UPSC Prelims Test Series 2020
Test 2: Geography Explanations

Answer Keys

Que	Ans	Que	Ans	Que	Ans	Que	Ans
1	D	**26**	B	**51**	D	**76**	B
2	A	**27**	D	**52**	D	**77**	D
3	A	**28**	D	**53**	D	**78**	D
4	B	**29**	A	**54**	C	**79**	B
5	A	**30**	A	**55**	D	**80**	C
6	B	**31**	D	**56**	C	**81**	B
7	C	**32**	B	**57**	C	**82**	B
8	B	**33**	D	**58**	D	**83**	C
9	C	**34**	C	**59**	A	**84**	A
10	A	**35**	A	**60**	C	**85**	B
11	D	**36**	B	**61**	B	**86**	D
12	D	**37**	A	**62**	A	**87**	A
13	A	**38**	A	**63**	A	**88**	D
14	D	**39**	A	**64**	A	**89**	A
15	A	**40**	D	**65**	A	**90**	A
16	A	**41**	B	**66**	A	**91**	C
17	B	**42**	C	**67**	C	**92**	B
18	D	**43**	C	**68**	C	**93**	C
19	C	**44**	C	**69**	D	**94**	B
20	C	**45**	C	**70**	D	**95**	D
21	C	**46**	A	**71**	B	**96**	C
22	B	**47**	D	**72**	D	**97**	D
23	D	**48**	B	**73**	C	**98**	C
24	A	**49**	B	**74**	B	**99**	D
25	C	**50**	B	**75**	C	**100**	D

Answer Explanations

Q1] Ans: D

Wilderness :

Chotanagpur is a haunter paradise. It is a home to the last population of the **Asiatic elephants**. Royal Bengal Tigers, Gaur, Bison, Spotted Deer, Sambhur, Four Horned Antelope and the big cats – leopards are still heard seen in the depth of the jungles. Some of the endangered species found in the area are the Tiger (Panthera tigris), Sloth Bear (Ursus Ursinus), Leopard (Panthera pardus), **Black Buck** (Antilope cervicapra), Asian Elephant (Elephas maximus) and **Chinkara** (Gazella bennettii).

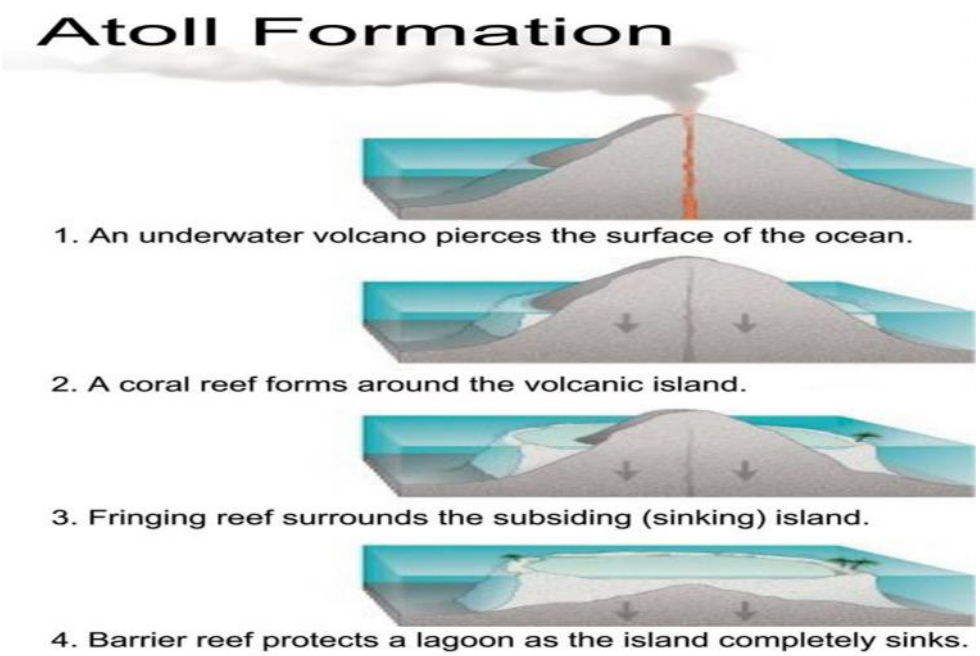
The Chota Nagpur dry deciduous forests also harbors more than 400 species of birds. Some of the important known species known among them includes florican (Eupodotis indica), Indian Grey Hornbill (Ocyceros birostris), Oriental pied hornbill (Anthracoceros albirostris) and many more.

Floral Section :

There are some species of plants in the jungles of the Chota Nagpur Plateau which are not found anywhere else in the world. For example Cycad (Cycas beddomei) is a critically endangered specie. Large areas of the Chota Nagpur are covered with different species of teak forests, **Sal forests**, and **bamboo grasslands** and mangrove forests. Major species of the Teak found in this area includes Tectona grandis, Shorea robusta, Anogeissus latifolia, Terminalia alata and so on.

Q2] Ans: A

An atoll is a ring-shaped coral reef, island, or series of islets. The atoll surrounds a body of water called a lagoon.



Q3] Ans: A

Importance of Tides

Since tides are caused by the earth-moon-sun positions which are known accurately, the tides can be predicted well in advance. This helps the navigators and fishermen plan their activities. Tidal flows are of great importance in navigation. Tidal heights are very important, especially harbours near rivers and within estuaries having shallow 'bars' at the entrance, which prevent ships and boats from entering into the harbour. **Tides are also helpful in desilting the sediments and in removing polluted water from river estuaries. Tides are used to generate electrical power** (in Canada, France, Russia, and China). A 3 MW tidal power project at Durgaduani in Sunderbans of West Bengal is under way.

Q4] Ans: B

a) Rotation of earth causes day-night cycle and hence is related to day time local weather. It has no relation with climate variation.
b) Tilted axis of earth along with revolution of earth around sun causes climate and variations in it. Hence b) is correct.
c) It can impact climate of locality however its not the basic cause of climate on earth
d) Insolation change itself is effect of tilted axis.

The earth's tilt

The earth makes one full orbit around the sun each year. It is tilted at an angle of 23.5° to the perpendicular plane of its orbital path. For one half of the year when it is summer, the northern hemisphere tilts towards the sun. In the other half when it is winter, the earth is tilted away from the sun. If there was no tilt we would not have experienced seasons. Changes in the tilt of the earth can affect the severity of the seasons - more tilt means warmer summers and colder winters; less tilt means cooler summers and milder winters.

The Earth's orbit is somewhat elliptical, which means that the distance between the earth and the Sun varies over the course of a year. We usually think of the earth's axis as being fixed, after all, it always seems to point toward Polaris (also known as the Pole Star and the North Star). Actually, it is not quite constant: the axis does move, at the rate of a little more than a half-degree each century. So Polaris has not always been, and will not always be, the star pointing to the North. When the pyramids were built, around 2500 BC, the pole was near the star Thuban (Alpha Draconis). This gradual change in the direction of the earth's axis, called precession is responsible for changes in the climate.

Q5] Ans: A

WINDS EROSIONAL LANDFORMS

Pediments and Pediplains Landscape evolution in deserts is primarily concerned with the formation and extension of pediments. Gently inclined rocky floors close to the mountains at their foot with or without a thin cover of debris, are called pediments. Such rocky floors form through the erosion of mountain front

through a combination of lateral erosion by streams and sheet flooding. Erosion starts along the steep margins of the landmass or the steep sides of the tectonically controlled steep incision features over the landmass. Once, pediments are formed with a steep wash slope followed by cliff or free face above it, the steep wash slope and free face retreat backwards. This method of erosion is termed as parallel retreat of slopes through backwasting. So, through parallel retreat of slopes, the pediments extend backwards at the expense of mountain front, and gradually, the mountain gets reduced leaving an **inselberg** which is a remnant of the mountain. That's how the high relief in desert areas is reduced to low featureless plains called pediplains deposition of sediment from basin margins, a nearly level plain forms at the centre of the basin. In times of sufficient water, this plain is covered up by a shallow water body. Such types of shallow lakes are called as playas where water is retained only for short duration due to evaporation and quite often the playas contain good deposition of salts. The playa plain covered up by salts is called alkali flats.

Deflation Hollows and Caves Weathered mantle from over the rocks or bare soil, gets blown out by persistent movement of wind currents in one direction. This process may create shallow depressions called deflation hollows. Deflation also creates numerous small pits or cavities over rock surfaces. The rock faces suffer impact and abrasion of wind-borne sand and first shallow depressions called blow outs are created, and some of the blow outs become deeper and wider fit to be called caves.

Mushroom, Table and Pedestal Rocks Many rock-outcrops in the deserts easily susceptible to wind deflation and abrasion are worn out quickly leaving some remnants of resistant rocks polished beautifully in the shape of mushroom with a slender stalk and a broad and rounded pear shaped cap above. Sometimes, the top surface is broad like a table top and quite often, the remnants stand out like pedestals.

Q6] Ans: B

Length of all longitudes is same. Hence 1 is incorrect.
Distance between longitudes decreases when we move from equator to poles hence 2 is correct. Altitude depends on topography of region. Hence 3 is also incorrect

	Latitude	Longitude
Direction	**East-west, parallel to the equator**	**North-south; converging at the poles and widest at the equator**
Parallel lines	Yes	No
Range	0 to 90° North and South	0 to 180° East and West
Denoted by	Greek letter phi (Φ)	Greek letter lambda (λ)
Hemisphere	All locations along a common latitude fall in the same hemisphere of the earth (northern or southern)	Locations along a common longitude may be in different hemispheres.

Denotes distance from	equator (north or south)	Prime Meridian (east or west)
Time zone	Locations that share the same latitude do not necessarily fall into the same time zone	All locations on the same longitude fall in the same time zone
Number of lines	180	360
Notable lines	Equator, Tropic of Cancer, Tropic of Capricorn	Greenwich Meridian
Applications	Classifying temperature zones	Classifying time zones

Q7] Ans: C

Q8] Ans: B

The western coastal plains are an example of submerged coastal plain. It is believed that the city of Dwaraka which was once a part of the Indian mainland situated along **the west coast is submerged under water**. **Because of this submergence it is a narrow belt and provides natural conditions for the development of ports and harbours**. Kandla, Mazagaon, JLN port Navha Sheva, Marmagao, Mangalore, Cochin, etc. are some of the important natural ports located along the west coast.

As compared to the western coastal plain, **the eastern coastal plain is broader and is an example of an emergent coast**. There are well developed deltas here, formed by the rivers flowing eastward in to the Bay of Bengal. These include the deltas of the Mahanadi, the Godavari, the Krishna and the Kaveri. **Because of its emergent nature, it has less number of ports and harbours**. The continental shelf extends up to 500 km into the sea, which makes it difficult for the development of good ports and harbours.

Q9] Ans: C

The Himalayan Mountains

The Himalayas, geologically young and structurally fold mountains stretch over the northern borders of India. These mountain ranges run in a west-east direction from the Indus to the Brahmaputra. The Himalayas represent the loftiest and one of the most rugged mountain barriers of the world. They form an arc, which covers a distance of about 2,400 Km. Their width varies from 400 Km in Kashmir to 150 Km in Arunachal Pradesh.**The altitudinal variations are greater in theeastern half than those in the western half**.The Himalaya consists of three parallelranges in its longitudinal extent. A numberof valleys lie between these ranges. **Thenorthern-most range is known as the Greator Inner Himalayas or the Himadri**. It is the most continuous range consisting of the loftiest peaks with an average height of 6,000 metres. It contains all prominent Himalayan peaks. **The folds of the Great Himalayas are asymmetrical in nature. The core of this part of Himalayas is composed of granite**. It is perennially snow bound, and a number of glaciers descend from this range.

