



All India Civil Services Coaching Centre

(Under the aegis of Government of Tamil Nadu)

Answer Key Explanation

Test 4 – NCERT Geography

Maximum Questions: 100

Maximum Marks: 200

1. Correct Answer: (c)

Terrestrial Planets

- Out of the eight planets, Mercury, Venus, Earth, and Mars are called the inner planets as they lie between the sun and the belt of asteroids.
- Alternatively, the first four are called Terrestrial, meaning earth-like as they are made up of rock and metals, and have relatively high densities.
- The terrestrial planets were formed in the close vicinity of the parent star where it was too warm for gases to condense to solid particles.
- The terrestrial planets are smaller and their lower gravity could not hold the escaping gases.

2. Correct Answer: (b)

Indian Standard Time

- IST 6 O' clock at $82^{\circ} 30'$. 12 pm when it is at 6 pm at IST means it is west of IST. Thus the difference is 6 hrs = 360 minutes.
- $1^{\circ} = 4$ minutes; 360 minutes = 90 degree
- It is around $82^{\circ} 30'$ E - $90^{\circ} = 7^{\circ} 30'$ W

3. Correct Answer: (a)

Dawn and Twilight

- The brief period between sunrise and full daylight is called dawn, and that between sunset and complete darkness is termed twilight. This is caused by the fact that during the periods of dawn and twilight the earth receives diffused or refracted light from the sun whilst it is still below the horizon.

- Since the sun rises and sets in a vertical path at the equator the period during which refracted light is received is short.
- But in temperate latitudes, the sun rises and sets in an oblique path and the period of refracted light is longer. It is much longer still at the poles so that the winter darkness is really the only twilight most of the time.

4. Correct Answer: (d)

Factors Controlling Temperature Distribution

- The temperature of the air at any place is influenced by
- The latitude of the place
- The altitude of the place
- Distance from the sea, the air mass circulation
- The presence of warm and cold ocean currents

Local Aspects

- **The latitude:** The temperature of a place depends on the insolation received. It has been explained earlier that the insolation varies according to the latitude hence the temperature also varies accordingly.
- **The altitude:** The atmosphere is indirectly heated by terrestrial radiation from below. Therefore, the places near the sea-level record a higher temperatures than the places situated at higher elevations.
- **Distance from the sea:** Another factor that influences the temperature is the location of a place with respect to the sea. Compared to land, the sea gets heated slowly and loses heat slowly. Land heats up and cools down quickly. Therefore, the variation in temperature over the sea is less

compared to land. The places situated near the sea come under the moderating influence of the sea and land breezes which moderate the temperature.

- **Air-mass and Ocean currents:** Like the land and sea breezes, the passage of air masses also affects the temperature.

5. Correct Answer: (b)

Varying Lengths of Day and Night

- In summer the region north of the Arctic Circle is popularly referred to as 'Land of the Mid-night Sun'.
- At the North Pole, there will be six months of continuous daylight.

6. Correct Answer: (c)

Sources of information about the interior of the Earth

- There are two types of sources of information about the interior of the Earth: Direct and Indirect.

Direct sources

- The sources which are obtained directly from Earth's interior are called Direct sources.
- These include materials obtained from Mining or from scientific projects such as "Deep Ocean Drilling Project" & "Integrated Ocean Drilling Project" and the Magma/Lava obtained from a volcanic eruption, etc.
- The drilling projects provide better sources of information than mining because they can provide materials from the depth as far as 12 km while in mining, going beyond 3-4 km depth is not possible due to high temperature and pressure at this depth.

Indirect sources

- These are the sources that are not obtained directly from the Earth's interior but help in the understanding of the same.
- These include earthquake waves; materials obtained from meteors; earth's gravitation,

magnetic & seismic activities and the variability of temperature, pressure, and density of the Earth, etc.

- Although the materials obtained from meteors are not from the Earth these are similar to the Earth hence, they provide valuable information.

7. Correct Answer: (a)

Metamorphic Rocks

- The word metamorphic means 'change of form'. These rocks form under the action of Pressure, Volume, and Temperature (PVT) change.
- Metamorphism occurs when rocks are forced down to lower levels by tectonic processes or when molten magma rising through the crust comes in contact with the crustal rocks or the underlying rocks are subjected to great amounts of pressure by overlying rocks.
- Metamorphism is a process by which already consolidated rocks undergo recrystallization and reorganization of materials within original rocks.
- Mechanical disruption and reorganization of the original minerals within rocks due to breaking and crushing without any appreciable chemical changes are called dynamic metamorphism. The materials of rocks chemically alter and recrystallize due to thermal metamorphism.
- In the process of metamorphism, some rocks grains or minerals get arranged in layers or lines. Such an arrangement of minerals or grains in metamorphic rocks is called foliation or lineation.
- Sometimes minerals or materials of different groups are arranged into alternating thin to thick layers appearing in light and dark shades. Such a structure in metamorphic rocks is called banding.
- Gneissoid, granite, syenite, slate, schist, marble, quartzite, etc. are some examples of metamorphic rocks.

