsular drainage are **– the Mahanadi, the Godavari, the Krishna and the Kaveri.**

Source: Geography, NCERT-XI, Chapter-3, Pg. 27

Q.12) With reference to Negative Yield Bonds, consider the following statements:

1. At maturity, the investor receives less money than the original price of the bond.

2. These bonds can used to hedge funds against volatility in the currency's exchange rate.

3. India recently floated negative-yield bonds for the first time in international markets.

Which of the statements given above is/are correct?

a) 1 and 2 only

b) 2 and 3 only

c) 1 only

d) 1, 2 and 3

Ans) a

Exp) Option a is correct.

Statement 1 is correct. A negative bond yield is when an **investor receives less money at the bond's maturity than the original purchase price for the bond**. A negative bond yield is an unusual situation in which issuers of debt are paid to borrow. Negative-yielding bonds are purchased as safe-haven assets in times of turmoil and by pension and hedge fund managers for asset allocation.

Statement 2 is correct. Many hedge funds and investment firms that manage mutual funds invest in negative bonds in order to **diversify their investment**. Foreign investors might believe the **currency's exchange rate will rise,** which would minimize the effect of the negative bond yield.

Statement 3 is incorrect. **China sold its negative-yield bonds for the first time**, and this saw a high demand from investors across Europe. Majority of the large economies are facing a contraction in their GDP for 2020-21 while China is one country that is set to witness positive growth of its GDP.

Source: https://www.investopedia.com/terms/n/negative-bond-yield.asp

https://indianexpress.com/article/explained/explained-why-chinas-negative-yield-bonds-are-in-demand-7063061/

Q.13) With reference to the Pacific decadal oscillation (PDO), consider the following statements:

1. It is a recurring pattern of ocean-atmosphere climate variability centred in the North Pacific Ocean.

2. It is a short-term ocean fluctuation lasting from 6 to 18 months.

3. It is similar to El Nino-Southern Oscillation (ENSO) in character, consisting of a warm and cool phase.

4. It is responsible for deficit in annual rainfall in some parts of India.

Which of the statements given above is/are correct?

a) 3 and 4 only

b) 1, 2 and 3 only

c) 1, 3 and 4 only

d) 1, 2, 3 and 4

Ans) c

Exp) Option c is correct.

Statement 1 is correct. Pacific decadal oscillation (PDO) is a robust, recurring pattern of ocean-atmosphere climate variability centered over the mid-latitude Pacific basin. The PDO is detected as warm or cool surface waters in the **North Pacific** (poleward of 20°N).

Statement 2 is incorrect. Unlike El Nino and La Nina, which may occur every 3 to 7 years and last from 6 to 18 months, the **PDO can remain in the same phase for 20 to 30 years. It is a long-term ocean fluctuation of the Pacific Ocean.** The multi-year Pacific Decadal Oscillation 'cool' trend can intensify La Nina or diminish El Nino impacts around the Pacific basin. The shift in the PDO can have significant implications for global climate, affecting Pacific and Atlantic hurricane activity, droughts and flooding around the Pacific basin, the productivity of marine ecosystems, and global land temperature patterns.

Statement 3 is correct. The **PDO, similar to El Nino-Southern Oscillation (ENSO)** in character, like ENSO, consists of a warm and cool phase which **alters upper-level atmospheric winds.**

Statement 4 is correct. Rainfall in the Northeast India is largely dependent on monsoon rainfall and the impact of **Pacific decadal oscillation (PDO) is clearly visible in the region** in the form of deficit rainfall over the years.

Source: https://earthobservatory.nasa.gov/images/8703/la-nina-and-pacific-decadal-oscillation-cool-the-pacific

https://blog.forumias.com/why-is-northeast-india-drying-up-rapidly/

Q.14) Which of the following factors are responsible for the increase in number and intensification of cyclones in the Arabian Sea?

1. Increase in sea surface temperature of Arabian sea.
2. Excess energy availability and moisture in Arabian sea due to global warming.
3. Arabian Sea provides conducive wind shear for cyclones.
4. Increase in frequency of El Nino in the region.

Select the correct answer using the code given below:

a) 1 and 4 only

b) 2, 3 and 4 only

c) 1, 2 and 3 only

d) 1, 2, 3 and 4

Ans) c

Exp) Option c is correct.

The Arabian Sea has been comparatively less prone to cyclonic storms than the Bay of Bengal. In the usual course, there was an occurrence of one extremely severe cyclone every four-five years in the Arabian Sea. However, the changing climate and rising global warming have converted the Arabian Sea into a new hotbed for cyclonic activities.

Statement 1 is correct. Sea surface temperatures in the Arabian Sea have increased rapidly during the past century due to global warming. Temperature now **is 1.2–1.4 °C higher** than the temperature witnessed four decades ago. These warmer temperatures support active convection, heavy rainfall, and intense cyclones.

Statement 2 is correct. The rising temperature is also enabling the **Arabian Sea to supply ample energy for the intensification of cyclones.** Currently, seawater up to depths of 50 metres has been very warm that allowed Cyclone tauktae to become a very severe cyclonic storm (VSCS) in only 2 days.

Storms intensify and sustain depending on the energy availability through heat load in oceans and moisture. The study has also highlighted that accumulated cyclone energy in Arabian Sea has nearly tripled, indicating the extent of global warming that it might have undergone in recent years.

Statement 3 is correct. The Arabian Sea is **providing conducive wind shear for cyclones.** For instance, a higher level easterly wind drove the depression of Cyclone Ockhi from the Bay of Bengal to the Arabian Sea.

Statement 4 is incorrect. Increase in cyclones is also because of **greater occurrence of El Nino Modoki.** It is a climate phenomenon that means **'pseudo El Niño'** and creates conditions that are not conducive for cyclogenesis in the Bay of Bengal. However, this condition is conducive for the formation of cyclones in the Arabian Sea.

El Nino is associated with suppressing cyclone formation in the Arabian Sea.

Source: https://blog.forumias.com/why-arabian-sea-is-transforming-into-a-new-cyclonic-hotbed-explained-pointwise/

https://indianexpress.com/article/explained/explained-in-cyclone-tauktae-a-continuing-new-trend-from-the-arabian-sea-7317913/

Q.15) Consider the following statements:

1. Hydrological Drought results when the availability of water in different storages falls below what the precipitation can replenish.
2. Agricultural drought is when the productivity of a natural ecosystem fails due to shortage of water.

Which of the statements given above is/are incorrect?

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

Ans) b

Exp) Option b is correct.

Statement 1 is correct. The term 'drought' is applied to an extended period when there is a of water availability due to inadequate precipitation, excessive rate of evaporation and over-utilization of water from the reservoirs and other storages, including the ground water. Hydrological drought results when the availability of water in different storages and reservoirs like aquifers, lakes, reservoirs, etc. falls below what the precipitation can replenish.

Statement 2 is incorrect. Agricultural drought, also called as soil moisture drought, characterized by low soil moisture that is necessary to support the crops, thereby resulting in crop failures. Moreover, if an area has more than 30 per cent of its gross cropped area under irrigation, the area is excluded from the drought-prone category.

Source) NCERT, Indian physical environment, class XI, page no. 89, 90.

Q.16) Which of the following are the reasons for drying up of Northeast India in the last 30 years?

1. Long-term ocean fluctuation of the Pacific Ocean.
2. Northward shift of monsoon trough during summers.
3. Weakening of Bay of Bengal branch of south-west monsoon.

Select the correct answer using the code given below:

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) c

Exp) Option c is correct.

Statement 1 is correct. A recent study has concluded that northeast India has been experiencing rapid drying especially in the last 30 years. This is **due to the natural changes associated with the Pacific decadal oscillation (PDO)** in the subtropical Pacific Ocean. The Pacific Decadal Oscillation (PDO) is a long-term ocean fluctuation of the Pacific Ocean. The PDO waxes and wanes approximately every 20 to 30 years.

Its impact on the sea surface temperatures and its interaction with the atmosphere affects the northeast Indian summer monsoon.

Statement 2 is incorrect. The intense activity of southwest monsoon season in the region is behind the **floods in Assam.**

According to the India Meteorological Department (IMD), there are **two reasons for the intense monsoon activity. First, the northward shift of monsoon trough** that runs from north Punjab to northwest Bay of Bengal. Monsoon rains are generally clustered around such troughs.