Q10] Ans: A

The Deccan Plateau is a triangular landmass that lies to the south of the river Narmada. The Satpura range flanks its broad base in the north, while the Mahadev, the Kaimur hills and the Maikal range form its eastern extensions. **The Deccan Plateau is higher in the west and slopes gently eastwards**. An extension of the Plateau is also visible in the northeast, locally known as the Meghalaya, Karbi-Anglong Plateau and North Cachar Hills. It is separated by a fault from the Chotanagpur Plateau. Three prominent hill ranges from the west to the east are the Garo, the Khasi and the Jaintia Hills.

The Western Ghats and the Eastern Ghats mark the western and the eastern edges of the Deccan Plateau respectively. **Western Ghats lie parallel to the western coast. They are continuous and can be crossed through passes only**. Locate the Thal, Bhor and Pal Ghats in the Physical map of India.

The Western Ghats are higher than the Eastern Ghats. Their average elevation is 900– 1600 metres as against 600 metres of the Eastern Ghats. The Eastern Ghats stretch from the Mahanadi Valley to the Nigiris in the south. The Eastern Ghats are discontinuous and irregular and dissected by rivers draining into the Bay of Bengal.

Q11] Ans: D

Gondwana, also called Gondwanaland, ancient supercontinent that incorporated present-day South America, Africa, Arabia, Madagascar, India, Australia, and Antarctica. It was fully assembled by Late

Precambrian time, some 600 million years ago, and the first stage of its breakup began in the Early Jurassic Period, about 180 million years ago. The name Gondwanaland was coined by the Austrian geologist Eduard Suess in reference to Upper Paleozoic and Mesozoic formations in the Gondwana region of central India, which are similar to formations of the same age on Southern Hemisphere continents.

Q12] Ans: D

Q13] Ans: A

Temperature inversion exhibits rise in temperature with the increase in height. So, statement 1 is wrong.

Temperature inversion leads to damage of crops in valley regions when cold wind descends the slope and create frost at valley. So, statement 2 is correct.

Temperature inversion is found in stratosphere region as well. So statement 3 is wrong.

Q14] Ans: D

All the options are correct reasons for excessive cold in North India.

FACTORS DETERMINING THE CLIMATE OF INDIA

India's climate is controlled by a number of factors which can be broadly divided into two groups — factors related to location and relief, and factors related to air pressure and winds.

Factors related to Location and Relief Latitude:

- ✓ Northern part of the India lies in sub-tropical and temperate zone and the part lying south of the Tropic of Cancer falls in the tropical zone. The tropical zone being nearer to the equator, experiences high temperatures throughout the year with small daily and annual range. Area north of the Tropic of Cancer being away from the equator, experiences extreme climate with high daily and annual range of temperature.
- ✓ **The Himalayan Mountains** : The lofty Himalayas in the north along with its extensions act as an effective climatic divide. The towering mountain chain provides an invincible shield to protect the subcontinent from the cold northern winds. These cold and chilly winds originate near the Arctic circle and blow across central and eastern Asia. The Himalayas also trap the monsoon winds, forcing them to shed their moisture within the subcontinent.

- ✓ **Distribution of Land and Water** : India is flanked by the Indian Ocean on three sides in the south and girdled by a high and continuous mountain-wall in the north. As compared to the landmass, water heats up or cools down slowly. This differential heating of land and sea creates different air pressure zones in different seasons in and around the Indian subcontinent. Difference in air pressure causes reversal in the direction of monsoon winds.

- ✓ **Distance from the Sea** : With a long coastline, large coastal areas have an equable climate. Areas in the interior of India are far away from the moderating influence of the sea. Such areas have extremes of climate. That is why, the people of Mumbai and the Konkan coast have hardly any idea of extremes of temperature and the seasonal rhythm of weather. On the other hand, the seasonal contrasts in weather at places in the interior of the country such as Delhi, Kanpur and Amritsar affect the entire sphere of life.

- ✓ **Altitude** :Temperature decreases with height. Due to thin air, places in the mountains are cooler than places on the plains. For example, Agra and Darjiling are located on the same latitude, but temperature of January in Agra is 16°C whereas it is only 4°C in Darjiling.

- ✓ **Relief** : The physiography or relief of India also affects the temperature, air pressure, direction and speed of wind and the amount and distribution of rainfall. The windward sides of Western Ghats and Assam receive high rainfa during June-September whereas the southern plateau remains dry due to its leeward situation along the Western Ghats.

Q15] Ans: A

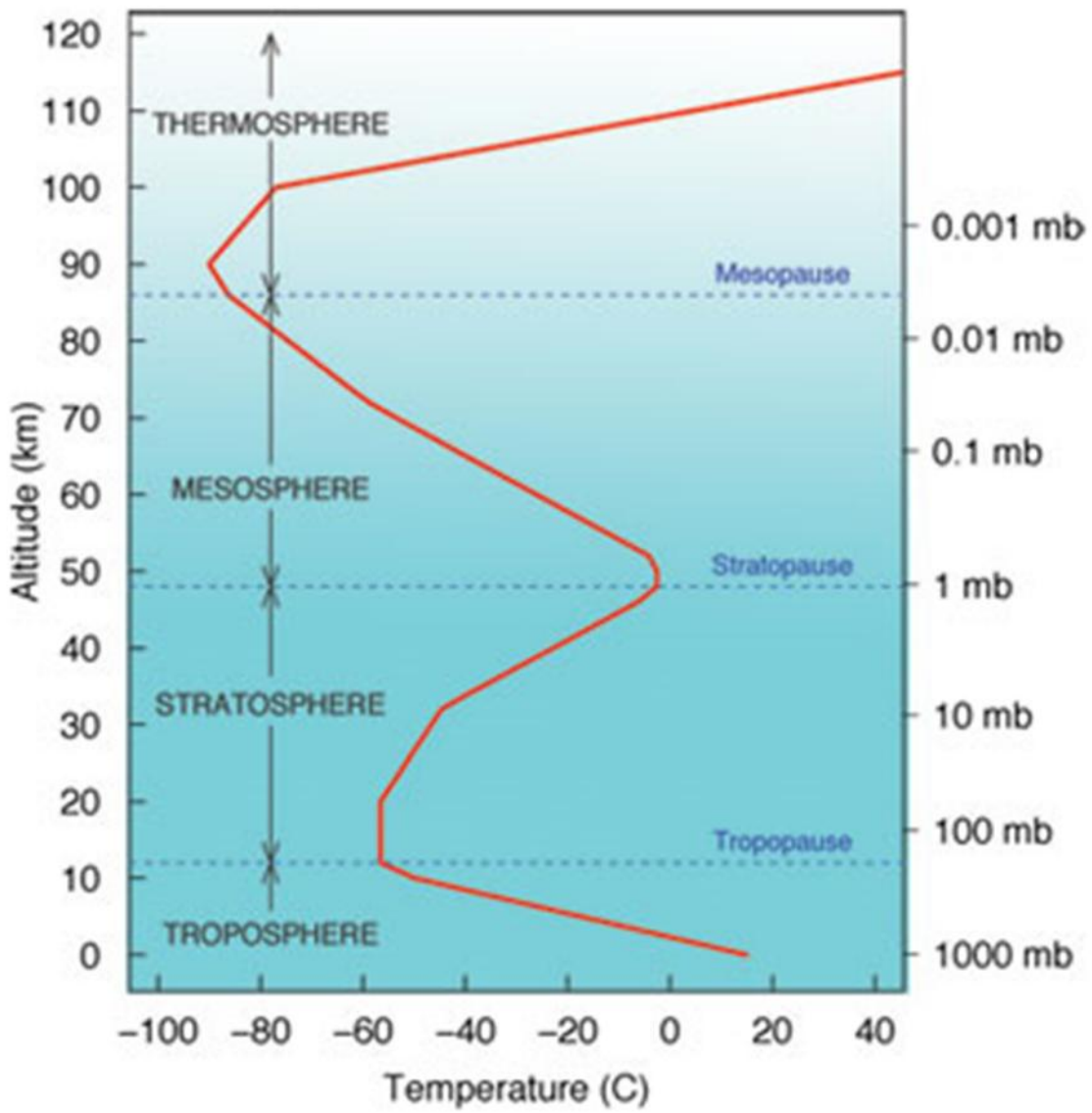
On steep slope gully erosion takes place due to speed of gushing water. Badland topography is result of gully erosion. Hence 1 and 2 are correct. Sheet erosion is significant in arid and semi arid region due to sparse vegetation cover.

Sheet erosion, detachment of soil particles by raindrop impact and their removal downslope by water flowing overland as a sheet instead of in definite channels or rills. A more or less uniform layer of fine particles is removed from the entire surface of an area, sometimes resulting in an extensive loss of rich

topsoil. Sheet erosion commonly occurs on recently plowed fields or on other sites having poorly consolidated soil material with scant vegetative cover.

There are two stages of sheet erosion.
The first is rain splash, in which soil particles are knocked into the air by raindrop impact. A hundred tons of particles per acre may be dislodged during a single rainstorm.
In the second stage, the loose particles are moved downslope, commonly by sheet flooding. Broad sheets of rapidly flowing water filled with sediment present a potentially high erosive force. Generally produced by cloudbursts, sheet floods are of brief duration, and they commonly move only short distances. On relatively rough surfaces, sheet flooding may give way to rill wash, in which the water moves in a system of enmeshed micro channels, which eventually become larger and develop into gullies.

Q16] Ans: A



Q17] Ans: B

Jig saw fit and continental drift only give evidence to support the theory of continental drift. Hence 2 and 3 are wrong. 1 and 4 gives the evidence of sea floor spreading hence supports plate tectonic.

Q18] Ans: D

Factors responsible for landform development

Topography, structure, endogenetic and exogenetic forces, climate, weather and obviously time are factors responsible for land form development.

Q19] Ans: C

Stages of river & type of landform formed.

Youth Streams are few during this stage with poor integration and flow over original slopes showing shallow V-shaped valleys with no floodplains or with very narrow floodplains along trunk streams. Streams divides are broad and flat with marshes, swamp and lakes. Meanders if present develop over these broad upland surfaces. These meanders may eventually entrench themselves into the uplands. Waterfalls and rapids may exist where local hard rock bodies are exposed.

Mature During this stage streams are plenty with good integration. The valleys are still V-shaped but deep; trunk streams are broad enough to have wider floodplains within which streams may flow in meanders confined within the valley. The flat and broad inter stream areas and swamps and marshes of youth disappear and the stream divides turn sharp. Waterfalls and rapids disappear.

Old Smaller tributaries during old age are few with gentle gradients. Streams meander freely over vast floodplains showing natural levees, oxbow lakes, etc. Divides are broad and flat with lakes, swamps and marshes. Most of the landscape is at or slightly above sea level.

Q20] Ans: C

Japan is located along the so-called Pacific Ring of Fire, which is the most active earthquake belt in the world. This "ring" is actually an imaginary horseshoe-shaped zone that follows the rim of the Pacific Ocean, where many of the world's earthquakes and volcanic eruptions occur. Within the Ring of Fire, several tectonic plates — including the Pacific Plate beneath the Pacific Ocean and the Philippine Sea Plate — mash and collide.