8. Correct Answer: (c)**The Mantle**

- At the lower end of the crust, the speed of the seismic waves increases suddenly and reaches up to 7.9-8.1 km/sec. This results in a discontinuity between the upper mantle and the lower crust, which shows a change in the density of the rocks.
- This discontinuity was discovered in 1909 by a Russian scientist A. Mohorovicic, therefore, it is named after him as Moho-discontinuity. The mantle extends up to a depth of about 2,900 km. from the Moho-discontinuity.
- The volume of the mantle is about 83% of the total volume of the earth and its mass is about 67% of the total mass of the earth. Silica and Magnesium are the major constituent elements of this layer; hence it is also called SIMA.
- The mantle is further divided into 3 layers, by the IUGG, on the basis of the velocity of the seismic waves: Up to 200 km. from the Moho-discontinuity, 200 km. to 700 km. and 700 km. to 2,900 km.
- Between 100 km. and 200 km. depth .of the upper mantle, the velocity of the seismic waves is slowed down to 7.8 km./sec.
- Therefore, this zone is known as the Zone of Low Velocity. The discontinuity in density between the upper mantle and lower mantle is known as Repetti discontinuity.

9. Correct Answer: (c)**Minerals:**

- A mineral is composed of two or more elements. But, sometimes, single element minerals like Sulphur, Gold, Copper, Silver, Graphite, etc are found.
- A mineral is a naturally occurring organic and inorganic substance, having an orderly atomic structure and definite chemical composition and physical properties.
- The elements in the earth's crust are rarely found exclusively but are usually combined with other elements to make various substances. These substances are recognized as minerals.

10. Correct Answer: (c)**Hypabyssal Igneous Rocks**

- These are formed due to the cooling and solidification of Magma that rises during volcanic activity in the cracks, pores, crevices, and hollow spaces just below the earth's surface. As lime passes, rocks take their final shape due to erosion. Dolerite and Magnetite are examples of these rocks.

11. Correct Answer: (c)**Endogenic Processes**

- The energy emanating from within the earth is the main force behind endogenic geomorphic processes.
- This energy is mostly generated by radioactivity, rotational and tidal friction and primordial heat from the origin of the earth.
- This energy due to geothermal gradients and heat flow from within induces diastrophism and volcanism in the lithosphere.
- Due to variations in geothermal gradients and heat flow from within, crustal thickness and strength, the action of endogenic forces are not uniform and hence the tectonically controlled original crustal surface is uneven.

12. Correct Answer: (d)**Fold Mountains**

- Fold Mountains are caused by large-scale lithospheric movements. When tensions are set up in the earth's crust such tension may be due to the increased load of the overlying rocks, flow movements in the mantle, magmatic intrusions into the crust, or the expansion or contraction of some part of the earth.
- Fold Mountains are created where two or more of Earth's tectonic plates are pushed together. At these colliding, compressing boundaries, rocks and debris are warped and folded into rocky outcrops, hills, mountains, and entire mountain ranges.
- Fold Mountains are created through a process called orogeny. An orogenic event takes millions of years to create a fold mountain.

- Fold Mountains occur when two tectonic plates collide at a convergent plate boundary, causing the crust to over thicken. This process forces the less dense crust to float on top of the denser mantle rocks – with the material being forced upwards to form hills, plateaus or mountains – while a greater volume of material is forced downward into the mantle.
- Some of the examples of fold mountains are Andes, Himalayas, Rockies, etc.

13. Correct Answer: (d)

Volcanoes

- Volcanoes are classified on the basis of eruption and the form developed at the surface.
- Shield volcanoes are the largest of all the volcanoes on the earth. The Hawaiian volcanoes are the most famous example.
- These volcanoes are mostly made up of basalt, a type of lava that is very fluid when erupted. For this reason, these volcanoes do not erupt. These are formed by lava flows of low viscosity. These volcanoes are not steep. They become explosive if somehow water gets into the vent; otherwise, they are less explosive.
- Composite volcanoes are characterized by the eruption of cooler and most viscous lavas than the basalt. These volcanoes often result in explosive eruptions. Along with lava, large quantities of pyroclastic materials and ashes find their way to the ground. They are usually found at destructive plate margins. They have steep sides along with composite layers.
- Caldera volcanoes are the most explosive of the earth's surface affect the surrounding environment. They are usually so explosive that when they erupt they tend to collapse on themselves rather than building any structure. After the eruption of magma has ceased, the crater frequently turns into a lake at a later time. This lake is called a 'caldera'. Examples: Lonar in Maharashtra and Krakatao in Indonesia.