Second, the coming together of strong winds from the south and southwest directions carrying moisture from the Bay of Bengal.

Statement 3 is correct. The **Bay of Bengal branch of the south-west monsoon,** which brings in all the rainfall to the region, **has been weakening over time.** Depression in Bay of Bengal cut off moisture to the entire north-eastern region, reducing the rainfall and increasing temperatures.

Source: https://www.thehindu.com/sci-tech/science/why-is-northeast-india-drying-up-rapidly/article27033907.ece

https://www.downtoearth.org.in/news/climate-change/north-eastern-states-live-in-fear-of-drought-61273

Q.17) Consider the following statements:

1. The laterite soils are rich in organic matter but have poor amount of iron oxide.
2. Peaty Soils have high humus and organic content.
3. Forest Soils are loamy in the upper slopes and coarse-grained on valley sides.

Which of the following statements given above is/are correct?

a) 1 and 2 only

b) 2 only

c) 2 and 3 only

d) 1, 2 and 3

Ans) b

Exp) Option b is correct.

Statement 1 is incorrect. The **laterite soils develop in areas with high temperature and high rainfall.** These are the result of intense leaching due to tropical rains. These soils are **poor in organic matter, nitrogen, phosphate and calcium, while iron oxide and potash are in excess.** Hence, laterites are not suitable for cultivation; however, application of manures and fertilisers are required for making the soils fertile for cultivation.

Statement 2 is correct. Peaty Soils are found in the **areas of heavy rainfall and high humidity,** where there is a good growth of vegetation. Thus, large quantity of dead organic matter accumulates in these areas, and this **gives a rich humus and organic content to the soil.** Organic matter in these soils may go even up to 40-50 per cent. These soils

are normally heavy and black in colour. At many places, they are alkaline also. It occurs widely in the northern part of Bihar, southern part of Uttaranchal and the coastal areas of West Bengal, Orissa and Tamil Nadu.

Statement 3 is incorrect. Forest Soils are formed in the forest areas where sufficient rainfall is available. They are **loamy and silty on valley sides and coarse-grained in the upper slopes.** In the snow-bound areas of the Himalayas, they experience denudation, and are acidic with low humus content. The soils found in the lower valleys are fertile.

Source: Geography, NCERT XI, Chapter-6, Pg. 71-72

Q.18) The 'Project Kirana', recently seen in news, aims at:

a) Providing interest free loans to small traders under the Atmanirbhar Bharat package.

b) Promoting adoption of digital payment methods by women owned kirana shops.

c) Legalizing small kirana shops through registration with the local administration.

d) Providing skill training to Kirana shop owners in small towns.

Ans) b

Exp) Option b is correct.

Project Kirana is a two-year programme, and initially, it will be rolled out in select cities of **Uttar Pradesh,** including **Lucknow, Kanpur and Varanasi.**

Global payments technology major Mastercard has joined hands with development agency USAID for the **Project Kirana that will help increase revenue streams, expand financial inclusion and digital payments adoption of kirana shops that are owned or operated by women.**

The objective of Project Kirana:

1) Build financial and digital literacy skills;
2) Improve basic business management skills including inventory management, accounting, budget management and customer loyalty;
3) Addressing cultural and other barriers to women becoming successful Kirana entrepreneurs;
4) It will work to increase revenue streams, expand financial inclusion and digital payments adoption of Kirana shops that are owned or operated by women.

Source: Mastercard, USAID join hands for Project Kirana to empower women through financial inclusion (livemint.com).

mastercard: Mastercard and USAID partner to launch 'Project Kirana' for women entrepreneurs - The Economic Times (indiatimes.com).

Q.19) Consider the following events in the geological history of India:

1. Formation of Gondwana coal

2. Formation of Himalayas

3. Marine transgression in western India

4. Formation of Deccan traps

What is the correct chronological order of the above events, starting from the earliest time?

a) 4 – 3 – 1 – 2

b) 3 – 1 – 4 – 2

c) 1 – 3 – 4 – 2

d) 1 – 4 – 2 – 3

Ans) c

Exp) Option c is correct.

Some of the important events in the recent geological history of India from earliest to latest time are:

1) Formation of 'basement complex' (Pre-Cambrian) – formation of the stable shield like region that forms the base of Indian land mass.

2) Formation of Gondwana rock system

3) Marine transgression in western India (Jurassic) – It led to deposition of thick series of shallow water deposits in Rajasthan and Gujarat.

4) Formation of Deccan traps (Cretaceous) – Series of basaltic lava flows took place when Indian plate passed over a volcanic hotspot.

5) Formation of Himalayas (Tertiary) due to collision of Indian plate with Eurasian plate.

6) Formation of Indo-Gangetic plains (Quaternary)

Source: https://www.patnauniversity.ac.in/e-content/social_sciences/geography/MAGeog30.pdf

Q.20) With reference to the mangrove vegetation, consider the following:

1. The mangroves are mainly found between latitudes 25 °N and 25 °S.

2. In general soil substratum in mangrove is characterized by fine grained sediments with high organic content.

3. Rising sea level will act as a blessing in disguise for mangroves expansion.

4. Pichavaram mangrove forest is located between the Vellar and Coleroon Estuaries.

Which of the statements given above is/are correct?

a) 1 and 3 only

b) 2, 3 and 4 only

c) 1, 2 and 3 only

d) 1,2 and 4 only

Ans) d

Exp) Option d is correct.

Statement 1 is correct. Mangroves are not found everywhere. They are found **only in the tropical and subtropical regions, mainly between latitudes 25 °N and 25 °S**. They grow along the land–sea interface, in bays, estuaries, lagoons, and backwaters.

Statement 2 is correct. Mangrove soil composes of coarse sand (~ 4%), fine sand (~48%), silt (~31%), Clay (~4%). In general soil substratum in mangrove is characterized by **low oxygen, high salt content and fine-grained sediments with high organic content**.

Statement 3 is incorrect. **Sea level rise is a major potential climate change threat to mangrove ecosystems,** because mangroves are sensitive to changes in inundation duration and frequency as well as salinity levels that exceed a species-specific physiological threshold of tolerance.

Statement 4 is correct. The **Pichavaram mangrove** ecosystem is located between the **Vellar and Coleroon Estuaries** in TamilNadu. It is home to 200 species of birds as well as seaweed, prawns, crabs, fish, oysters, turtles and otters.

Knowledge Base: According to the Forest Survey of India, 2019, Mangroves' cover in the country has increased by 54 sq km (91.10 percent) in comparison to the 2017 assessment.

Source: https://portals.iucn.org/library/sites/library/files/documents/2010-041.pdf

https://forest.goa.gov.in/sites/default/files/ch3_man.pdf

https://www.mangrovealliance.org/news/mangrove-cover-is-on-the-rise-in-india/

http://164.100.117.97/WriteReadData/userfiles/ISFR2019%20Vol-I.pdf

https://www.theverge.com/2020/6/4/21280580/sea-level-rise-mangroves-climate-change-2050

https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ehs2.1211

Q.21) Regarding the implementation of India's first Green Energy Convergence Project, consider the following statements:

1. It primarily aims to generate renewable energy for rural consumption.

2. The project involves the establishment of decentralized solar power plants.

3. Under the project, agriculture pumps will be distributed to farmers.

Which of the statements given above is/are correct?

a) 1 only

b) 1 and 2 only

c) 2 and 3 only

d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

Statement 1 is correct. India's first convergence project to **generate green energy for rural and agriculture consumption** is set to come up in the state of Goa.

Energy Efficiency Services Limited (EESL) and the Government of Goa, have signed a memorandum of understanding for rolling out of India's first Convergence Project in the State. Through its convergence initiative, EESL seeks to connect seemingly independent sectors like Solar Energy, Energy Storage and LED lights to provide solutions, which can enable in decarbonisation and affordable energy access.

Statements 2 and 3 are correct. Under the project, EESL shall implement the solar energy projects, which include - **establishment of 100 MW of decentralized ground mounted Solar Power projects** on government lands to be used for agricultural pumping, replace **approximately 6,300 agricultural pumps with BEE star rated energy efficient pumps** and distribute approximately 16 Lakh LED bulbs for rural domestic households.