Q21] Ans: C

Due to intense pressure inner core remain solid at very high temperature also. Melting point increases with rise of pressure(concept of triple point).

The Core

As indicated earlier, the earthquake wave velocities helped in understanding the existence of the core of the earth. The core mantle boundary is located at the depth of 2,900 km. **The outer core is in liquid state while the inner core is in solid state. The density of material at the mantle core boundary is around 5 g/cm3 and at the centre of the earth at 6,300 km, the density value is around 13g/cm3.** The core is made up of very heavy material mostly constituted by nickel and iron. It is sometimes referred to as the nife layer.

Q22] Ans: B

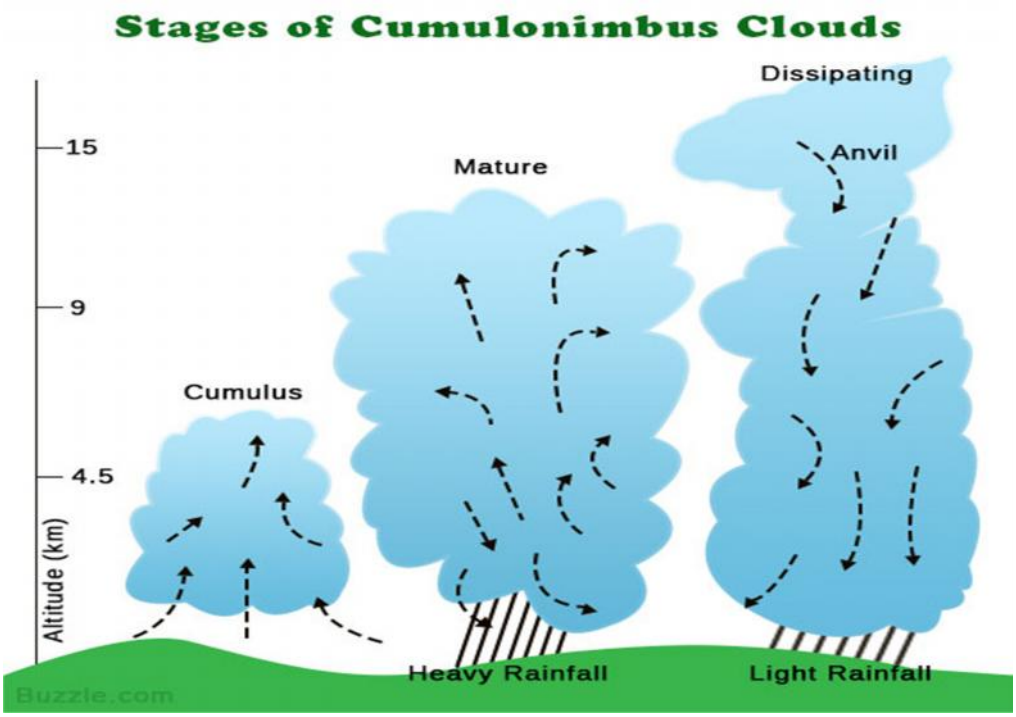
The Selva Zoque, which includes the Chimalapas rain forest, is an area of great ecological importance in Mexico. Most of the forest lies in the state of Oaxaca but parts are in Chiapas and Veracruz. It is the largest tract of tropical rainforest in Mexico, and contains the majority of terrestrial biodiversity in the country.

The forest includes the Selva El Ocote, a federally protected biosphere reserve, but is otherwise not yet protected. Despite the rich ecology of the region, a 2003 study that focused on bird populations stated that "the fauna of the heart of the Chimalapas, including its vast rainforests, have seen little or no study".

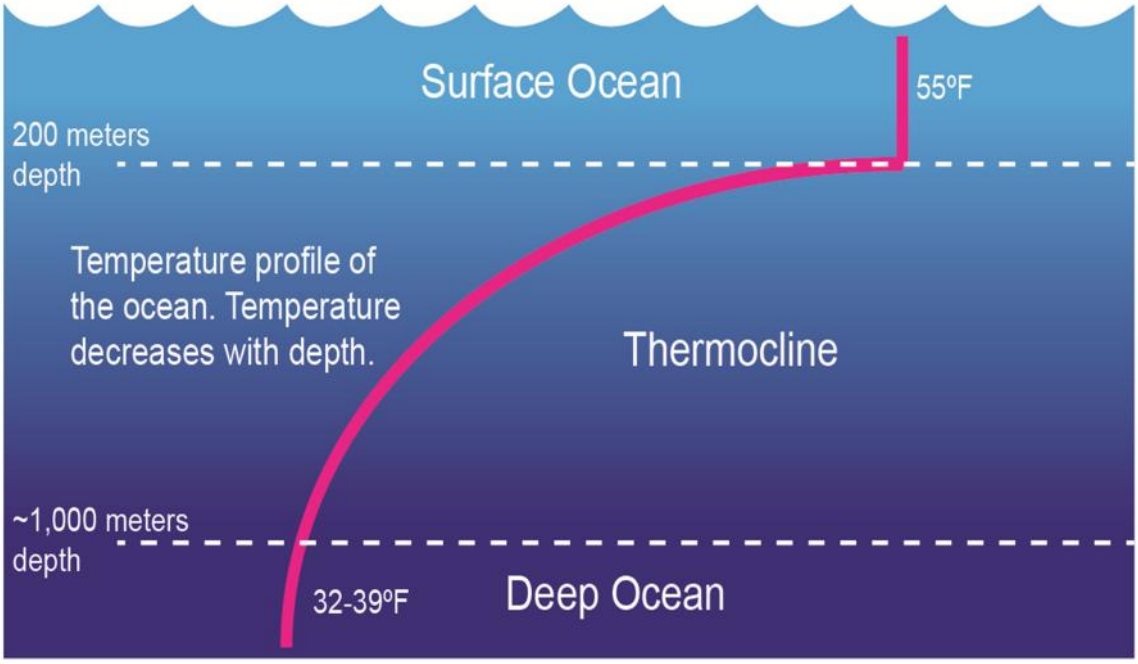
As it is an impoverished region, efforts to preserve the ecology are often at odds with demands to improve the economy.

Q23] Ans: D

Cumulonimbus clouds are large, tall clouds that are dark on the bottom and usually produce rain and thunderstorms. In fact, they are sometimes called thunderstorm clouds, but they can also bring different kinds of weather, including hail and snow showers.



Q24] Ans: A



Q25] Ans: C

El-Nino is totally East Pacific Ocean phenomenon hence West side of Pacific Ocean has no role in El-nino. Therefore option 3 is wrong.

Also Climate change has no specific role in El Nino.

EI-Nino and the Indian Monsoon

EI-Nino is a complex weather system that appears once every three to seven years, bringing drought, floods and other weather extremes to different parts of the world. The system involves oceanic and atmospheric phenomena with the appearance of warm currents off the coast of Peru in the Eastern Pacific and affects weather in many places including India. EI-Nino is merely an extension of the warm equatorial current which gets replaced temporarily by cold Peruvian current or Humbolt current (locate these currents in your atlas).

This current increases the temperature of water on the Peruvian coast by 10°C. This results in: (i) the distortion of equatorial atmospheric circulation; (ii) irregularities in the evaporation of sea water; (iii) reduction in the amount of planktons which further reduces the number of fish in the sea. The word EI-Nino means 'Child Christ' because this current appears around Christmas in December. December is a summer month in Peru (Southern Hemisphere).

EI-Nino is used in India for forecasting long range monsoon rainfall.

Q26] Ans: B

Q27] Ans: D

The westerlies, anti-trades,or prevailing westerlies, are prevailing winds from the west toward the east in the middle latitudes between 30 and 60 degrees latitude. They originate from the high-pressure areas in the horse latitudes and trend towards the poles and steer extratropical cyclones in this general manner. Tropical cyclones which cross the subtropical ridge axis into the westerlies recurve due to the increased westerly flow. The winds are predominantly from the southwest in the Northern Hemisphere and from the northwest in the Southern Hemisphere.

Western disturbances, specifically the ones in winter, bring moderate to heavy rain in low-lying areas and heavy snow to mountainous areas of the **Indian** Subcontinent. They are the cause of most winter and pre-monsoon season rainfall across northwest **India**.

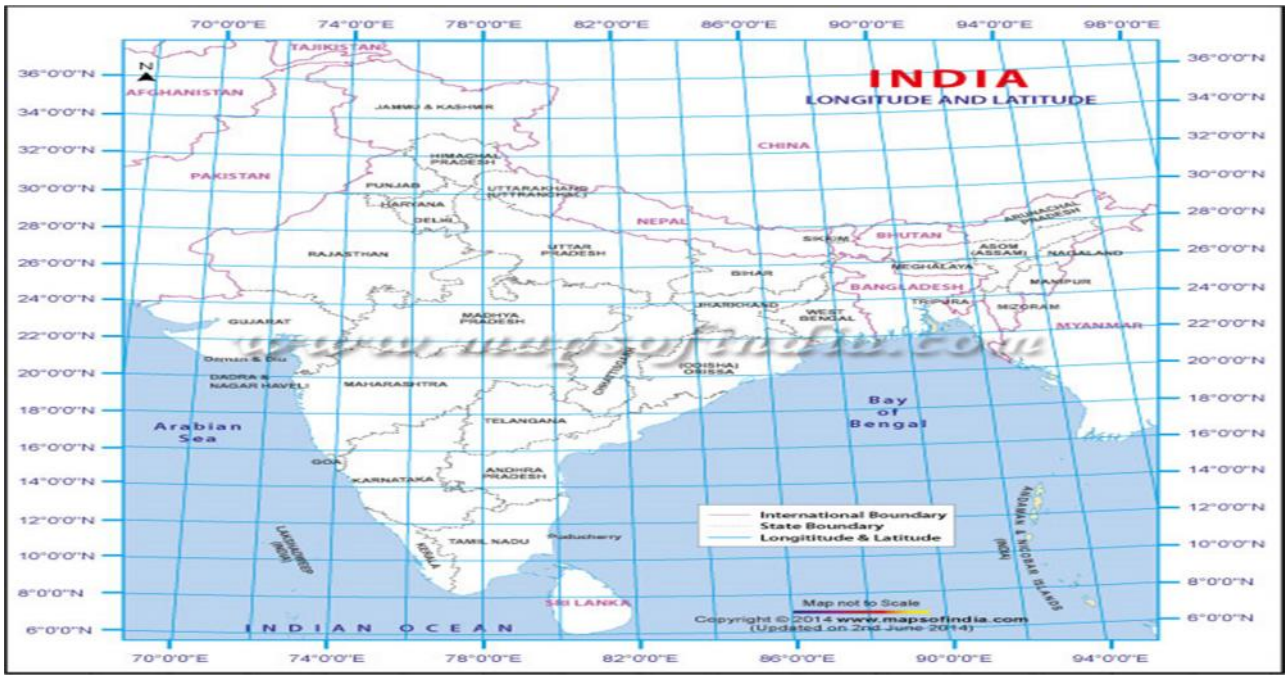
Q28] Ans: D

Mulching covers the soil. Contour barriers reduce soil erosion, rock dam reduce floe of sedimentation. Intercropping keep soil covered for most period of year. Shelter belts reduce wind speed. Terrace farming reduce gully erosion on slopes. Hence all are correct.