14. Correct Answer: (a)

Mass Movements

- These movements transfer the mass of rock debris down the slopes under the direct influence of gravity. That means, air, water or ice do not carry debris with them from place to place but on the other hand, the debris may carry with it air, water or ice.
- The movements of mass may range from slow to rapid, affecting shallow to deep columns of materials and include creep, flow, slide, and fall.
- Gravity exerts its force on all matter, both bedrock and the products of weathering. So, weathering is not a pre-requisite for mass movement though it aids mass movements.
- Mass movements are very active over weathered slopes rather than over un-weathered materials.
- Mass movements are aided by gravity and no geomorphic agent like running water, glaciers, wind, waves and currents participate in the process of mass movements. That means mass movements do not come under erosion though there is a shift (aided by gravity) of materials from one place to another.
- Materials over the slopes have their own resistance to disturbing forces and will yield only when force is greater than the shearing resistance of the materials.
- Weak unconsolidated materials, thinly bedded rocks, faults, steeply dipping beds, vertical cliffs or steep slopes, abundant precipitation and torrential rains and scarcity of vegetation, etc., favour mass movements

15. Correct Answer: (c)

Block Mountains

- Block mountains are created because of faulting on a large scale (when large areas or blocks of earth are broken and displaced vertically or horizontally).
- 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 (graben) and the Vosges mountain (horst) 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.

There are two basic types of block mountains:

- 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.

16. Correct Answer: (a)

Force for Continental Drift

The drift was in two directions-

- Equator wards due to the interaction of forces of gravity, pole-fleeing force and buoyancy (ship floats in water due to buoyant force offered by water), and
- Westwards due to tidal currents because of the earth's motion (earth rotates from west to east, so tidal currents act from east to west).
- Wegener suggested that tidal force also played a major role.
- The polar-fleeing force relates to the rotation of the earth. The earth is not a perfect sphere; it has a bulge at the equator. This bulge is due to the rotation of the earth. [Greater Centrifugal force at the equator]. The centrifugal force increases as we move from poles towards equator. This increase in centrifugal force has led to pole fleeing.
- The tidal force is due to the attraction of the moon and the sun that develops tides in oceanic waters.
- Wegener believed that these forces would become effective when applied over many million years.
- According to Wegener, the drift is still continuing.
- **Causes of Drift:** Gravity of the earth, buoyancy of the seas and the tidal currents

were given as the main factors causing the drift, by Wegener.

17. Correct Answer: (b)

Plate Tectonic Theory

- Plate tectonics theory deals with the dynamics of Earth's outer shell known as the lithosphere that provides an understanding for mountain-building processes, volcanoes, and earthquakes as well as the evolution of Earth's surface and reconstructing its past continents and oceans.
- A tectonic plate is also called a lithospheric plate, the theory of plate tectonics proposed that "the earth's lithosphere is divided into seven major and some minor plates, young folded mountain ridges, trenches, and faults surround these major plates."
- Convection currents beneath the plates move the crustal plates in different directions. The source of heat driving the convection currents is radioactivity deep in the Earth's mantle. They are believed to cause Paleomagnetism in the earth's surface around the poles.
- In Convergent plate boundary, two lithospheric plates collide against each other and the zone of collision may undergo crumpling and folding and folded mountains may emerge. This is an orogenic collision.

Transform plate boundary:

- It is formed when two plates move past each other.
- In this kind of interaction, two plates grind against each other and there is no creation or destruction of landform but only deformation of the existing landform. [Crust is neither produced nor destroyed as the plates slide horizontally past each other].

18. Correct Answer: (b)

Depositional Landforms

- The meanders or meandering rivers are the low slope rivers that are not choked with the sediment and move back and forth in a zig-zag order of loops. The meander has

thus a serpentine path and it helps in accommodating the extra volume of water.

- As the river enters the plain it twists and turns to form large bends known as meanders. Due to continuous erosion and deposition along the sides of the meander, the ends of the meander loop come closer and closer. In due course of time the meander loop cuts off from the river and forms a cut-off lake, also called an ox-bow lake.
- Its concave bank is known as cut-off bank and convex is the slip-off bank.