Source: What is India's first Green Energy Convergence Project? – The Leading Solar Magazine In India (eqmagpro.com)

Q.22) With reference to the forest types, consider the following:

1. Parkland landscape in India can be seen in Tropical thorn forests.
2. Dry deciduous forests are found in regions having annual rainfall less than 50 cm.
3. Shola forests are found at the base of Southern Western Ghat mountains.

Which of the statements given above is/are **incorrect?**

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

Statement 1 is incorrect. Dry deciduous forest covers vast areas of the country, where rainfall ranges between 70 -100 cm. These forests are found in rainier areas of the Peninsula and the plains of Uttar Pradesh and Bihar. In

the higher rainfall regions of the **Peninsular plateau and the northern Indian plain**, these forests have a **parkland landscape** with open stretches in which teak and other trees interspersed with patches of grass are common.

Statement 2 is incorrect. Dry deciduous forest covers vast areas of the country, where rainfall ranges between **70 -100 cm.**

Tropical thorn forests occur in the areas which receive **rainfall less than 50 cm.** These consist of a variety of grasses and shrubs.

Statement 3 is incorrect. The **shola forest-grassland** is the tropical montane forest found in the **upper reaches of India's Western Ghats**. This mosaic ecosystem is **native only to the southern Western Ghats** and found in the high altitude mountains of **Kerala, Tamil Nadu and Karnataka.** This is a unique system where the vast grassland is interspersed with the forest. The forest is made up of evergreen native trees which are dwarf in nature and the hill slopes are covered with native grass species. The vegetation is **double layered storey with closed canopy**. These ecosystems have high water retention capacity, absorb rains and retain them within their soil.

Knowledge Base: **Natural vegetation** refers to a plant community that has been left undisturbed over a long time, so as to allow its individual species to adjust themselves to climate and soil conditions as fully as possible.

Source: NCERT Class 11 India Physical Environment Ch:5 Natural Vegetation

https://www.downtoearth.org.in/blog/forests/why-south-india-needs-the-shola-forests-of-the-nilgiris-68948

https://www.intechopen.com/chapters/74357

Q.23) Which of the following rivers are the tributaries of Krishna River?

1. Koyna
2. Bhima
3. Kabini
4. Bhavani
5. Manjra
6. Tungabhadra

Select the correct answer using the code given below:

a) 2, 3, 5 and 6 only

b) 3, 4 and 6 only

c) 1, 2 and 6 only

d) 1, 2, 3, 5 and 6 only

Ans) c

Exp) Option c is correct.

The **Krishna** is the **second largest east flowing Peninsular River** which **rises** near **Mahabaleshwar** in **Sahyadri**. Its total length is 1,401 km. The **Koyna, the Tungbhadra** and the **Bhima** are its major tributaries. Of the total catchment area of the Krishna, 27 per cent lies in Maharashtra, 44 per cent in Karnataka and 29 per cent in Andhra Pradesh. **Almatti Dam, Srisailam Dam, Nagarjuna Sagar Dam, and Prakasham Barrage** are some of the major dams constructed on the river.

Right bank tributaries of Krishna: Venna, Koyna, Panchganga, Dudhganga, Ghataprabha, Malaprabha and Tungabhadra are the major right-bank tributaries.

Left Bank tributaries of Krishna: Bhima, Dindi, Peddavagu, Halia, Musi, Paleru, and Munneru are the major left-bank tributaries.

Kabini and **Bhavani** are tributaries of **Kaveri River**.

Manjra is tributary of **Godavari** River.

Knowledge Base: **Godavari** River is called the ganga of south or **dakshin ganga**.

Source: NCERT Class 11 India Physical Environment Ch:3 Drainage System

https://www.britannica.com/place/Krishna-River

India: A Comprehensive Geography by D.R.Khullar

Q.24) Consider the following statements with reference to the protection of wild animals in India:

1. In India, 'exotic animals' are defined under the Wild Life (Protection) Act, 1972.

2. Indian laws prohibit the export or import of any 'exotic animal'.

Which of the statements given above is/are correct?

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

Ans) d

Exp) Option d is correct.

Statement 1 is incorrect. Recently, the Ministry of Environment, Forest and Climate Change (MoEFCC) has come out with an advisory on exotic animal. The **advisory has defined exotic live species as those animals that are mentioned under the Appendices I, II and III of the CITES**. The term 'exotic animal' is not defined under the Wild Life (Protection) Act 1972. The advisory excludes exotic birds from the amnesty scheme.

Statement 2 is incorrect. Indian laws do not prohibit the export or import of 'exotic animals'. A person trying to import a live exotic animal will have to submit an application for grant of a licence to the Director-General of Foreign Trade (DGFT), under the Ministry of Commerce and Industry. **The importer will also have to attach a No Objection Certificate (NOC) of the chief wildlife warden of the state concerned along with the application.**

Source: Environment ministry issues advisory to import live exotic animals (downtoearth.org.in)

Declare exotic pets, avoid prosecution: how one-time scheme works (forumias.com)

Q.25) Which of the following pairs have been correctly matched?

Plains	*Region*
1. Barind	West of Ghaghara River.

2. Mithila	East of Gandak and north of Ganga.
3. Magadh	East of Son and south of Ganga

Select the correct answer using the code given below:

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) b

Exp) Option b is correct.

Pair 1 is incorrectly matched. Barind plain is a division of Indo-Gangetic plains, a tract of old alluvium **between the Kosi-Mahananda corridor in the west and the river Sankosh in the east**. It forms a part of the lower ganga plain. It lies in the state of **West Bengal**.

Pair 2 is correctly matched. Mithila is a geographical and cultural region of the Indian subcontinent bounded by the **Mahananda River in the east, the Ganges in the south, the Gandaki River in the west** and by the foothills of the Himalayas in the north. It comprises certain parts of **Bihar** of India and adjoining districts of the eastern Terai of Nepal.

Pair 3 is correctly matched. Magadh plain is the area lying in modern day **Bihar** that is **east of the Son and south of Ganga river** and part of middle ganga plains.

Source: India: A Comprehensive Geography by D.R.Khullar

Q.26) With reference to the molasses basin, which of the following statements is correct?

a) It can be found in the north eastern states.

b) It refers to a physical landform made up of soft unconsolidated deposits.

c) It refers to the basins in the longitudinal valleys formed as a result of folding.

d) They are the alluvial floodplains that lie south of the outer foothills of the Himalayas.

Ans) b

Exp) Option b is correct.

Statement a is incorrect. Molassis basin in India is generally found in the state of **Mizoram**.

Statement b is correct. Molassis basin is made up of **soft unconsolidated deposits**.

Statement c is incorrect. **Duns** refers to the **longitudinal valleys** formed as a result of folding when Eurasian plate and Indian plate collided. Example like **Dehradun**.

Statement d is incorrect. **Duars** are the **alluvial floodplains** in eastern-northeastern India that lie south of the outer foothills of the Himalayas and north of the Brahmaputra River basin. They are good for **tea gardens**.

Source: NCERT Class 11 India Physical Environment Ch:2 Structure and Physiography

Q.27) With reference to the 'Bru community', which one of the following statements is ***incorrect***?

a) The community is recognized as a Particularly Vulnerable Tribal Group in Tripura.

b) The Hojagiri folk dance is the popular dance of the Bru community.

c) Bru tribes are found in all the North-eastern states except Mizoram.

d) The most popular festival of the Bru tribe is Buisu.

Ans) c

Exp) Option c is incorrect.

Option a is correct. Brus or Reang is a community indigenous to Northeast India living mostly in Tripura, Mizoram and Assam. In Tripura, they are recognised as a Particularly Vulnerable Tribal Group.

Option b is correct. The Hojagiri folk dance of the Reang sub tribe is well known all over the world. It is performed by women and young girls, about 4 to 6 members in a team, singing, balancing on an earthen pitcher and managing other props such as a bottle on the head and earthen lamp on the hand, while only the lower half of the body is moved.

Option c is incorrect. The Brus, aka Reangs, are spread across Tripura, Mizoram and southern Assam. In Mizoram, they are scattered in Kolasib, Lunglei and Mamit districts. While many Brus of Assam and Tripura are Hindu, the Brus of Mizoram converted to Christianity over the years.

Option d is correct. The most popular festival of the Bru tribes is Buisu. It is one of the ancient Tripuri festivals celebrated with lot of joy and enthusiasm in every Tripuri household. The word buisu has been derived from the Tripuri language Kokborok root word bisi which means a year.