Soil Conservation : If soil erosion and exhaustion are caused by humans; by corollary, they can also be prevented by humans. Nature has its own laws of maintaining balance. Nature offers enough opportunities for humans to develop their economy without disturbing the ecological balance. Soil conservation is a methodology to maintain soil fertility, prevent soil erosion and exhaustion, and improve the degraded condition of the soil. Soil erosion is essentially aggravated by faulty practices. The first step in any rational solution is to check open cultivable lands on slopes from farming. Lands with a slope gradient of 15 - 25 per cent should not be used for cultivation. If at all the land is to be used for agriculture, terraces should carefully be made. Over-grazing and shifting cultivation in many parts of India have affected the natural cover of land and given rise to extensive erosion. It should be regulated and controlled by educating villagers about the consequences. Contour bunding, Contour terracing, regulated forestry, controlled grazing, cover

cropping, mixed farming and crop rotation are some of the remedial measures which are often adopted to reduce soil erosion.

Q29] Ans: A



Q30] Ans: A

Explanation: Setting of westerly jet stream north of Himalaya and setting of easterly jet stream along 15^0N latitude leads burst in monsoon. Hence option A is correct.

Monsoon

Generally, across the world, the monsoons are experienced in the tropical area roughly between 20° N and 20° S.

The climate of India is described as the **'monsoon'** type. In Asia, this type of climate is found mainly in the south and the southeast.

Out of a total of 4 seasonal divisions of India, monsoon occupy 2 divisions, namely.

- **The southwest monsoon season -** Rainfall received from the southwest monsoons is seasonal in character, which occurs between June and September.
- **The retreating monsoon season -** The months of October and November are known for retreating monsoons.

Factors Influencing South-West Monsoon Formation

- **The differential heating and cooling of land and water** creates a low pressure on the landmass of India while the seas around experience comparatively high pressure.
- **The shift of the position of Inter Tropical Convergence Zone (ITCZ)** in summer, over the Ganga plain (this is the equatorial trough normally positioned about 5°N of the equator. It is also known as the monsoon-trough during the monsoon season).
- **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 affect the Indian Monsoon.
- **The Tibetan plateau** gets intensely heated during summer, which results in strong vertical air currents and the formation of low pressure over the plateau at about 9 km above sea level.
- **The movement of the westerly jet stream** to the north of the Himalayas and the presence of the tropical easterly jet stream over the Indian peninsula during summer.
- **Tropical Easterly Jet (African Easterly Jet).**
- **Southern Oscillation (SO):** 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 SO.

Onset of the South-West Monsoon

- The location of **ITCZ shifts north and south of the equator** with the apparent movement of the Sun.
- During the month of June, the **sun shines vertically over the Tropic of Cancer** and the **ITCZ shifts northwards**.
- The southeast trade winds of the southern hemisphere cross the equator and start blowing in southwest to northeast direction under the influence of **Coriolis force**.
- These winds collect moisture as they travel over the warm Indian Ocean.
- In the month of July, the **ITCZ shifts to 20°-25° N latitude and is located in the Indo-Gangetic Plain** and the south-west monsoons blow from the Arabian Sea and the Bay of Bengal. The ITCZ in this position is often called the **Monsoon Trough**.
- The shift in the position of the ITCZ is also related to the phenomenon of the withdrawal of the westerly jet stream from its position over the north Indian plain, south of the Himalayas.
- The easterly Jet Stream (Somali Jet) sets in along 15°N latitude only after the western jet stream has withdrawn itself from the region. This easterly jet stream is held responsible for the burst of the monsoon in India.
- As these winds approach the land, their southwesterly direction is modified by the relief and thermal low pressure over northwest India. The monsoon approaches the Indian landmass in two branches:
    - **The Arabian Sea branch -** The monsoon winds originating over the Arabian Sea.

- o **The Bay of Bengal branch -** The Arakan Hills along the coast of Myanmar deflect a big portion of this branch towards the Indian subcontinent. The monsoon, therefore, enters West Bengal and Bangladesh from south and southeast instead of from the south-westerly direction.

- Another phenomenon associated with the monsoon is its tendency to have **'breaks'** in rainfall. The monsoon rains take place only for a few days at a time. They are interspersed with rainless intervals. **These breaks in monsoon are related to the movement of the monsoon trough.**

Despite an overall unity in the general pattern, there are perceptible regional variations in climatic conditions within the country.

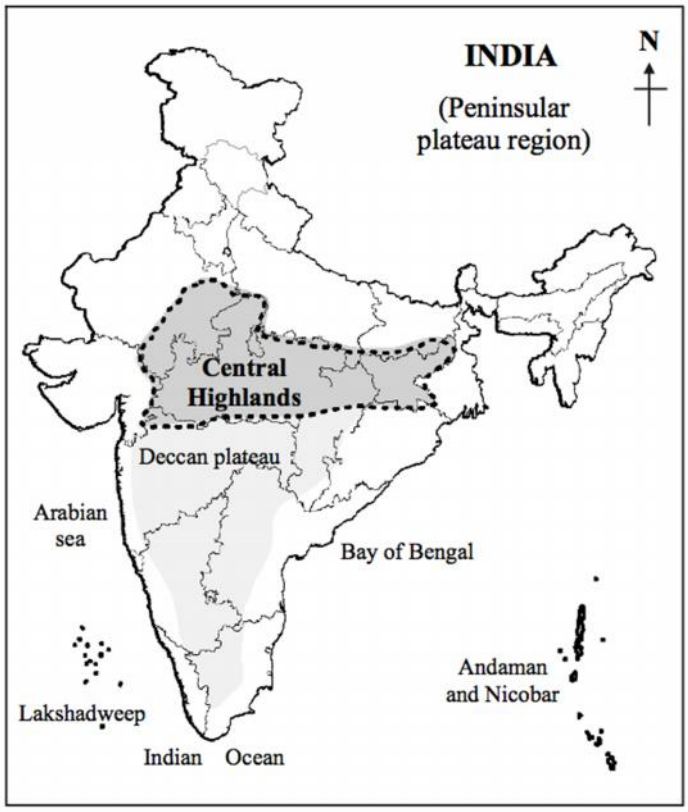
Q31] Ans: D

Explanation: Because shelter belts can reduce only wind erosion. Hence answer is d.

A windbreak (shelterbelt) is a planting usually made up of one or more rows of trees or shrubs planted in such a manner as to provide shelter from the wind and to protect soil from erosion. They are commonly planted in hedgerows around the edges of fields on farms.

Q32] Ans: B

Explanation: The slopes of central highlands are from south west to north east. So Rivers like Chambal, Betwa, Ken flows South West to North East. Hence 1 is incorrect.



Statement 2 is correct. As shown in map, they are wider in West and narrower in the East.
Statement 3 is correct. Denuded relicts of mountains ranges of Aravalli, Satpura are found here.

The Central Highlands

They are bounded to the west by the Aravali range. The Satpura range is formed by a series of scarped plateaus on the south, generally at an elevation varying between 600-900 m above the mean sea level. This forms the northernmost boundary of the Deccan plateau. It is a classic example of the relict mountains which are highly denuded and form discontinuous ranges. The extension of the Peninsular plateau can be seen as far as Jaisalmer in the West, where it has been covered by the longitudinal sand ridges and crescent-shaped sand dunes called barchans. This region has undergone metamorphic processes in its geological history, which can be corroborated by the presence of metamorphic rocks such as marble, slate, gneiss, etc.

The general elevation of the Central Highlands ranges between 700-1,000 m above the mean sea level and it slopes towards the north and northeastern directions. Most of the tributaries of the river Yamuna have their origin in the Vindhyan and Kaimur ranges. Banas is the only significant tributary of the river Chambal that originates from the Aravalli in the west. An eastern extension of the Central Highland is formed by the Rajmahal hills, to the south of which lies a large reserve of mineral resources in the Chotanagpur plateau.

Q33] Ans: D

Vamsadhara and Pennar are independent east flowing rivers. So option D is correct.

Godavari Tributaries are listed below:

- **Left:** Banganga, Kadva, Shivana, Purna, Kadam,Pranahita, Indravati, Taliperu, Sabari
- **Right:** Nasardi, Darna, Pravara, Sindphana, Manjira,Manair, Kinnerasani

Q34] Ans: C

Red and Yellow Soil

Red soil develops on crystalline igneous rocks in areas of low rainfall in the eastern and southern part of the Deccan Plateau. Along the piedmont zone of the Western Ghat, long stretch of area is occupied by red loamy soil. Yellow and red soils are also found in parts of Odisha and Chhattisgarh and in the southern parts of the middle Ganga plain.

The soil develops a reddish colour due to a wide diffusion of iron in crystalline and metamorphic rocks. It looks yellow when it occurs in a hydrated form. The fine-grained red and yellow soils are normally fertile, whereas coarse-grained soils found in dry upland areas are poor in fertility. They are generally poor in nitrogen, phosphorous and humus.

Q35] Ans: A

The Laterite soli develops in areas with high temperature and heavy rain fall. This soil is result of intense leaching due to heavy rain.

Humus/ Organic content of the soil is low as most of the microorganisms particularly decomposers like bacteria gets destroyed due to high temperature. So statement 2 is wrong.

These soils are suitable for cultivation with adequate doses of manure and fertilizers. So statement 3 is wrong.

This soil is used to make bricks. The meaning of word 'Later' in Latin is brick.

Q36] Ans: B

Explanation: in Mediterrean region rainfall occurs in winter. While monsoon climate doesnot have fixed wet and dry period. The **desert climate** (in the Köppen **climate** classification BWh and BWk), is a **climate** in which there is an excess of evaporation over precipitation. Savanna climate show this characteristic hence b is correct.

Q37] Ans: A

Explanation: Equator has vertical air circulation due absence of Corioli's effect. Hence daily convectional rainfall occurs here. While western ghats take orographic rainfall during monsoon . Orissa faces cyclones post monsoon. Hence all are correct.

Types of Rainfall

On the basis of origin, rainfall may be classified into three main types – the convectional, orographic or relief and the cyclonic or frontal.

Conventional Rain The, air on being heated, becomes light and rises up in convection currents. As it rises, it expands and loses heat and consequently, condensation takes place and cumulous clouds are formed. With thunder and lightening, heavy rainfall takes place but this does not last long. Such rain is common in the summer or in the hotter part of the day. It is very common in the equatorial regions and interior parts of the continents, particularly in the northern hemisphere.

Orographic Rain When the saturated air mass comes across a mountain, it is forced to ascend and as it rises, it expands; the temperature falls, and the moisture is condensed. The chief characteristic of this sort of rain is that the windward slopes receive greater rainfall. After giving rain on the windward side, when these winds reach the other slope, they descend, and their temperature rises. Then their capacity to take in moisture increases and hence, these leeward slopes remain rainless and dry. The area situated on the leeward side, which gets less rainfall is known as the rain-shadow area. It is also known as the relief rain.

Q38] Ans: A

Known to sailors around the world as the doldrums, the Inter-Tropical Convergence Zone, (ITCZ), is a belt around the Earth extending approximately five degrees north and south of the equator. Here, the prevailing trade winds of the northern hemisphere blow to the southwest and collide with the southern hemisphere's driving northeast trade winds.