19. Correct Answer: (c)

Geomorphic Processes

- The endogenic and exogenic forces causing physical stresses and chemical actions on earth materials and bringing about changes in the configuration of the surface of the earth are known as geomorphic processes.
- Diastrophism and volcanism are endogenic geomorphic processes.
- Weathering, mass wasting, erosion, and deposition are exogenic geomorphic processes.
- Any exogenic element of nature (like water, ice, wind, etc.) capable of acquiring and transporting earth materials can be called a geomorphic agent.
- When these elements of nature become mobile due to gradients, they remove the materials and transport them over slopes and deposit them at a lower level.
- Without gravity and gradients, there would be no mobility and hence no erosion, transportation, and deposition are possible.
- So, gravitational stresses are as important as the other geomorphic processes.

20. Correct Answer: (b)

Wind eroded arid landforms

- **Demoiselles:** These are rock pillars that stand as resistant rocks above soft rocks as a result of differential erosion of hard and soft rocks.
- **Zeugen:** A table-shaped area of rock found in arid and semi-arid areas formed when

more resistant rock is reduced at a slower rate than softer rocks around it.

- **Yardangs:** Ridge of rock, formed by the action of the wind, usually parallel to the prevailing wind direction.
- **Inselbergs:** A monadnock or inselberg is an isolated hill, knob, ridge, outcrop, or small mountain that rises abruptly from a gently sloping or virtually level surrounding plain.

21. Correct Answer: (b)

Erosional Landforms by Groundwater

- On the surface of the limestone are numerous swallow holes, which are small depressions carved out by solution where rain-water sinks into the limestone at a point of weakness.
- Once the water has sunk into the limestone, it etches out caverns and passages along joints or bedding planes.
- Where a number of swallow holes coalesce, a larger hollow is formed and is called a Dolines.
- Several may merge as a result of subsidence to form long, narrow to wide trenches called Valley sinks
- Gradually, most of the surface of the limestone is eaten away by these pits and trenches, leaving it extremely irregular with a maze of points, grooves and ridges or Lapiés. Especially, these ridges or lapiés form due to differential solution activity along parallel to sub-parallel joints.
- The lapie field may eventually turn into somewhat smooth limestone pavements.

The correct sequence is:

Sinkholes – Dolines – Uvalas – Limestone Pavements

22. Correct Answer: (c)

Landforms of Highland Glaciation

Corrie, cirque or cwm

- The downslope movement of a glacier from its snow-covered valley-head and the intensive shattering of the upland slopes tend to produce a depression where the firn or neve accumulates.
- The process of plucking deepens the depression into a steep, horse-shoe-shaped

basin called a cirque (in French). It is also known as a corrie in Scotland and a cwm in Wales.

Aretes and pyramidal peaks

- When two corries cut back on opposite sides of a mountain, knife-edged ridges are formed called aretes.
- Where three or more cirques cut back together, their ultimate recession will form an angular horn or pyramidal peak.

Bergschrund

- At the head of a glacier, where it begins to leave the snowfield of a corrie, a deep vertical crack opens up called a bergschrund (in German) or rimaye (in French).
- This happens in summer when, although the ice continues to move out of the corrie, there is no new snow to replace it. The bergschrund presents a major obstacle to climbers.

U-shaped glacial trough

- A valley which has been glaciated takes a characteristic U-shape, with a wide, flat floor and very steep sides.
- After the disappearance of the ice, the deep sections of these long, narrow glacial troughs may be filled with water forming ribbon lakes (also called as trough lakes or finger lakes).

Hanging valleys

- The main valley is eroded much more rapidly than the tributary valleys as it contains a much larger glacier.
- After the ice has melted a tributary valley, therefore 'hangs' above the main valley so that its stream plunges down like a waterfall. Such tributary valleys are termed hanging valleys and may form a natural head of water for generating hydro-electric power.

Rock basins and rock steps

- A glacier erodes and excavates the bedrock in an irregular manner. The unequal

excavation gives rise to many rock basins later filled by lakes in the valley trough.

- Where a tributary valley joins the main valley, the additional weight of ice in the main valley cuts deeper into the valley floor at the point of convergence forming a rock step.

Moraines

- Moraines are made up of the pieces of rock that are shattered by frost action, imbedded in the glaciers and brought down the valley. Those that fall on the sides of the glacier, mainly scree, form lateral moraines.
- When two glaciers converge, their inside lateral moraines unite to form a medial moraine.
- The rock fragments which are dragged along beneath the frozen ice are dropped when the glacier melts and spread across the floor of the valley as ground moraine.
- The glacier eventually melts on reaching the foot of the valley, and the pile of transported materials left behind at the snout is the terminal moraine or end moraine.

23. Correct Answer: (c)

Drumlins

- Drumlins are smooth oval-shaped ridge-like features composed mainly of glacial till with some masses of gravel and sand.
- The long axes of drumlins are parallel to the direction of ice movement.
- The drumlins form due to dumping of rock debris beneath heavily loaded ice through fissures in the glacier.
- The stoss end gets blunted due to pushing by moving ice. Drumlins give an indication of the direction of the glacier movement.