Knowledge Base: **Bru community, fled from Mizoram to Tripura in 1997 in the wake of inter-community violence.** Over 5,000 Bru families, displaced from Mizoram, are currently housed in temporary camps in Tripura. Many of them are set to be repatriated to Mizoram from Tripura after a tripartite agreement signed between the Centre, Tripura and Mizoram.

Source: Brus reject resettlement sites proposed by Tripura non-Brus -ForumIAS Blog

Q.28) Consider the following statements with reference to Coastal plains of India:

1. Eastern coastal plain is broadest in Tamil Nadu.

2. Western coastal plains are broadest in the middle and gets narrower towards north and south.

Select the correct answer using the code given below

a) 1 only

b) 2 only

c) Both 1 and 2

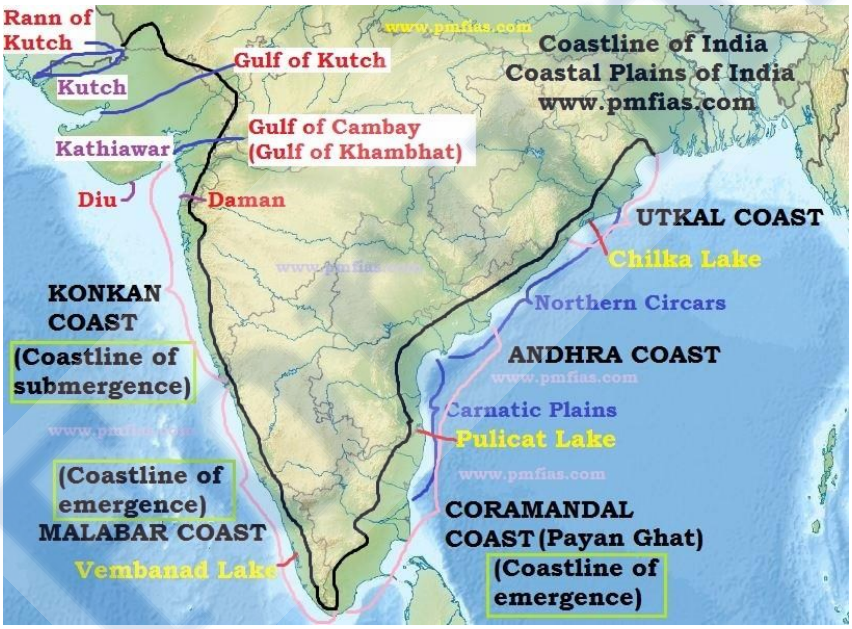
d) Neither 1 nor 2

Ans) a

Exp) Option a is correct.

Statement 1 is correct. East coastal lowlands are broad compared to the western lowlands and it is **broadest in Tamil Nadu** where its width ranges from 100 to 120 km. North of the Godawari Delta the coastal lowland is narrow as the Eastern Ghats closes on the sea.

Statement 2 is incorrect. The western coastal plains are **narrow in the middle and get broader towards north and south**.



Knowledge Base: Extending from the Gujarat coast in the north to the Kerala coast in the south, the western coast may be divided into following divisions – the Kachchh and Kathiawar coast in Gujarat, Konkan coast in Maharashtra, Goan coast and Malabar coast in Karnataka and Kerala respectively.

Source: NCERT Class 11 India Physical Environment Ch:2 Structure and Physiography

http://www.egyankosh.ac.in/bitstream/123456789/22365/1/Unit-2.pdf

Q.29) With reference to the important glaciers in the Himalayas, consider the following:

1. Bara shigri glacier is the source for Jhelum River.

2. Bandarpunch glacier is located in the gharwal division of the Himalayas.

3. Milam glacier is located in Kumaon Himalayas.

Which of the statements given above is/are correct?

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) b

Exp) Option b is correct.

Statement 1 is incorrect. Bara Shigri feeds the **Chandra River** which after its confluence at Tandi with the **Bhaga River** is known as **Chandrabhaga or Chenab**. Bara Shigri glacier lies on the northern slopes of the **main Pir Panjal Range** of the Inner Himalayas.

Statement 2 is correct. Bandarpunch is a mountain massif of the **Garhwal division of the Himalayas**, in the Indian state of **Uttarakhand**. The name literally means "tail of the monkey". Bandarpunch is located at the western edge of the high Himalayan range where it turns the corner to the northwest. It is part of the **Sankari Range** and lies within the **Govind Pashu Vihar National Park** and Sanctuary. It is a major watershed for the headwaters of the **Yamuna River**, whose source lies above **Yamunotri**, on the west end of the massif below White Peak.

Statement 3 is correct. Milam Glacier is a major glacier of the **Kumaon Himalaya**. The glacier is the source of the **Goriganga River**.

Knowledge Base: A **glacier** is **a large, perennial accumulation of crystalline ice, snow, rock, sediment, and often liquid water** that originates on land and moves down slope under the influence of its own weight and gravity.

Source: https://www.thehindubusinessline.com/blink/cover/find-me-a-glacier/article24054615.ece

http://www.uttaranchaltourism.in/glaciers-of-uttaranchal.html

https://hplahaulspiti.nic.in/glaciers/

http://kumaon.gov.in/pages/display/76-milam-glacier

Q.30) Consider the following statements, regarding RT-PCR tests:

1. It is used to detect pathogens, such as viruses and bacteria, that already contain DNA for amplification.

2. It can be used to detect past infections in order to understand the development and spread of the virus.

Which of the statements given above is/are correct?

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

Ans) d

Exp) Option d is correct.

Statement 1 is incorrect. RT–PCR is a variation of PCR, or polymerase chain reaction. The two techniques use the same process except that RT–PCR has an added step of reverse transcription of RNA to DNA, or RT, to allow for amplification. This means **PCR is used for pathogens, such as viruses and bacteria, that already contain DNA for amplification, while RT–PCR is used for those containing RNA that needs to be transcribed to DNA for amplification.**

Statement 2 is incorrect. Real time RT–PCR **cannot be used to detect past infections**, which is important for understanding the development and spread of the virus, as viruses are only present in the body for a specific window of time.

Knowledge Base: PCR is one of the most widely used diagnostic tests for detecting pathogens, including viruses, that cause diseases such as Ebola, African swine fever and foot-and-mouth disease. **Since the COVID-19 virus only contains RNA, real time or conventional RT–PCR is used to detect it.**

Source: How is the COVID-19 Virus Detected using Real Time RT-PCR? | IAEA

Q.31) Which of the following statements is correct with reference to Teesta River?

a) The river originates in Tibet.

b) It drains directly into the Bay of Bengal.

c) Subansiri and Dhansiri are the tributaries of Teesta River.

d) The hill station of Kalimpong is situated at the banks of this river.

Ans) d

Exp) Option d is correct.

Statement **a is incorrect**. The **Teesta** River originates from the **Pahunri or Zemu or Teesta Kangse glacier near Chunthang, Sikkim** and flows southward through gorges and rapids in the Sikkim Himalaya.

Statement b is incorrect. It does not drain directly into the Bay of Bengal but **it joins Brahmaputra** in Bangladesh.

Statement c is incorrect. **Subansiri** and **Dhansiri** are the tributaries of **Brahmaputra River** and not Teesta River. **Rangeet** and **Rangpo** are the main tributaries of **Teesta River**.

Statement d is correct. The hill station of **Kalimpong** in the state of **West Bengal** is situated at the **banks** of **Teesta River**.

Knowledge Base: There is river water sharing dispute going on over Teesta River between India and Bnagladesh.

Source: https://www.darjeeling-tourism.com/darj_000171.htmv

India: A Comprehensive Geography by D.R.Khullar

Q.32) This national park is situated at high altitude. Conditions are generally dry with low annual precipitation, but there is heavy monsoon rainfall from late June to early September. Prevailing mist and low cloud during the monsoon keep the soil moist, hence the vegetation is lusher than is usual in the drier inner Himalayan valleys. It lies completely in the temperate alpine zone.

Identify the national park from the above paragraph.

a) Jim Corbett National Park

b) Valley of Flowers National Park

c) Namdapha National Park

d) Keibul Lamjao National Park

Ans) b

Exp) Option b is correct.