Q39] Ans: A

To form delta coast should be tideless, shallow and there should not be any strong water currents. 3 is wrong hence option A is correct.

So True delta formation needs many favorable conditions as mentioned below:

1. The flow of River must be **low and steady** enough for silt to be deposited at the mouth. Eg: The Ok Tedi river (Papua New Guinea) is one of the fastest flowing rivers in the world. It's doesn't form delta as It becomes tributary of Fly river which creates a delta.
2. **Deposition of sediments** must be high near the mouth.
3. The river must be flow with a **large load of sediments** during the course. Himalayan rivers are a perfect example of it, because of the sedimentary origin of the mountain.
4. **Continental Shelf** or adjoining sea near the mouth of the river must be wide enough to provide a suitable area for the deposition of silt.
5. The great deltas of the world are all formed in relatively **protected bodies of water** while the Amazon empties directly into the turbulent Atlantic ocean.
6. **Low wave and current energy** in the adjoining body of water. The Atlantic Ocean has sufficient wave and tidal energy to carry most of the Amazon's sediments.
7. **No large lakes or Barrages** present in the river course. In the long run, they will slow the flow of sediments in the river. Example: *Farakka Barrage(Ganges river).*

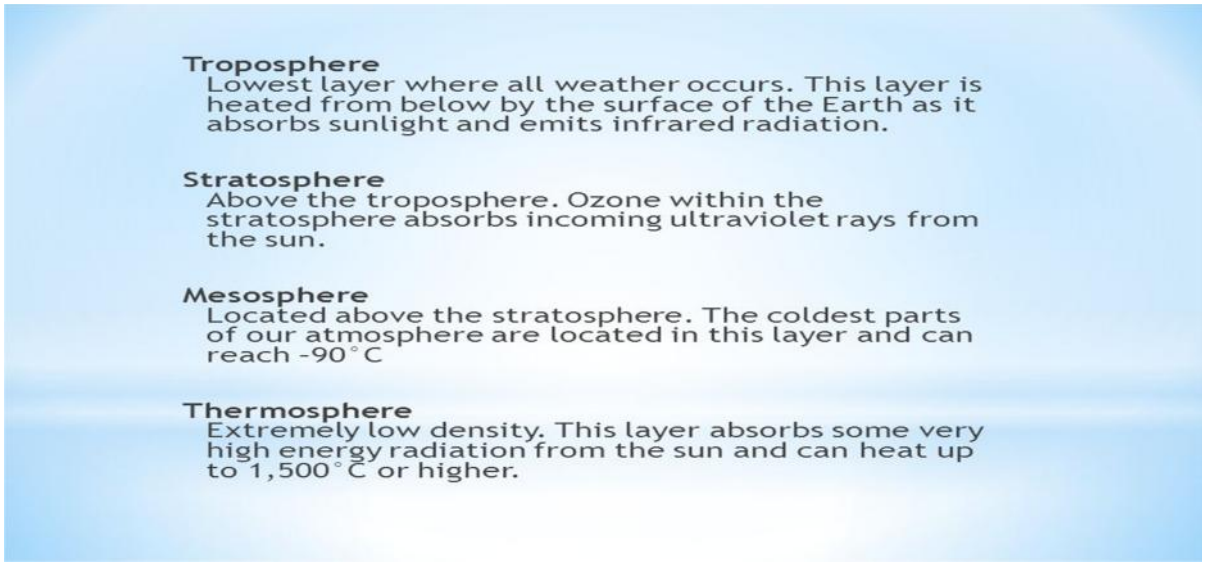
Q40] Ans: d

Areas near the equator receive more direct solar radiation than areas near the poles. It causes the ocean currents and winds transport the heat from the lower latitudes near the equator to higher latitudes near the poles.
The global wind patterns cause the surface currents to form in the uppers layer of the ocean.
Gravity will tend to pull the **water** down the "hill" or pile of **water** against the pressure gradient.
Earth's rotation results in the Coriolis Effect which also **influences ocean currents**.Hence option d is correct.

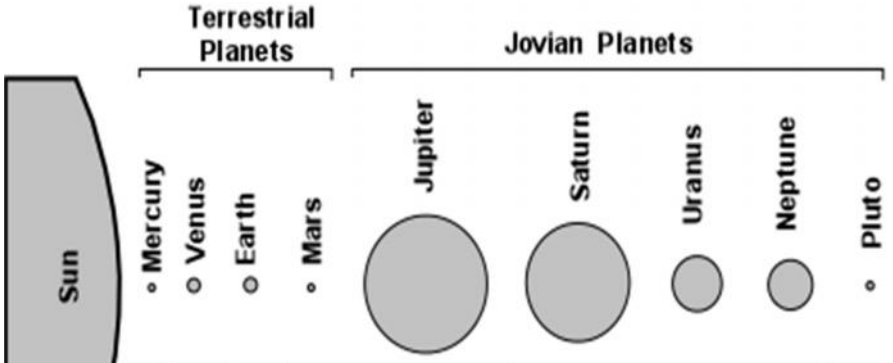
Q41] Ans: b

Q42] Ans: C

Auroras occur due to interaction between solar flares and earth's magnetic field. They are part of upper thermosphere. Jet aircraft fly above troposphere to avoid clouds and strong winds. Weather occur only upto Tropopause. Hence c is correct.



Q43] Ans: C



58	108	150	228	778	1427	2870	4497	5900	Distance from Sun (million Km)
0.24	0.62	1	1.9	11.9	29.5	84	164	248	Orbital Period (yrs)
5.4	5.2	5.4	3.9	1.3	0.7	1.2	1.7	<1.7	Density (g/cm³)
2.44	6.05	6.38	3.39	71.4	60	25.9	24.7	1.9	Radius Z(1000 km)
59	243	1	1.03	0.4	0.43	0.89	0.53	6.4	Length of Day (Earth Days)

Q44] Ans: C

The **temperature** in the **enclosed seas** in **low latitudes** becomes **higher** because of the influence of surrounding land areas **than the open seas** e.g., the average annual **temperature** of surface water at the equator is 26.7°C (80°F) whereas it is 37.8°C (100°F) in the Red **Sea** and 34.4°C (94°F) in the Persian Gulf. For the same reason - land areas covered in snow - in higher latitudes, enclosed seas have lower temperature

than the open seas - for example, temperature of the Baltic sea (58°N latitude) is lower than the open ocean. Hence statements 1& 2 are correct.

Q45] Ans:C

Alang beach (Gujurat, India) is one of **the** main **ship breaking yards** in **the world**. Alang is a census town in Bhavnagar district in **the** Indian state of Gujarat, India.
Gujarat ranks first nationwide in gas-based thermal electricity generation with **national** market share of over 8%.
Anand milk cooperative situated in Gujarat.

Q46] Ans: A

Both are correct e.g. Australia, Andaman and Nicobar Islands of India

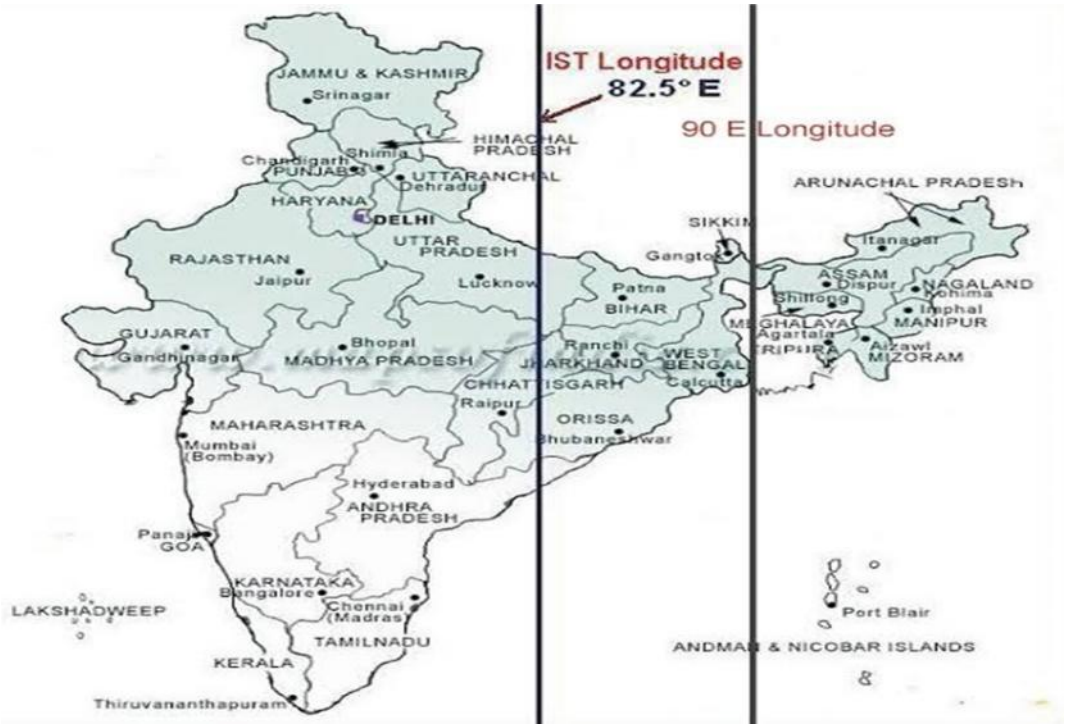
Q47] Ans: D

Gujarat is major producer of Cotton, Groundnut and tobacco.

Q48] Ans: B

New Moore Island is result of delta formation in Sudarban. While Nicobar Island is part Arakan Yoma range extension. Hence B is correct.

Q49] Ans: B



Q50] Ans: b

Explanation:

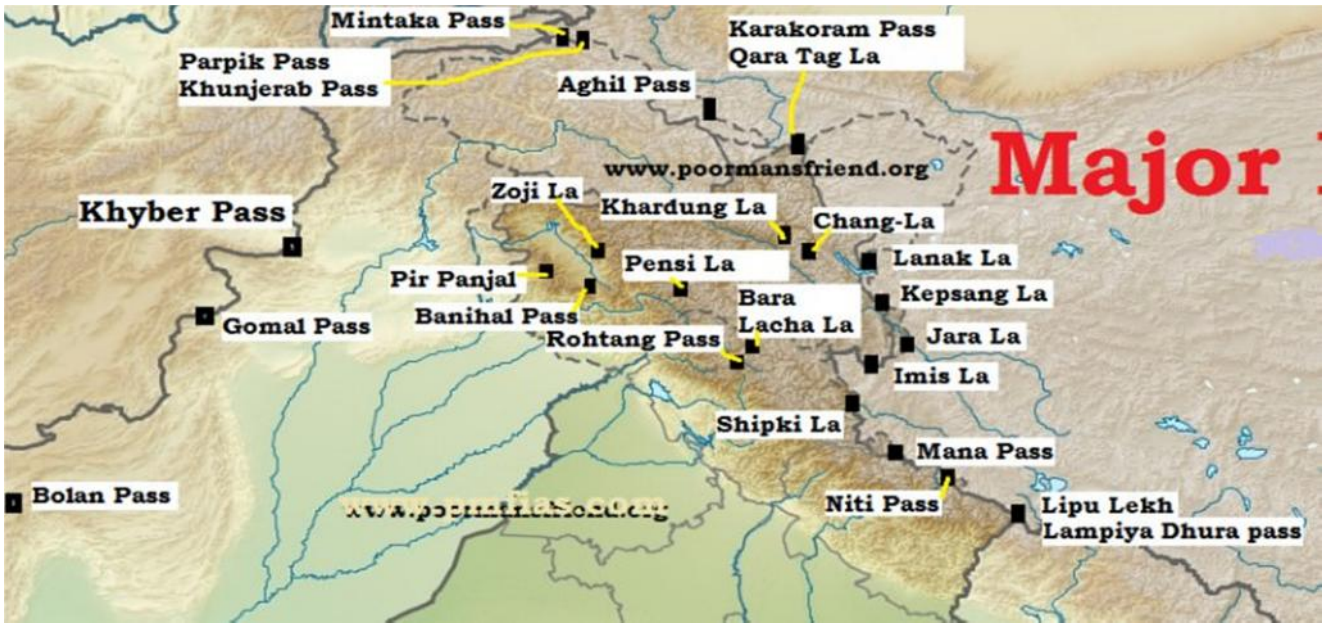
River – Drainage Basin, Estuary, floodplain, meander, oxbow lake, rapids, river delta, river island, spurs etc