24. Correct Answer: (c)

Low Sedimentary Coasts

- Along low sedimentary coasts, the rivers appear to extend their length by building coastal plains and deltas.
- The coastline appears smooth with occasional incursions of water in the form of lagoons and tidal creeks. The land slopes gently into the water.

- Marshes and swamps may abound along the coasts. Depositional features dominate.

25. Correct Answer: (c)

Stalactites and Stalagmites:

- Stalactites hang as icicles of different diameters. Normally they are broad at their bases and taper towards the free ends showing up in a variety of forms.
- Stalagmites rise up from the floor of the caves.
- Stalagmites may take the shape of a column, a disc, with either a smooth, rounded bulging end or a miniature crater-like depression.

26. Correct Answer: (b)

Weathering Process

- Weathering is the breaking down or dissolving of rocks and minerals on Earth's surface. Water, ice, acids, salt, plants, animals, and changes in temperature are all agents of weathering.
- Weathering processes are responsible for the formation of not only regolith and soils but also erosion and mass movements. As very little or no motion of materials takes place in weathering, it is an in-situ or on-site process.
- Weathering is the mechanical disintegration and chemical decomposition of rocks under the action of climate.
- Mechanical weathering, also called physical weathering, causes rocks to crumble. Exfoliation is a form of mechanical weathering in which curved plates of rock are stripped from the rock below. This results in exfoliation domes or dome-like hills and rounded boulders.
- Exfoliation domes are best developed in granitic rock. Yosemite National Park has exceptional examples of exfoliation domes.

27. Correct Answer: (d)

Weathering Processes

- Physical or mechanical weathering processes depend on applied forces. The applied forces could be:

- Gravitational forces such as overburden pressure, load and shearing stress;
- Expansion forces due to temperature changes, crystal growth or animal activity
- Water pressures controlled by wetting and drying cycles.
- Many of these forces are applied both at the surface and within different earth materials leading to rock fracture.
- Most of the physical weathering processes are caused by thermal expansion and pressure release.
- These processes are small and slow but can cause great damage to the rocks because of continued fatigue the rocks suffer due to repetition of contraction and expansion

28. Correct Answer: (a)

Fold Mountains

- Fold Mountains are created where two or more of Earth's tectonic plates are pushed together.
- Fold Mountains are often associated with continental crust. They are created at convergent plate boundaries, sometimes called continental collision zones or compression zones.
- Most Fold Mountains are composed primarily of sedimentary rock and metamorphic rock formed under high pressure and relatively low temperatures.
- Himalayas, Andes, and the Alps are active fold mountains.
- The crust beneath the Himalayan Mountains is still the process of being compressed. Here, the Indian plate is colliding northward with the Eurasian plate.
- The Andes are the world's longest mountain chain. They stretch along the entire west coast of South America, from Colombia in the north and through Ecuador, Peru, Bolivia, Chile, and Argentina to the south.
- The Alps stretch across Italy, Slovenia, Austria, Germany, Switzerland, Lichtenstein, Monaco, and France. They are formed by the collision of the Adriatic microplate with the much larger Eurasian plate to the north.

29. Correct Answer: (b)

Deserts

- Kara-Kum is a great sandy region in Central Asia. It occupies about 70 percent of the area of Turkmenistan.
- This cold winter desert spread across Uzbekistan and Turkmenistan.
- The surface of the Trans-Unguz Karakum has been eroded by violent winds. The plain of the Central Karakum runs from the Amu Darya to the Caspian Sea along the same incline as the river.
- Simpson is a subtropical desert present in Australia.
- It is a largely uninhabited arid region covering some 55,000 square miles of area.
- It is bounded by the Finke River in the west, the MacDonnell Ranges and Plenty River in the north, the Mulligan and Diamantina rivers in the east.

30. Correct Answer: (c)

Peneplains

- These plains are formed due to the wearing and tearing of hills by agents of gradation on a piece of land. Niagara Plains in the USA and the Lorrain in France are some examples of this type of plains.

31. Correct Answer: (c)

Evolution of the Atmosphere

There are three stages in the evolution of the present atmosphere:

- The first stage is marked by the loss of the primordial atmosphere.
- In the second stage, the hot interior of the earth contributed to the evolution of the atmosphere.
- Finally, the composition of the atmosphere was modified by the living world through the process of photosynthesis.

32. Correct Answer: (b)

Atmosphere

- There are five layers in the structure of the atmosphere depending upon temperature. These layers are:
- **Troposphere:** It is considered as the lowest layer of Earth's atmosphere. The

troposphere starts at the surface of the earth and goes up to a height of 7 to 20 km. All-weather phenomena occur within this layer. This layer has water vapour and mature particles. Temperature decreases at the rate of 1 degree Celsius for every 165 m of height. Tropopause separates Troposphere and Stratosphere.