Statement a is incorrect. The **Jim corbett national park** is part of the **sub-Himalayan ecosystem.** The elevation of the park fluctuates between **1,300 feet to 4,000 feet (400 to 1,220 m) above sea level.** The elevation brings cooler evenings; however, the day delivers outstanding temperatures to explore the region. The elevation variations deliver an array of ravines, plateaus, ridges, valleys, streams and rivers. Almost three-quarters of the park is encompassed by **deciduous forest** including peepal, rohini, and mango trees.

Statement b is correct. Valley of Flowers National Park is an Indian national park, located in the state of **Uttarakhand** and is known for its **meadows of endemic alpine flowers** and the variety of flora. It is located next to the **Nanda Devi national park** and together they encompass a unique transition zone between the **mountain ranges of the Zanskar and Great Himalaya**. The Park lies **completely in the temperate alpine zone**. Both parks are encompassed in the **Nanda Devi Biosphere Reserve**.

Statement c is incorrect. Namdapha NP is located in **Arunachal** Pradesh. It is a **biodiversity hotspot** in the Eastern Himalayas. The national park harbours the **northernmost lowland evergreen rainforests** in the world at 27°N latitude. It falls within the **geographical sub-tropical zone** and enjoys the sub-tropical climate. However, the

climate of the area varies from place to place inside the Protected Area due to variation of altitude from 200 m to 4571m and the area also being the zone of heavy rainfall. The mountainous part of the area enjoys what is known as mountain type of climate while the low-lying plains and valleys experience tropical climate.

Statement d is incorrect. Keibul Lamjao NP is located in **Manipur** and is famous for **sangai deer** and **phumdi grass**. **Loktak lake** is also there. Climate is pleasant with **neither excessively cold winters nor hot summers.**

Knowledge Base:

Distinction Between National Park, Sanctuary and Biosphere Reserve

National Park	Sanctuary	Biosphere Reserve
(i) Habitat for particular wild animal species.	Generally species-oriented such as citrus, pitcher plant, etc.	Hitched to the whole ecosystem, i.e., totality of all forms of life, i.e., ecosystem-oriented.
(ii) In India, most common average size is 100-500 sq km (in about 40 per cent cases) and 500-1000 sq km (about 15 per cent cases). The general size range is 0.04 to 3162 sq km.	Size range is 0.61 to 7818 sq km. Most common (in about 40 per cent) is 100-500 sq km. In 25 per cent, the size varies between 500 and 1000 sq km.	Size range over 5670 sq km.
(iii) Boundaries fixed by legislation.	Boundaries are not sacrosanct.	Fixed by legislation.
(iv) Except the buffer zone, no biotic interference.	Limited biotic interference.	Except the buffer zone, no biotic interference.
(v) Tourism permissible.	Permissible.	Normally not permissible.
(vi) Research and scientific management lacking.	Lacking.	Managed.
(vii) So far no attention to genepools and conservation.	So far no such attention.	Attention given.

Source: http://www.ecoindia.com/parks/dachigam-national-park.html

https://changlang.nic.in/namdapha-national-park/

https://uttarakhandtourism.gov.in/destination/valley-of-flowers

https://whc.unesco.org/en/tentativelists/6086/

Q.33) "The virus is generally carried by rats. It can be transmitted through direct contact with the infected rodent, its urine and droppings or through contact with an infected person. It is caused by the same arenavirus family that is responsible for illnesses such as the Ebola virus disease. It was first discovered in 2004 in Bolivian province."

Which one of the following viruses is correctly described in the above paragraph?

a) Monkey B virus

b) Chapare virus

c) Nipah Virus

d) Zika Virus

Ans) b

Exp) Option b is correct.

Chapare Virus - It is caused by the same arenavirus family that is responsible for illnesses such as the Ebola virus disease (EVD). It was first discovered in 2004 in Bolivian province of Chapare, from where it gets its name. Though it disappeared in 2004, an outbreak last year infected at least five people. Chapare virus are generally carried by rats and can be transmitted through direct contact with the infected rodent, its urine and droppings or through contact with an infected person. Some symptoms of Chapare are fever, abdominal pain, vomiting, bleeding gums, skin rash and pain.

Option a is incorrect. Monkey B virus is an alpha herpesvirus enzootic in macaques of the genus Macaca. B virus is the only identified old-world-monkey herpesvirus that displays severe pathogenicity in humans. The infection can be transmitted via direct contact and exchange of bodily secretions of monkeys and has a fatality rate of 70 per cent to 80 per cent.

Option c is incorrect. Nipah virus (NiV) is a zoonotic virus, meaning that it can spread between animals and people. Fruit bats, also called flying foxes, are the animal reservoir for NiV in nature. Nipah virus is also known to cause illness in pigs and people.

Option d is incorrect. The **Zika virus** is most often spread to people through mosquito bites. Symptoms are generally mild and include fever, rash, conjunctivitis, muscle and joint pain, malaise or headache. Symptoms typically last for 2–7 days. Most people with Zika virus infection do not develop symptoms.

Source: Factly articles for November 19, 2020 | | Factly (forumias.com)

Zika virus -ForumIAS Blog

What is Monkey B virus? (indianexpress.com)

Q.34) Which of the following pairs are correctly matched?

River	*Waterfall*
1. Narmada	Dudhsagar falls
2. Mondovi	Dhuandhar falls
3. Kaveri	Shivasamundram falls
4. Sharavati	Jog falls

Select the correct answer using the code given below:

a) 1 and 2 only

b) 2 and 4 only

c) 1 and 3 only

d) 3 and 4 only

Ans) d

Exp) Option d is correct.

Pair 1 is incorrectly matched. The Dhuandhar Falls are located on **Narmada River in Bhedaghat** and are 30 meters high. The Narmada River, making its way through the world-famous **Marble Rocks**, narrows down and then plunges in a waterfall known as Dhuandhaar.

Pair 2 is incorrectly matched. The Dudhsagar falls is located on **Mondovi river in Goa** in the Bhagwan Mahaveer Sanctuary and Mollem National Park among the Western Ghats.

Pair 3 is correctly matched. Shivanasamudra Falls is a waterfall in Chamarajanagar district of the state of **Karnataka**, India. It is situated along the river **Kaveri**. The island town of Shivanasamudra divides the river into twin waterfalls.

Pair 4 is correctly matched. Jog Falls is a waterfall on the **Sharavati river** located in the Western Ghats Uttara Kannada district of **Karnataka**. Associated with the waterfall is the nearby Linganamakki Dam across the Sharavati River.

Knowledge Base: **Angel Falls** in Venezuela is the highest waterfall in the world.

Source: https://www.karnataka.com/shimoga/jog-falls/

https://www.karnataka.com/mysore/shivanasamudra-falls/

https://jabalpur.nic.in/en/tourist-place/dhuadhar-water-fall/

https://www.goa-tourism.com/waterfall_tour

Q.35) With reference to the Indian monsoon and its linkages with various geographical phenomenon, consider the following:

1. The presence of the high-pressure area, east of Madagascar creates favorable conditions for monsoon.

2. Southward migration of monsoon trough results in active/vigorous monsoon over major part of India.

3. Strengthening of Somali jet gives rise to strong monsoon over peninsular India.

Which of the statements given above is/are correct?

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

Statement 1 is correct. The presence of the **high-pressure area, east of Madagascar**, approximately at 20°S over the Indian Ocean. The intensity and position of this high-pressure area affects the Indian Monsoon.

Statement 2 is correct. Monsoon Trough is an elongated low-pressure area which extends from heat low over Pakistan to Head Bay of Bengal. Monsoon trough may be a characteristic of east west orientation of Himalayan ranges and north south orientation of Khasi-Jaintia Hills. **Southward migration of monsoon trough results in active/vigorous monsoon over major part of India.** In contrast, the northward migration of this trough leads to break monsoon condition over major part of India and heavy rains along foothills of Himalayas and sometimes floods in Brahmaputra River.

Statement 3 is correct. **Somali jet is low level (**1 to 1.5 km asl) **inter hemispheric cross equatorial flow of air,** attains Jet speed at the west end of monsoon regime along the east coast of Africa. This Jet originates near Mauritius and northern part of Madagascar in the southern Hemisphere.