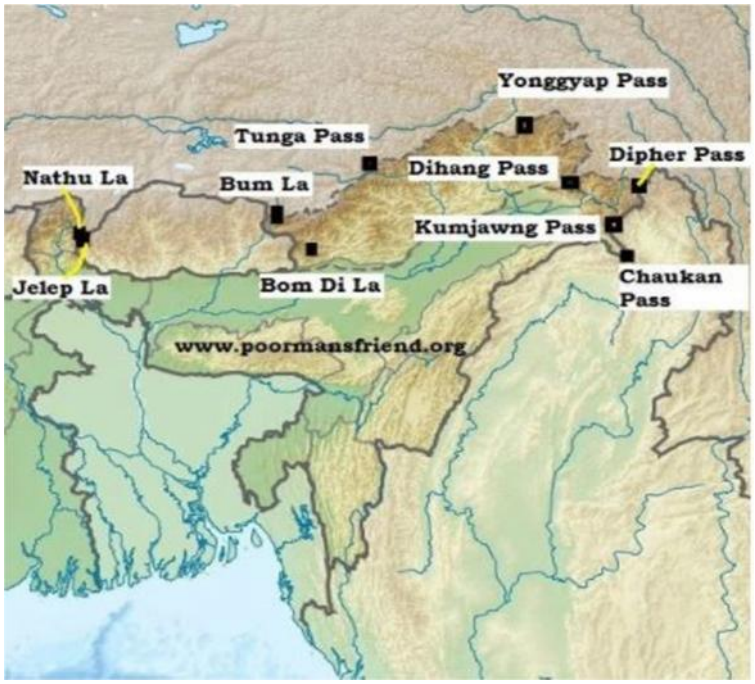
Wind Eroded Arid Landforms – Deflation basins, Mushroom rocks, Inselbergs, Demoiselles, Demoiselles, Zeugen , Wind bridges and windows. Depositional Arid Landforms – Ripple Marks, Sand dunes, Longitudinal dunes, Transverse dunes, Barchans, Parabolic dunes, Star dunes and Loess.

Ground Water The topographical features created by the work of underground water on limestone are of two types.
(a) Topographical features formed on the surface, like sink holes and swallow holes.
(b) Topographical features formed underground like caverns, stalactites and stalgmites.

As **the glaciers** expand, due to their accumulating weight of snow and ice they crush and abrade and scour surfaces such as rocks and bedrock. The resulting erosional landforms include striations, cirques, glacial horns, arêtes, trim lines, U-shaped valleys, roches moutonnées, overdeepenings and hanging valleys.

Q51] Ans: D





Q52] Ans: D

Refer extra information given for Q.25.

Q53] Ans: D

Explanation: This type of situation happened at convergent boundary where plates get subducted. Along convergent plates boundaries, subduction carries plates into mantle.

Q54] Ans: C

Due to presence of Himalaya the cold wind coming from north gets stopped. Continental Polar and Arctic air masses would no longer be barred by the Himalayas from surging due south from Siberia.

55] Ans: D

Earth's rotation is the rotation of the planet Earth around its own axis. The Earth rotates from the west towards east. As viewed from North Star or polestar Polaris, the Earth turns counter-clockwise.

Without this rotation, only one side of the Earth will be exposed to sunlight and the other half will be in the shadow or darkness. Hence there should be rotation of the Earth around its own axis to cause day/night, seasons, sunrise/sunset so that all the parts of Earth have both day and night.

Q56] Ans: C

A seismic gap is a segment of an active fault known to produce significant earthquakes that has not slipped in an unusually long time, compared with other segments along the same structure. There is a hypothesis or

theory that states that over long periods of time, the displacement on any segment must be equal to that experienced by all the other parts of the fault.

Any large and longstanding gap is, therefore, considered to be the fault segment most likely to suffer future earthquakes.

Q57] Ans: C

Gujarat accounts for about 77% of salt production in the country.

Gujarat has longest coastline in India. So it helps in salt production. Also as tropic of cancer passes through the state, long duration of hot and dry conditions prevails. This adds in salt production. So statements 1 and 2 are correct.

Absence of perennial rivers does not play role in salt formation. So statement 3 is incorrect.

Q58] Ans: D

On the earth there are alternate low and high pressure belts which creates pressure gradient. Corialis force is due to earth's rotation which deflects wind. The gravitational force acts downward. Hence option d is correct.

Q59] Ans: A

Cropping Intensity: It is the ratio of Gross **Cropped** Area to the Net Sown Area.

Cropping intensity refers to the raising of a number of crops from the same field during one agriculture year.

Q60] Ans: C

Q61] Ans: B

Statements 1,2&3 are correct. Epicenter of earthquake lies on the surface of earth it may be on continent or on the ocean floor (statement 4 is incorrect).Hence option b is correct.

Q62] Ans: A

Over a long period the deposit of sediment at the **river** bottom rises, forcing the **river** to **change its course**.

Q63] Ans: A

The question of defining the oceanic limits of the Indian Ocean is complicated and remains unsettled. The clearest border and the one most generally agreed upon is that with the Atlantic Ocean, which runs from Cape Agulhas, at the southern tip of Africa, due south along the 20° E meridian to the shores of Antarctica.

The border with the Pacific Ocean to the southeast is usually drawn from South East Cape on the island of Tasmania south along the 147° E meridian to Antarctica. Bass Strait, between Tasmania and Australia, is considered by some to be part of the Indian Ocean and by others to be part of the Pacific.

The northeastern border is the most difficult to define. The one most generally agreed upon runs northwest from Cape Londonderry in Australia across the Timor Sea, along the southern shores of the Lesser Sunda

Islands and of Java, and then across the Sunda Strait to the shores of the island of Sumatra. Between Sumatra and the Malay Peninsula the boundary is usually drawn across the Singapore Strait.

Q64] Ans: A

It is not essential that cloudbursts occur only when a cloud clashes with a solid body like a mountain. So it does not always occur at higher altitudes. So statement 2 is wrong.
They can also occur when hot water vapor mingles into the cold resulting in sudden condensation. Not necessarily in day time. So statement 4 is wrong.

Q65] Ans: A

Offshore trade winds in the region and location in rain shadow zone:- Trade winds that blow in the region, shed their moisture on the eastern part and by the time they reach the western margin, they become dry. Hence statement 1 is correct.

Presence of cold ocean currents along the western coast of continents tends to stabilise the air over the coast. This prevents cloud formation and rainfall. Hence statement 2 is correct.

Due to cold ocean current effect even though temperature is high, evaporation rate is not high, leading to less condensation. So leading to formation of deserts. So statement 3 is incorrenct.

Examples are: Great Sahara Desert, Arabian, Kalahari, Atacama etc.

Q66] Ans: A

Hurricanes originate in the Atlantic basin. A tropical cyclone is a rapidly rotating storm system characterized by a low-pressure center, high temperature, a closed low-level atmospheric circulation, strong winds, and a spiral arrangement of thunderstorms that produce heavy rain

Q67] Ans: C

Lake Manasarovar is the source of the

- Sutlej, which is the easternmost large tributary of the Indus
- Brahmaputra River
- Indus River
- Ghaghara, an important tributary of the Ganges

Q68] Ans: C

Q69] Ans: D

Mahi	34842
Sabarmati	21674
Narmada	98796
Tapi	65145

Q70] Ans: D

It is cultivated in Rabi season in India.

It is primarily a crop of temperate zone.

Nitrogen fixation occurs in leguminous plants.

Q71] Ans: B

Types of port on the basis of specialised functions:

Oil Ports: These ports deal in the processing and shipping of oil. Some of these are tanker ports and some are refinery ports. Maracaibo in Venezuela, Esskhira in Tunisia, Tripoli in Lebanon are tanker ports. Abadan on the Gulf of Persia is a refinery port.

Ports of Call: These are the ports which originally developed as calling points on main sea routes where ships used to anchor for refuelling, watering and taking food items. Later on, they developed into commercial ports. Aden, Honolulu and Singapore are good examples.

Packet Station: These are also known as ferry ports. These packet stations are exclusively concerned with the transportation of passengers and mail across water bodies covering short distances. These stations occur in pairs located in such a way that they face each other across the water body, e.g. Dover in England and Calais in France across the English Channel.

Entrepot Ports: These are collection centres where the goods are brought from different countries for export. Singapore is an entrepot for Asia. Rotterdam for Europe, and Copenhagen for the Baltic region.

Naval Ports: These are ports which have only strategic importance. These ports serve warships and have repair workshops for them. Kochi and Karwar are examples of such ports in India.

Q72] Ans: D

A **plantation** is the large-scale estate meant for farming that specializes in cash **crops**. The **crops** that are grown include cotton, coffee, tea, cocoa, sugar cane, sisal, oil seeds, oil palms, rubber trees, and fruits.
All of the above options a,b and c are plantation crops.

Q73] Ans: C

The down thrusting of Malda fault diverted the Ganga and the Brahmaputra system to flow towards the Bay of Bengal. The dismemberment of Indus and its five tributaries in west happened due to upliftment of Delhi Ridge.

Hence statements 1& 2 are correct.

Source: NCERT on Geography of India

Q74] Ans: B

Truck farming, horticultural practice of growing one or more vegetable crops on a large scale for shipment to distant markets. It is usually less intensive and diversified than market gardening. At first this type of **farming** depended entirely on local or regional markets.

Q75] Ans: C

Push Factors

- Push factors are those that force the individual to move voluntarily, and in many cases, they are forced because the individual risk something if they stay.
- Push factors may include conflict, drought, famine, or extreme religious activity.
- Poor economic activity and lack of job opportunities are also strong push factors for migration.
- Other strong push factors include race and discriminating cultures, political intolerance and persecution of people who question the status quo.

Pull Factors

- Pull factors are those factors in the destination country that attract the individual or group to leave their home.
- Those factors are known as place utility, which is the desirability of a place that attracts people.
- Better economic opportunities, more jobs, and the promise of a better life often pull people into new locations.
- Sometimes individuals have ideas and perceptions about places that are not necessarily correct, but are strong pull factors for that individual.
- As people grow older and retire, many look for places with warm weather, peaceful and comfortable locations to spend their retirement.
- People often like to move to places with better cultural, political, climatic and general terrain in closer locations than locations farther away.