- **Stratosphere:** It is the second layer of the atmosphere found above the troposphere. It extends up to 50 km of height. This layer is very dry as it contains little water vapour. This layer provides some advantages for flight because it is above stormy weather and has steady, strong, horizontal winds. The ozone layer is found in this layer. The ozone layer absorbs UV rays and safeguards earth from harmful radiation. Stratopause separates Stratosphere and Mesosphere.
- **Mesosphere:** The Mesosphere is found above the stratosphere. It is the coldest of the atmospheric layers. The mesosphere starts at 50 km above the surface of Earth and goes up to 85 km. The temperature drops with altitude in this layer. By 80 km it reaches -100 degrees Celsius. Meteors burn up in this layer. The upper limit is called Mesopause which separates Mesosphere and Thermosphere.
- **Thermosphere:** This layer is found above Mesopause from 80 to 400 km. Radio waves that are transmitted from the earth are reflected back by this layer. The temperature increases with height. Aurora and satellites occur in this layer.
- **Ionosphere:** The lower Thermosphere is called the Ionosphere. The ionosphere consists of electrically charged particles known as ions. This layer is defined as the layer of the atmosphere of Earth that is ionized by cosmic and solar radiation. It is positioned between 80 and 400 km above the Mesopause.
- **Exosphere:** It is the outermost layer of the atmosphere. The zone where molecules and atoms escape into space is mentioned as the exosphere. It extends from the top of the thermosphere up to 10,000 km.

33. Correct Answer: (d)

Factors Controlling Temperature Distribution

The temperature of the air at any place is influenced by

- (i) the latitude of the place;
- (ii) the altitude of the place;
- (iii) distance from the sea, the air mass circulation;
- (iv) the presence of warm and cold ocean currents;
- (v) local aspects.

- **The latitude:** The temperature of a place depends on the insolation received. The insolation varies according to the latitude hence the temperature also varies accordingly.
- **The altitude:** The atmosphere is indirectly heated by terrestrial radiation from below. Therefore, the places near the sea-level record a higher temperature than the places situated at higher elevations. In other words, the temperature generally decreases with increasing height. The rate of decrease of temperature with height is termed as the normal lapse rate. It is 6.5°C per 1,000 m.
- **Distance from the sea:** Another factor that influences the temperature is the location of a place with respect to the sea. Compared to land, the sea gets heated slowly and loses heat slowly.
- **Air-mass and Ocean currents:** Like the land and sea breezes, the passage of air masses also affects the temperature. The places, which come under the influence of warm air-masses experience higher temperatures and the places that come under the influence of cold air masses experience low temperatures. Similarly, the places located on the coast where the warm ocean currents flow record higher temperatures than the places located on the coast where the cold currents flow.

34. Correct Answer: (a)

Spatial Distribution of Insolation at the Earth's Surface

- The insolation received at the surface varies from about 320 Watt/m² in the tropics to about 70 Watt/m² in the poles.
- Maximum insolation is received over the subtropical deserts, where the cloudiness is the least.
- The Equator receives comparatively less insolation than the tropics.
- Generally, at the same latitude, the insolation is more over the continent than over the oceans.
- In winter, the middle and higher latitudes receive less radiation than in summer.

35. Correct Answer: (d)

Insolation

- The amount and the intensity of insolation vary during a day, in a season and in a year.

The factors that cause these variations in insolation are:

- Rotation of earth on its axis;
- The angle of inclination of the sun's rays;
- Length of the day;
- Transparency of the atmosphere;
- Configuration of land in terms of its aspect.

36. Correct Answer: (c)

Tropical Cyclones

- Tropical cyclones originate and intensify over warm tropical oceans.
- The conditions favourable for the formation and intensification of tropical storms are:
- Large sea surface with a temperature higher than 27° C
- Presence of the Coriolis force
- Small variations in the vertical wind speed
- A pre-existing weak low-pressure area or low-level-cyclonic circulation Upper divergence above the sea level system.

37. Correct Answer: (d)

Vertical and Horizontal distribution of Pressure

- In the lower atmosphere, the pressure decreases rapidly with height.

- The decrease amounts to about 1 mb for each 10 m increase in elevation. It does not always decrease at the same rate.
- The vertical pressure gradient force is much larger than that of the horizontal pressure gradient. But, it is generally balanced by a nearly equal but opposite gravitational force. Hence, we do not experience strong upward winds.
- Horizontal distribution of pressure is studied by drawing isobars at constant levels.
- Isobars are lines connecting places having equal pressure.
- In order to eliminate the effect of altitude on pressure, it is measured at any station after being reduced to sea level for purposes of comparison.