During May, it moves further into eastern Africa, then into Arabian sea and reaches west coast of India in June. It attains maximum strength in July. Short period (8-10 days) fluctuations are observed in Low Level Jet stream. **Its strengthening gives rise** to strong monsoon over peninsular India.

Knowledge Base: It has also been noticed that changes in the pressure conditions over the southern oceans also affect the monsoons. Normally when the tropical eastern south Pacific Ocean experiences high pressure, the tropical eastern Indian Ocean experiences low pressure. But in certain years, there is a reversal in the pressure conditions and the eastern Pacific has lower pressure in comparison to the eastern Indian Ocean. This periodic change in pressure conditions is known as the **Southern Oscillation or SO.** A feature connected with the SO is the El Nino phenomenon in which a warm ocean current that flows past the Peruvian Coast, in place of the cold Peruvian current, every 2 to 5 years. The changes in pressure conditions are connected to the El Nino. Hence, the phenomenon is referred to as **ENSO (El Nino Southern Oscillations).**

Source: NCERT geography class IX – Ch-4 Climate

https://mausam.imd.gov.in/imd_latest/monsoonfaq.pdf

Q.36) Consider the following pairs:

Space Mission	*Objective/Purpose*
1. Chang'e-4 mission	To study the Martian atmosphere and geology.
2. Ariel Space mission	To observe exoplanets through space telescope
3. Sentinel-3 mission	To survey the terrain and landforms of moon.

Which of the pairs given above is/are correctly matched?

a) 1 and 2 only

b) 2 only

c) 3 only

d) 2 and 3 only

Ans) b

Exp) Option b is correct.

Pair 1 is incorrectly matched. Chang'e-4 mission, launched by China, is a robotic spacecraft mission with an aim of surveying the terrain and landforms of lunar surface, detecting the mineral composition, shallow lunar surface structure and measuring the neutron radiation and neutral atoms to study the environment.

Pair 2 is correctly matched. Atmospheric Remote-sensing Infrared Exoplanet Large-survey (ARIEL): It is **a space telescope planned for launch in 2029 by the European Space Agency.**

Objective: To observe at least 1,000 known exoplanets using the transit method, studying and characterising the planets' chemical composition and thermal structures.

Pair 3 is incorrectly matched. Sentinel-3 mission is an Earth observation satellite constellation developed by the European Space Agency **(ESA)** as part of the Copernicus Programme. Sentinel-3 uses the satellite data to plot the number of fires occurring monthly. The sensors on satellites measure thermal infrared radiation to take the temperature of Earth's land surfaces.

Source: Sentinel-3 World Fire Atlas -ForumIAS Blog

Factly articles for November 16, 2020 | | Factly (forumias.com)

China's Chang'e-4 lunar rover lands on moon's far side, sends back images - The Hindu

Q.37) With reference to the nor westers and western disturbances, consider the following:

1. Western Disturbances is characterised by higher night temperatures and unusual rain.

2. Nor Westers are evening thunderstorms prevalent in Bengal.

3. Western Disturbances are low pressure systems that flow under the influence of the westerlies.

Which of the statements given above is/are correct?

a) 1 only

b) 2 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

Statement 1 is correct. The western cyclonic disturbances which enter the Indian subcontinent from the west and the northwest during the winter months, originate over the Mediterranean Sea and are brought into India by the westerly jet stream. An **increase in the prevailing night temperature generally indicates an advance in the arrival of these cyclones disturbances.**

Statement 2 is correct. Nor Westers are evening thunderstorms prevalent in **Assam and Bengal**. They are also called '**Kalbaisakhi**', a calamity of the month of Baisakh in **Bengal**. These showers are useful for **tea, jute and rice cultivation**. In **Assam**, these storms are known as "**Bardoli Chheerha**"

Statement 3 is correct. Western Disturbances are **low pressure systems** that under the influence of the **western winds (westerlies)**, flow from **west to the east**.

Knowledge Base: The word '**Western**' refers to the direction from which they originate with regard to India. The word '**disturbance**' is used because the air within the low pressure systems tends to be unstable or disturbed.

Source: NCERT Class 11 India Physical Environment Ch-4 Climate

Q.38) Which of the following statements is correct with reference to the characteristics of monsoon rainfall?

a) The monsoon rainfall generally shows a declining trend with increasing distance from the sea.

b) Spatial distribution of monsoon is considerably even across the country.

c) The precipitation goes on increasing from west to east in the plains.

d) Relief or topography has negligible effect on monsoon rains.

Ans) a

Exp) Option a is correct.

The monsoon rainfall has a declining trend with increasing distance from the sea. Kolkata receives 119 cm during the southwest monsoon period, Patna 105 cm, Allahabad 76 cm and Delhi 56 cm.

Option b is incorrect. Its **spatial distribution is also uneven** which ranges from 12 cm in areas like Thar desert of Rajasthan to more than 250 cm in western ghats and Meghalaya.

Option c is incorrect. The precipitation goes on **decreasing from west to east** in the plains and from north to south in the mountains.

Option d is incorrect. Monsoonal rainfall is **largely governed by relief or topography**. For instance, the windward side of the Western Ghats register a rainfall of over 250 cm. Again, the heavy rainfall in the north-eastern states can be attributed to their hill ranges and the Eastern Himalayas.

Knowledge Base: The retreating southwest monsoon season is marked by clear skies and rise in temperature. 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'.**

Source: NCERT Class 11 India Physical Environment Ch-4 Climate

Q.39) Consider the following statements regarding the 'Nurturing Neighbourhoods Challenge':

1. The programme aims to enable Indian cities to focus on early childhood development.
2. The challenge is open only to cities with a population above 5 lakhs.
3. The programme is hosted by NITI Aayog in collaboration with the Ministry of Women and Child Development.

Which of the statements given above are correct?

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) a

Exp) Option a is correct.

Statement 1 is correct. The Nurturing Neighbourhoods Challenge **aims to enable Indian cities to focus on early childhood development (0-5-year-old children).** The focus will incorporate into the planning and management of Indian cities.

Statement 2 is correct. The challenge is open to all Smart Cities, capitals of States and UTs, and other cities with a population above 5 lakhs. Cities will receive technical assistance and capacity building. It will be helpful to develop, pilot and scale solutions that enhance the quality of life of young children.

Statement 3 is incorrect. The Nurturing Neighbourhoods Challenge is a three-year initiative **hosted by the Smart Cities Mission, Ministry of Housing and Urban Affairs**, in collaboration with the Bernard van Leer Foundation and World Resources Institute (WRI) India.

Source: Govt announces "Nurturing Neighbourhoods Challenge"|ForumIAS Blog

Q.40) Which of the following statements regarding the nature of vegetation in the Himalayan region is/ are correct?

1. The species diversity and vegetation density decrease on moving from Eastern Himalayas to Western Himalayas.
2. Coniferous Forest are the dominant vegetation in Eastern Himalayas.

Select the correct option using the code given below:

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

Ans) a

Exp) Option a is correct.

Statement 1 is correct: Having **greater rainfall,** the Eastern Himalayas have more dense and greater variety of natural vegetation than Western Himalayas.

Statement 2 is incorrect: Eastern Himalayas have more **tropical vegetation** due to being on a **lower latitude** than Western Himalayas. So Eastern Himalayas have more **oaks and moist deciduous vegetation.** Whereas Western Himalayas, being on higher latitudes are cooler and have more coniferous types of trees.

Knowledge Base:

Eastern Himalayas have a more diverse, dense and tropical vegetation. Reasons include:

1) Being closer to the equator (lower latitude) than Western Himalayas therefore higher temperature.

2) Having more rainfall due to humid conditions and being nearer to Bay of Bengal Branch of monsoons. Western Himalayas are quite farther away from the Bay of Bengal branch of monsoons, and some areas in Western Himalayas, like Ladakh, even fall in rain-shadow areas, making them dry.

Source: NCERT Geography Class 11th, Ch-2, Ch-3, Ch-5

Q.41) Which among the following is the defining characteristic of the 'Zone of Eluviation', a Soil Horizon?

a) It contains a great concentration of dead organic matter in various stages of decay.

b) In this zone; silicates, carbonates, iron and aluminum have been leached and lost.

c) The humified organic matter is very well mixed with mineral components and the original parent rock is all gone.

d) It contains huge pieces of un-weathered parent bedrock, but hardly contains any organic matter.