Q76] Ans: B

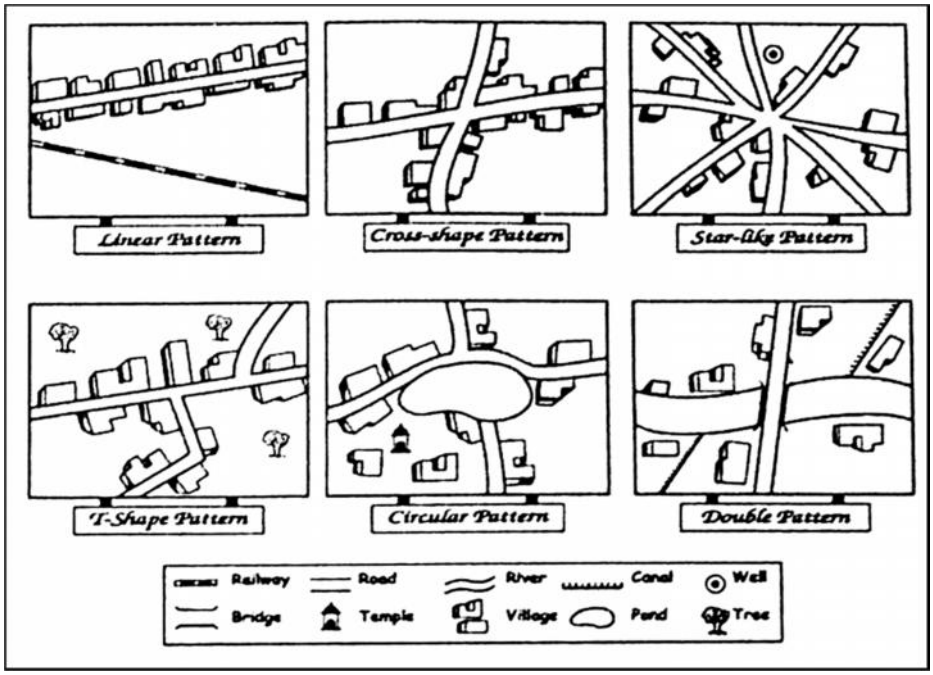
Crude birth rate represents the childbirths per 1,000 people each year. This is a common measure of fertility for a given population.

Statisticians use the crude birth rate in population geography and demography because it is a useful indicator in studies of population around the world.

The crude birth rate could be of concern for particular countries who may be experiencing population decline or for national governments who are worried about population growth rates that are higher than their country can sustain.

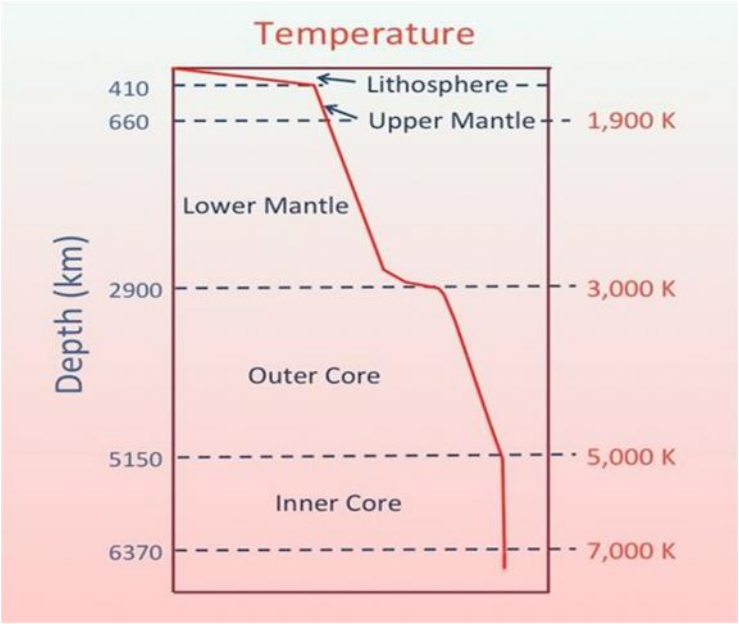
For example, in 2007, there were 3,250 births in a city with population of 223,000. Therefore: CBR = (3,250 ÷ 223,000) X 1,000 or CBR = 14.57. So, there were 14.57 births for every 1,000 people in the city.

Q77] Ans: d



Q78] Ans: d

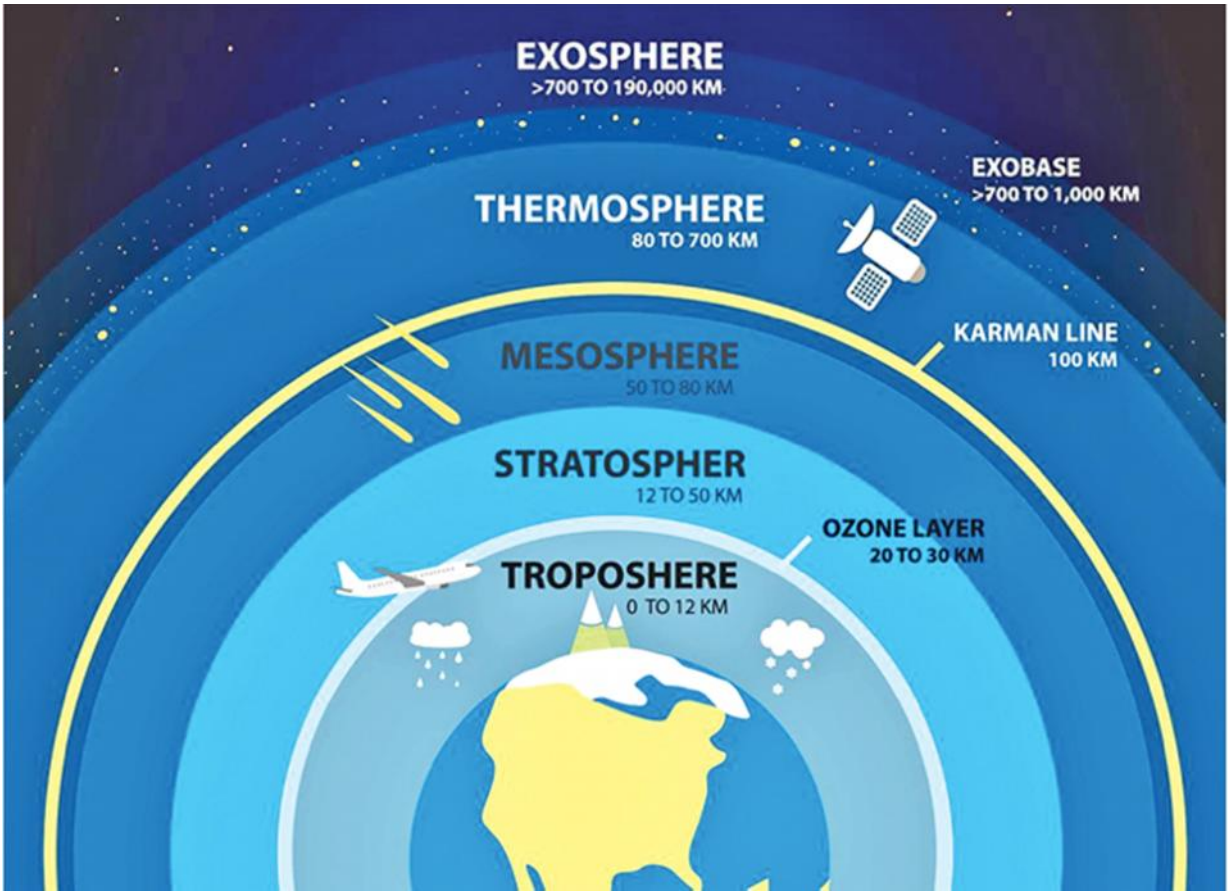
Geothermal gradient is the rate of increasing temperature with respect to increasing depth in the Earth's interior. Away from tectonic plate boundaries, it is about 25–30 °C/km (72-87 °F/mi) of depth near the surface in most of the world. From below image it is proved that the temperature of the earth increases with depth at reduced rates.



Q79] Ans: B

The ozone layer is a layer in Earth's atmosphere which contains relatively high concentrations of ozone (O3). This layer absorbs 97-99% of the sun's high frequency ultraviolet light, which is potentially damaging to life on earth.

It is mainly located in the lower portion of the stratosphere from approximately 15 km to 35 km above Earth's surface, though the thickness varies seasonally and geographically.



Q80] Ans: C

The Arabian branch of monsoon flows parallel to the Aravali mountain and no mountain range on north side so no orographic rainfall.

Q81] Ans: B

Diverse vegetation ranging from tropical to tundra is found in the Himalayan ranges. Hence statement 1 is correct. Deciduous forests are found at the foothill of Himalayan ranges. Statement 2 is wrong.

Figure 5.2 : Natural Vegetation

Q82] Ans: b

Q83] Ans: C

The Ring of Fire (also known as the Rim of Fire or the Circum-Pacific belt) is a major area in the basin of the Pacific Ocean where many earthquakes and volcanic eruptions occur. In a large 40,000 km (25,000 mi) horseshoe shape, it is associated with a nearly continuous series of oceanic trenches, volcanic arcs, and volcanic belts and plate movements. It has 452 volcanoes (more than 75% of the world's active and dormant volcanoes).

About 90% of the world's earthquakes and about 81% of the world's largest earthquakes occur along the Ring of Fire. All but three of the world's 25 largest volcanic eruptions of the last 11,700 years occurred at volcanoes in the Ring of Fire. The Ring of Fire is a direct result of plate tectonics: the movement and collisions of lithospheric plates, especially subduction in the northern portion. The western portion is more complex, with a number of smaller tectonic plates in collision with the Pacific Plate from the Mariana Islands, the Philippines, Bougainville, Tonga, and New Zealand.

Q84] Ans: A

Moraines are sediments deposited by glacial.
Sand dunes are formed by deposition of sand in the deserts.

Q85] Ans: B

Option 3 is wrong as Aesthenosphere is upper portion of mantle. The crust and the uppermost part of the mantle are called lithosphere.

STRUCTURE OF THE EARTH

The Crust It is the outermost solid part of the earth. It is brittle in nature. The thickness of the crust varies under the oceanic and continental areas. Oceanic crust is thinner as compared to the continental crust. The mean thickness of oceanic crust is 5 km whereas that of the continental is around 30 km. The continental crust is thicker in the areas of major mountain systems. It is as much as 70 km thick in the Himalayan region. It is made up of heavier rocks having density of 3 g/cm3. This type of rock found in the oceanic crust is basalt. The mean density of material in oceanic crust is 2.7 g/cm3.

The Mantle The portion of the interior beyond the crust is called the mantle. The mantle extends from Moho's discontinuity to a depth of 2,900 km.

The upper portion of the mantle is called **asthenosphere**. The word astheno means weak. It is considered to be extending upto 400 km. It is the main source of magma that finds its way to the surface during volcanic eruptions. It has a density higher than the crusts (3.4 g/cm3).

The crust and the uppermost part of the mantle are called lithosphere. Its thickness ranges from 10-200 km. The lower mantle extends beyond the asthenosphere. It is in solid state.

The Core As indicated earlier, the earthquake wave velocities helped in understanding the existence of the core of the earth. The coremantle boundary is located at the depth of 2,900 km. The outer core is in liquid state while the inner core is in solid state. The density of material at the mantle core boundary is around 5 g/cm3 and at the centre of the earth at 6,300 km, the density value is around 13g/cm3. The core is made up of very heavy material mostly constituted by nickel and iron. It is sometimes referred to as the nife layer.