38. Correct Answer: (b)

Thunderstorms and Tornadoes

- Thunderstorms and tornadoes are severe local storms.
- They are of short duration, occurring over a small area but are violent.
- Thunderstorms are caused by intense convection on moist hot days.
- A thunderstorm is a well-grown cumulonimbus cloud producing thunder and lightning.
- When the clouds extend to heights where sub-zero temperature prevails, hails are formed and they come down as hailstorm.
- If there is insufficient moisture, a thunderstorm can generate dust storms.
- A thunderstorm is characterized by the intense updraft of rising warm air, which causes the clouds to grow bigger and rise to a greater height. This causes precipitation.
- Later, downdraft brings down to earth the cool air and the rain.
- From severe thunderstorms sometimes spiraling wind descends like a trunk of an elephant with great force, with very low pressure at the center, causing massive destruction on its way. Such a phenomenon is called a tornado.
- Tornadoes generally occur in middle latitudes.

- The tornado over the sea is called water sprouts.
- These violent storms are the manifestation of the atmosphere's adjustments to varying energy distribution.
- The potential and heat energies are converted into kinetic energy in these storms and the restless atmosphere again returns to its stable state.

39. Correct Answer: (a)

Dew

- When the moisture is deposited in the form of water droplets on cooler surfaces of solid objects (rather than nuclei in the air above the surface) such as stones, grass blades, and plant leaves, it is known as dew.
- The ideal conditions for its formation are a clear sky, calm air, high relative humidity, and cold and long nights.
- For the formation of dew, it is necessary that the dew point is above the freezing point.

40. Correct Answer: (d)

Mediterranean Type

Distribution:

- The Warm Temperate Western Margin Climate is found in relatively, few areas in the world. They are entirely confined to the western portion of continental masses, between 30° and 45° north and south of the equator.
- The basic cause of this type of climate is the shifting of the wind belts. Though the area around the Mediterranean Sea has the greatest extent of this type of 'winter rain climate', and gives rise to the more popular name Mediterranean Climate.
- Other Mediterranean regions include California (around San Francisco), the south-western tip of Africa (around Cape Town), southern Australia (in southern Victoria and around Adelaide, bordering the St. Vincent and Spencer Gulfs), and south-west Australia (Swanland).

Climatic Conditions:

- The Mediterranean type of climate is characterized by very distinctive climatic features - a warm summer with off-shore trades, a concentration of rainfall in winter with onshore westerlies, bright, sunny weather with hot dry summers and wet, mild winters and the prominence of local winds around the Mediterranean Sea (Sirocco, Mistral).
- Since all regions with a Mediterranean climate are near large bodies of water, temperatures are generally moderate with a comparatively small range of temperatures between the winter low and summer high.
- Areas with this climate receive almost all of their yearly rainfall during the winter season and may go the summer without having any significant precipitation.

Natural vegetation:

- Trees with small broad leaves are widely spaced and never very tall. Though there are many branches they are short and carry few leaves. The absence of shade is a distinct feature of Mediterranean lands. Growth is slow in the cooler and wetter season, even though more rain comes in winter.
- The warm, bright summers and cool, moist winters enable a wide range of crops to be cultivated.
- The Mediterranean lands are also known as the world's orchard lands. A wide range of citrus fruits such as oranges, lemons, limes, citrons and grapefruit are grown.
- Wine production is another specialty of the Mediterranean countries because the best wine is essentially made from grapes. Some 85 percent of grapes produced, go into the wine.
- The long, sunny summer allows the grapes to ripen and then they are handpicked.

Economy:

- The area is important for fruit cultivation, cereal growing, wine-making, and agricultural industries as well as engineering and mining.

41. Correct Answer: (c)**Zones of Ocean**

- The ocean can be divided into many zones. The ocean bottom is the benthic zone and the water itself (or the water column) is the pelagic zone.
- The neritic zone is that part of the pelagic zone that extends from the high tide line to an ocean bottom less than 600 feet deep.
- Water deeper than 600 feet is called the oceanic zone, which itself is divided on the basis of water depth into the epipelagic, mesopelagic, and bathypelagic zones.
- The epipelagic (euphotic) zone, also called the sunlit zone, receives enough sunlight to support photosynthesis. The temperatures in this zone range anywhere from 40 to – 3°C (104 to 27°F). The ocean bottom is the benthic zone.
- The mesopelagic (disphotic) zone, where only small amounts of light penetrate, lies below the epipelagic zone. This zone is often referred to as the Twilight Zone due to its scarce amount of light.
- Temperatures in the mesopelagic zone range from 5 to 4°C (41 to 39°F). The pressure is higher here; it can be up to 1,470 pounds per square inch (10,100,000 Pa) and increases with depth.
- 90% of the ocean lies in the bathypelagic (aphotic) zone into which no light penetrates. This is also called the midnight zone. Water pressure is very intense and the temperatures are near freezing (range 0 to 6°C (32 to 43°F).