Ans) b

Exp) Option b is correct.

The capital letters H. O. A, E, B. C and R represent the master horizons and layers of soils.

Statement a is incorrect. Horizon O - One of the **topmost layers in soil profile containing abundance of undecomposed or partially decomposed litter,** such as leaves, needles, twigs, moss, and lichens, which has accumulated on the surface. **It has very low mineral content.**

Statement b is correct. Horizon E is known as the Zone of Eluviation. It is generally a layer below Horizon H and Horizon O and above Horizon B. It is **characterized by loss of clay (Silica), carbonates, aluminum, iron, etc (leaching)- m**inerals that move down in soil profile as colloidal particles, under the effect of **heavy tropical rains.** When the rains increase the amount of water in the soil, much more than that being taken away as **evaporation**, leaching occurs.

Statement c is incorrect. Horizon A is also known as the **topsoil**. It is the layer in which **humus and minerals are well blended** such that they appear one, making the section very **fertile**. This soil only contains **fully weathered material** which has taken the form of soil. No leftover chunks/ pieces from parent rock material are visible.

Statement d is incorrect. Horizon C is **one of the lowest layers** of soil profile which contains the still **un-weathered parent rock/ bedrock**. The parent rock has **begun to be broken** and changed in this section but **no loosening** of minerals has taken place. It is **devoid of any sort of organic** material.

Knowledge Base:

1) Soil profile is the vertical section of soil from ground surface upto parent rock.
2) Each individual layer in the soil profile is known as Soil Horizon.
3) Soil Horizons - H, O, A, B, C and E and R.

4) Horizon B - The material is a mixture of loosened silt like mineralized material and pieces from parent bedrock. Some organic matter is present.
5) Horizon R - This contains absolutely hard and solid and cemented geological formations and rocks which have not weathered even a bit.

Source: http://www.fao.org/3/w8594e/w8594e0g.htm

NCERT Geography, Class 11th, Physical Environment, Ch - 6

Q.42) In the context of medieval history of India, consider the following statements with reference to the 'Battle of Saraighat':

1. It led to the establishment of Mughal dominance in the Northeast India.

2. During the Battle of Saraighat, the Ahom forces were led by general Lachit Borphukan.

Which of the statements given above is/are correct?

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor

Ans) b

Exp) Option b is correct.

Statement 1 is incorrect. The **Battle of Saraighat** was fought on the banks of the **Brahmaputra** in Guwahati in 1671. It is considered as one of the greatest naval battles on a river **which resulted in the victory of Ahoms over the Mughals.**

Statement 2 is correct. Lachit Borphukan is remembered as the greatest military hero of Assam. He was a general during the 17th Century period of the Ahom dynasty. He is best known for the Battle of Saraighat on the Brahmaputra, where he beats the Mughals.

Source: Borphukan & BJP: 17th-century Ahom General as a 'Hindu', 'swadeshi' warrior | Explained News, The Indian Express

Lachit Borphukan: Assam's Great General (livehistoryindia.com)

Q.43) "These forests are found in regions where the annual rainfall varies from 70cm to 200cm. Some of the trees found here are teak, sal, shisham, tendu and bel. The trees shed their leaves during the dry season."

Which type of forest is being described above?

a) Tropical Evergreen Forest

b) Montane Forest

c) Littoral Forest

d) Tropical Deciduous Forest

Ans) d

Exp) Option d is correct.

Statement a is incorrect: These types of forests are found in **warm and humid** areas with annual **rainfall of more than 200 cm**. The trees in these forests **don't shed all their leaves at one particular time** of the year, so the forest appears covered with green foliage year-round giving it the name evergreen. Example of trees- rosewood, mahogany, ebony, etc.

Statement b is incorrect: These are the forests found in **mountainous regions**. The special feature is that the **altitude decides the type of vegetation.** So, the vegetation ranges from deciduous trees in the foothills to coniferous pines and firs at very high altitude to ultimately tundra vegetation like mosses at extremely high altitudes.

Statement c is incorrect: These are the forests found in **coastal wetlands in areas that are hot and humid with plenty of rainfall**. Found in **coastal lagoons, tidal creeks and mangroves**, the trees in these forests are **water tolerant and can bear a high level of salinity** as well. Such forests are also found in waterlogged and marshy wetland areas.

Statement d is correct: Deciduous forests are the **most widespread** type of forests in India. They generally **shed all their leaves in the dry season** to conserve moisture, thus giving the landscape a bare look. These forests have two sub-classifications:

1) **Moist Deciduous Forests**: Found in areas where annual rainfall ranges between 100-200 cm. Tree species include Teak, Sal, Shisham, Sandalwood, hurra, mahua, semul, kusum, etc.
2) **Dry Deciduous Forests**: Found in areas where annual rainfall ranges between 70-100 cm. Tree species include Tendu, Palash, Amaltas, Bel, Khair, axlewood, etc

Knowledge Base:

Distribution of Forest Types in **India**:

1) **Tropical Evergreen** Forests: Western Slope of Western Ghat, hills of north east region, Andaman & Nicobar Islands.
2) **Montane** Forests: Himalayan Ranges (J&K, Ladakh, Himachal Pradesh, Uttarakhand, Sikkim, North east states); Southern Montane Forests (Western Ghats, Vindhyas, Niligiris - especially *Shola* type forest.)
3) **Littoral/ Swamp** Forests: wetlands on mainland, coastal lagoons like Chilika, mangroves like Sunderbans, etc, deltas of Mahanadi, Godavari & Krishna.

4) **Moist Deciduous** Forests: Northeastern states along foothills of Himalayas, eastern slopes of Western Ghats, Odisha

5) **Dry Deciduous** Forest: Rainier areas of Peninsula, Uttar Pradesh, Bihar.

Source: NCERT Geography Class 11th, Physical Environment, Ch-5

Q.44) Which of the following statements regarding the *Montane Type of Forests* in India are correct?

1. These forests contain grasslands, deciduous trees as well as alpine vegetation.

2. The 'Shola' forests are a type of Montane Forests found in Nilgiris.

3. Rhododendron, chinar and deodar can be found growing in these forests.

Select the correct option using the code given below:

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

Statement 1 is correct. The vegetation in Montane forests varies according to the altitude. So, these forests have - from foothill to high altitude - **evergreen trees, deciduous trees, evergreen broadleaf trees, coniferous trees, as well as alpine vegetation.** They also have temperate grasslands in Northern Montane Forests.

Statement 2 is correct. The **Shola forests of South India** are classified as '**Southern Montane Wet Temperate Forest'** by experts. The Sholas are found in the upper reaches of the **Nilgiris, Anamalais, Palni hills, Kalakadu, Mundanthurai and Kanyakumari** in the states of Tamil Nadu and Kerala.

These forests are found sheltered in valleys with sufficient moisture and proper drainage, at an altitude of more than 1,500 metres. The upper reaches are covered with grasslands, known as Shola grasslands. The vegetation that grows in Shola forests is evergreen. The trees are stunted and have many branches. Their rounded and dense canopies appear in different colours.

Statement 3 is correct. Rhododendron, chinar and deodar are found in Montane forests.

Deodar, a highly valued endemic species grows mainly in the western part of the Himalayan range. Deodar is a durable wood mainly used in construction activity. Similarly, the **chinar and the walnut**, which sustain the famous Kashmir handicrafts, belong to montane forests. Blue pine and spruce appear at altitudes of 2,225-3,048 m.

At many places in this zone, temperate grasslands are also found. But in the higher reaches there is a transition to Alpine forests and pastures. Silver firs, junipers, pines, birch and **rhododendrons**, etc. occur between 3,000-4,000 m.

Source: NCERT Geography Class 11th, Physical Environment, Ch-5

Q.45) Consider the following statements:

1. India accounts for more than half of the undernourished people in the world.
2. Between 2005 and 2015, there has been an overall increase in the proportion of underweight children in India.
3. POSHAN scheme aims at reducing the extent of stunting to 5% by 2022.