Q86] Ans: D

Above all are main components of theories of South West monsoon in India.

THE INDIAN MONSOON

Following facts are important in formation of monsoon:

- The Sun causes differential heating and cooling of land and water. This creates low pressure on the landmass of India and high pressure over the ocean surface.
- The Inter Tropical Convergence Zone (ITCZ) is normally positioned about 5°N of the equator. It shifts over the Ganga plain during summer. It is also known as the monsoon trough during the monsoon season.
- The high pressure area, east of Madagascar is approximately 20°S over the Indian Ocean. This area affects the Indian Monsoon.
- The Tibetan plateau gets intensely heated during summer. This results in strong vertical air currents and formation of high pressure over the plateau. This high pressure zone is about 9 km above the sea level.
- The westerly jet stream move to the north of the Himalayas, and the tropical easterly jet stream moves over the Indian Peninsula during summer.
- In normal circumstances, when the tropical eastern South Pacific Ocean experiences high pressure, the tropical eastern Indian Ocean experiences low pressure. Such changes in the pressure conditions over the southern oceans also affect the monsoon.
- But in certain years, there is a reversal in the pressure conditions. In this case, the eastern Pacific Ocean has lower pressure compared to the eastern Indian Ocean.
- This periodic change in pressure conditions is known as the Southern Oscillation or SO.
- The difference in pressure over Tahiti and Darwin is computed to predict the intensity of the monsoons. Tahiti (18°S/149°W) lies in the Pacific Ocean and Darwin (12°30'S/131°E) lies in northern Australia. If the pressure differences are negative, it means a below average and late monsoon.

Q87] Ans: A

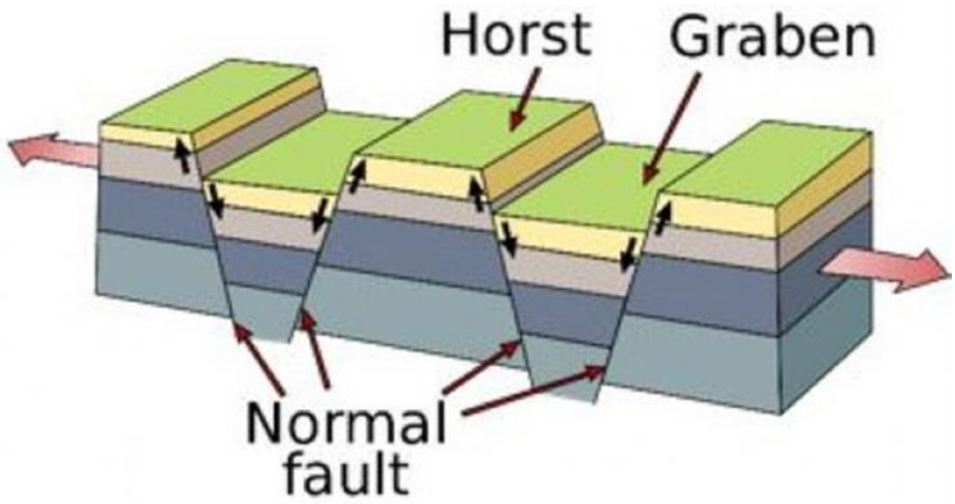
Statement 2 is wrong as block mountains forms rift valleys or grabens and does not form peaks.

About Block Mountains
Block mountains are created when large areas or blocks of earth are broken and displaced vertically.
The uplifted blocks are termed as **horsts** and the lowered blocks are called **graben**.
The Great African Rift Valley (valley floor is graben), The Rhine Valley and the Vosges mountain in Europe are examples.

Block mountains are also called fault block mountains since they are formed due to faulting as a result of tensile and compressive forces.
Block Mountains are surrounded by faults on either side of **rift valleys** or **grabens**.

There are two basic types.

- Tilted block mountains have one steep side contrasted by a gentle slope on the other side.
- Lifted block mountains have a flat top and extremely steep slopes.



Q88] Ans: D

The real answer to the question of what causes variations in insolation lies with two major phenomena that **vary regularly for a given position on Earth as our planet rotates on its axis and revolves around the sun: the duration of daylight and the angle of the solar rays. The amount of daylight controls the duration of solar radiation, and the angle of the sun's rays directly affects the intensity of the solar radiation received.** Together, the intensity and the duration of radiation are the major factors that affect the amount of insolation available at any location on Earth's surface.Hence statement 1&2 are correct.

Therefore, a location on Earth will receive more insolation if (1) the sun shines more directly, (2) the sun shines longer, or (3) both. The intensity of solar radiation received at any one time varies from place to place because Earth presents a spherical surface to insolation.

The atmospheric gases act to diminish, to some extent, the amount of insolation that reaches Earth's surface. Because oblique rays must pass through a greater distance of atmosphere than vertical rays, more insolation will be lost in the process. Hence statement 3 is correct

Increase in Distance between earth and sun leads to decrease in insolation on earth surface. Hence statement 4 is correct.

Q89] Ans: A

All **stars rise** vertically in the East and set vertically in the West. So if they are perpendicular then you have to be on equator and so it passes through Brazil.

Q90] Ans: A

Correct statements

1. Thin atmosphere
2. Dry river beds
3. Temperature on mars ranges from 20°C to -153°C.
4. Phobos& Deimos are the natural satellites.

Q91] Ans: C

A Mediterranean climate or dry summer climate is characterized by dry summers and mild, wet winters. The climate receives its name from the Mediterranean Basin, where this climate type is most common. Mediterranean climate zones are typically located along the western sides of continents, between roughly 30 and 45 degrees north and south of the equator. The main cause of Mediterranean, or dry summer climate, is the subtropical ridge which extends northwards during the summer and migrates south during the winter due to increasing north-south temperature differences.

The Coromondel **Coast** falls in the rain shadow of the Western Ghats mountain range, and receives less rainfall during the summer southwest monsoons, which contributes heavy rainfall in some parts of India. The region averages 800 mm/year, most of which falls between October and December.

Q92] Ans: b

- The salinity of water in the surface layer of oceans depend mainly on evaporation and precipitation.
- Surface salinity is greatly influenced in coastal regions by the fresh water flow from rivers, and in polar regions by the processes of freezing and thawing of ice.
- Wind, also influences salinity of an area by transferring water to other areas.
- The ocean currents contribute to the salinity variations. Salinity, temperature and density of water are interrelated. Hence, any change in the temperature or density influences the salinity of water in an area.

Q93] Ans: C

The currents are generated from the forces acting upon the water like the earth's rotation, the wind, the **temperature** and salinity differences and the gravitation of the moon.

The depth contours, the shoreline and other currents influence **the current's direction and strength.** Hence statements 1 & 3 are correct.

Ocean currents can flow for thousands of kilometers.

They are very important in determining the climates of the continents, especially those regions bordering on the ocean.

Perhaps the most striking example is the Gulf Stream, which makes northwest Europe much more temperate than any other region at the same latitude.

Deep ocean currents are driven by density and temperature gradients.

Thermohaline circulation, also known as the ocean's conveyor belt, refers to the deep ocean density-driven ocean basin currents.

These currents, which flow under the surface of the ocean and are thus hidden from immediate detection, are called submarine rivers.

Q94] Ans: B

At the equator the sun rays are perpendicular so it receives high insolation and due to high temperature the air goes in vertical direction creating strong convection currents. So statement 2 and 3 are correct.

Bulge of equator do not play any role in deciding thickness of troposphere over the equator.

Q95] Ans: D

All statements are correct. In winter the sun is in the Southern Hemisphere. Also the retreat of monsoon has been started.

Q96] Ans: c

Increase in isolation is not the reason for an earthquake. It is related to position of sun.

Earthquakes are usually caused when rock underground suddenly breaks along a fault. This sudden release of energy causes the seismic waves that make the ground shake. When two blocks of rock or two plates are rubbing against each other, they stick a little. They don't just slide smoothly; the rocks catch on each other. The rocks are still pushing against each other, but not moving. After a while, the rocks break because of all the pressure that's built up. When the rocks break, the earthquake occurs. During the earthquake and afterward, the plates or blocks of rock start moving, and they continue to move until they get stuck again. The spot underground where the rock breaks is called the **focus** of the earthquake. The place right above the focus (on top of the ground) is called the **epicenter** of the earthquake.

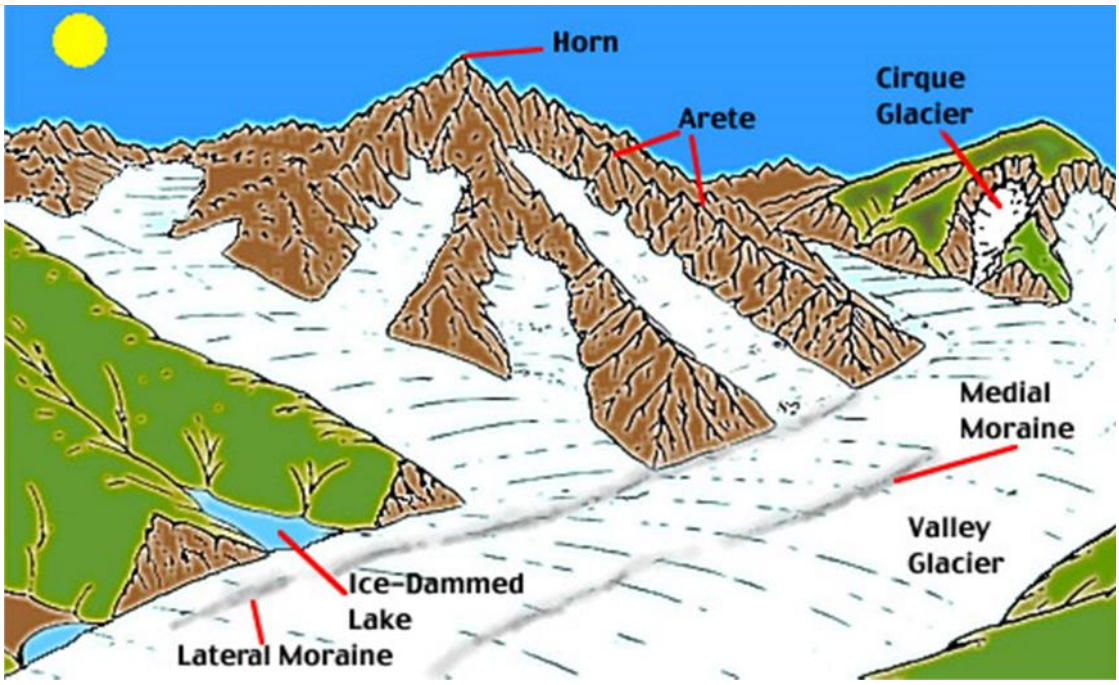
Q97] Ans: d

Option 1(Agro forestry) and 3(Urban forestry) are parts of Social forestry.

Option 2 is also part of social forestry. A community woodlot is a parcel of a woodland or forest capable of small-scale production of forest products (such as wood fuel, sap for maple syrup, sawlogs, and pulpwood) as well as recreational uses like bird watching, bushwalking, and wildflower appreciation.

Q98] Ans: c

The mentioned landforms are associated with glaciation.



Q99] Answer D, is Self-Explanatory.

Q100] Ans: D