Which of the statements given above is/are ***incorrect***?

a) 1 and 2 only

b) 2 and 3 only

c) 3 only

d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

Statement 1 is incorrect. The report, "The state of Food Security and Nutrition in the World" for 2017-19, states that there were 673 million undernourished people around the globe. Out of this, **India accounts for 189.2 million which is 28 percent of the total (and not more than half).**

Statement 2 is incorrect. According to National Family Health Survey, **over the decade between 2005 and 2015, there has been an overall reduction in the proportion of underweight children in India**, mainly on account of an improvement in stunting. While the percentage of stunted children under 5 reduced from 48% in 2005-06 to 38.4% in 2015-16, there has been a rise in the percentage of children who are wasted from 19.8% to 21% during this period.

Statement 3 is incorrect. The Poshan Abhiyaan (National Nutrition Mission) targets to reduce stunting, under-nutrition, anemia (among young children, women and adolescent girls) and reduce low birth weight by 2%, 2%, 3% and 2% per annum respectively. Although the target to reduce Stunting is atleast 2% p.a., **Mission would strive to achieve reduction in Stunting from 38.4% (NFHS-4) to 25% by 2022 (Mission 25 by 2022).**

Knowledge Base: To improve nutritional outcome, **POSHAN 2.0** was announced in 2021 Budget.

New guidelines of POSHAN 2.0-

1) POSHAN scheme focuses on the 1,000 days between a mother's pregnancy and her child's second birthday.

2) **POSHAN tracker-** The Ministry of Women and Child Development has developed a new software tool called the **Poshan Tracker.** The aim is to streamline the supply side of the scheme. This will replace the earlier ICDS CAS, because the data generated by it was not usable.

Source: Malnutrition in India: The National Nutrition Strategy explained (prsindia.org)

POSHAN 2.0 and tackling malnutrition in India-ForumIAS Blog

What is the status of malnutrition in India? |ForumIAS Blog

Q.46) Which of the following statements regarding the Boreal Summer Intra Seasonal Oscillation (BSISO) is/ are correct?

1. It refers to an irregular transfer of heat between the Western and Eastern parts of India Ocean during Summer.
2. It affects the occurrence of 'breaks' in the monsoon rainfall in India.
3. The phenomena can induce high wave activity in the Arabian Sea.

Select the correct option using the code given below:

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) b

Exp) Option b is correct.

Statement 1 is incorrect. Boreal Summer Intra Seasonal Oscillation (BSISO) is the **movement of convection (heat) from Indian Ocean to western Pacific Ocean** roughly every 10-50 days during the monsoon (June-September).

Statement 2 is correct. They **represent the monsoon's 'active' and 'break' periods**, in which weeks of heavy rainfall give way to brilliant sunshine before starting all over again. The active phase also enhances monsoon winds and hence the surface waves.

Statement 3 is correct. Some phases of boreal summer intra seasonal oscillation or BSISO **induce high wave activity in north Indian Ocean and Arabian Sea**, the researchers claimed. This will help improve wave forecasts along India's coasts and mitigate adverse impacts of high waves (coastal flooding, erosion, etc). Sea-navigation routes can also be better planned.

Source: https://www.downtoearth.org.in/news/science-technology/indian-researchers-may-improve-wave-forecasts-72723

Q.47) What is the most appropriate reason behind the low humus content of Alluvial soils in India?

a) Leaching of humic contents to lower layers of soil profile due to heavy rainfall.

b) Slow decomposition rate of dead organic matter in regions where alluvial soil is found.

c) Formation due to the process of erosion and deposition as opposed to in-situ weathering.

d) Hot and dry climate destroys humic nutrients.

Ans) c

Exp) Option c is correct.

Statement a is incorrect. Leaching of organic matter which is the precursor of humus, due to heavy **tropical rains** is a feature of **Laterite Soils**

Statement b is incorrect. Low humus content due to **tiny leaves** (needle-like in coniferous trees) and very **low rates of decomposition due to cold temperatures** is a characteristic feature of **Forest/ Montane Soils.**

Statement c is correct. Alluvial soils are formed by **continuous erosion of the Himalayas and subsequent transportation and deposition of silt.** Thus, it **does not lie undisturbed enough to accumulate dead organic matter** which may later convert into humus. Thus, Alluvial soils are ahumic.

Statement d is incorrect. Hot and **dry climate,** with **insufficient moisture** causes **destruction of organic matter,** rather than normal decomposition which occurs in **Arid Soils of desert regions.**

Source: NCERT Geography Class 11th, Physical Environment, Ch - 6

Q.48) Which of the following statements regarding Cloudburst is/are correct?

1. It refers to extreme amounts of rainfall in a short span of time over a relatively small area.

2. High relative humidity and low temperatures have been associated with cloudbursts.

Select the correct option using the code given below:

a) 1 only

b) 2 only

c) Both 1 and 2

d) Neither 1 nor 2

Ans) c

Exp) Option c is correct.

Statement 1 is correct: A rainfall of **more than 100 mm/h** over a geographical area of approx **20-30 square kilometres** has been defined by the **Indian Meteorological Department** as a cloudburst event.

Statement 2 is correct: High relative humidity causes **clouds and the raindrops within them to accumulate and increase in size and volume**. **Low temperatures** cause **sudden condensation** of this huge amount of raindrops, which cannot stay in air, and fall all of a sudden over a small area over a short duration. Other conditions that studies have shown to be associated with cloudbursts are **slow winds** (doesn't let clouds move over big areas), and **high cloud cover**.

Source: https://indianexpress.com/article/explained/explained-cloudbursts-frequent-jk-uttarakhand-himachal-pradesh-imd-7428954/

https://ndma.gov.in/Governance/Guidelines

Q.49) Which of the following statements regarding *Bhagwan Mahaveer Wildlife Sanctuary,* seen often in news, is ***incorrect***?

a) It is a part of the Western Ghat complex.

b) The river Tungabhadra flows through it.

c) Leopards can be found in this sanctuary.

d) It includes tropical evergreen, semi evergreen and moist deciduous forests.

Ans) b

Exp) Option b is correct.

Statement a is correct. It is located in the **Dharbandora taluk of Goa,** 57 km from the town of **Mollem,** near Goan border with Karnataka. The **Western Ghats** run through this wildlife sanctuary (WLS).

Statement b is incorrect: The River **Mondovi** flows through this wildlife Sanctuary.

Statement c is correct: It has a very diverse biodiversity like **Leopards, especially Black Panthers, Gaur (Indian Bison),** elephants, deer, **Bengal Tiger,** slender loris, **pangolin, Malabar giant squirrel, and bonnet macaque - not lion tailed macaque.**

Statement d is correct: This sanctuary situated in Western Ghats receives **heavy rainfall** and has **hot and humid temperature** which gives rise to **tropical and moist deciduous vegetation.**

Knowledge Base:

Bhagwan Mahaveer Wildlife Sanctuary:

1) Contains Mollem National Park within it.
2) Has the famous Dhudhsagar waterfall, Tambdi waterfalls, and Devil's Canyon.
3) Was ruled by the Kadambas in medieval times and has the Mahadeo Temple and TAmbdi Surla temples within it.

4) It was recently in news due to the state & MoEFCC's decision to widen highways and permission for double a railway track (Hospet-Vasco Da Gama project) that will disturb this pristine and biodiversity rich section of Western Ghats.

Source: https://www.downtoearth.org.in/news/wildlife-biodiversity/moef-cc-chooses-minerals-over-biodiversity-clears-rail-track-in-western-ghats-despite-red-flags-76563

https://www.goa.gov.in/places/bhagwan-mahavir-wildlife-sanctuary/

Q.50) Consider the following statements about Malwa Plateau:

1. Vindhyan Hills lie at the southern edge of the plateau.

2. The plateau has drainage systems, both, towards the Arabian sea and the Bay of Bengal.

3. The plateau is covered with black soils.

Which of the statements given above are correct?

a) 1 and 2 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

Ans) d

Exp) Option d is correct.

Statement 1 is correct – Vindhyan hills form the southern edge of the Malwan plateau. The plateau is bounded by the Aravali Range in the west and Madhya Bharat Pathar to the north and Bundelkhand to the east.

Statement 2 is correct – This plateau has two systems of drainage; one towards the Arabian sea (The Narmada, the Tapi and the Mahi), and the other towards the Bay of Bengal (Chambal and Betwa, joining the Yamuna).

Statement 3 is correct – The plateau is composed of extensive lava flow and is covered with black soils.

Source: DR Khullar, India: A comprehensive Geography, Chapter 3, Page 82

https://www.britannica.com/place/Vindhya-Range