42. Correct Answer: (a)**Vertical Distribution of Salinity**

- Salinity changes with depth, but the way it changes depends upon the location of the sea.
- Salinity at the surface increases by the loss of water to ice or evaporation or decreased by the input of freshwaters, such as from the rivers.
- Salinity at depth is very much fixed because there is no way that water is 'lost', or the salt is 'added.' There is a marked difference in the salinity between the surface zones

and the deep zones of the oceans. The lower salinity water rests above the higher salinity dense water.

- Salinity, generally, increases with depth and there is a distinct zone called the halocline, where salinity increases sharply. Other factors being constant, increasing the salinity of seawater causes its density to increase. High salinity seawater, generally, sinks below the lower salinity water. This leads to stratification by salinity.

43. Correct Answer: (c)

Sea Level Rise

- The two major causes of global sea-level rise are thermal expansion caused by warming of the ocean (since water expands as it warms) and increased melting of land-based ice, such as glaciers and ice sheets. Thermal expansion affects the movement of hot and cold oceanic currents around the globe, and even a slight shift in the direction and temperature of any major current can have large-scale effects, especially on the sea-level rise.
- Though glaciers and polar ice caps melt every year during the summer season, the ice thickness increases again during winter. This is due to the normal and seasonal rise and fall of temperatures. But, due to the slowly increasing global warming, more and more ice melts every summer, leading to a greater runoff flow.
- Also, as the evaporation rate of seawater is constant, a large volume of excess water remains in the oceans, adding up to the overall volume, and ultimately causing a rise in the ocean water level.
- Endogenic forces (internal) and Exogenic forces (external) are the two main types of geomorphic processes that result in earth movements. Endogenetic forces like plate movements, land subsidence etc. which occur underwater can cause a sea-level rise. Exogenetic forces like wind can cause temporary sea-level rise.

44. Correct Answer: (b)

Isotherms

- Isotherm is an imaginary line joining places having equal temperatures. Isotherms have a close correspondence with the latitude parallels mainly because the same amount of insolation is received by all the points located on the same latitude.
- The isotherms are irregular over the northern hemisphere due to an enhanced land-sea contrast. Because of the predominance of land over water in the north, the Northern hemisphere is warmer. The thermal equator (ITCZ) lies generally to the north of the geographical equator. Isotherms are more regular and follow latitudes in the southern hemisphere.
- Wind direction largely affects the distribution of temperature of ocean water. The winds blowing from the land towards the oceans and seas (e.g., offshore winds) drive warm surface water away from the coast resulting in the upwelling of cold bottom water from below. Thus, the replacement of warm water by cold water introduces a longitudinal variation in temperature. Contrary to this, the onshore winds pile up warm water near the coast and thus raise the temperature.
- The enclosed seas (Marginal Seas – Gulf, Bay, etc.) in the low latitudes record relatively higher temperatures than the open seas; whereas the enclosed seas in the high latitudes have a lower temperature than the open seas.

45. Correct Answer: (c)

Types of Coral Reefs

- **Fringing Reefs:** Fringing reefs are found along the coastline of the islands and continents. They are the most common type of reef structure found in the ocean. Sometimes they are separated by a shallow lagoon.
- Fringing reefs develop on the wave-cut platforms along the continents and Islands. Their outer edge grows rapidly due to the availability of oxygenated water and food supply by constant wave currents.

- **Barrier Reefs:** A barrier reef is separated from the coast by a much wider and deeper channel or lagoon. The reef is partially submerged, where it lies above the water level.
- The barrier reefs have narrow gaps at several places to allow the water from the enclosed lagoon to return to the open ocean.
- Such gaps are very useful for shipping and provide the only entrances for ships to enter or leave the lagoon. The best-known barrier reef is the Great Barrier Reef off the coast of Queensland, Australia.
- It is 1200 miles (around 2000 km) long, separated from the coast by a channel 100 miles (160 km) wide in places and over 200 feet (60 m) deep.
- **Atolls:** Atolls are similar to barrier reefs except that they are circular, enclosing a shallow lagoon without any land in the centre.
- The encircling ring is usually broken in a few places to allow the free flow of water. Some of the large atolls include Sudadiva in the Maldives, Bangaram atoll in Lakshadweep.

46. Correct Answer: (d)

Soil Forming Processes

- The events and processes, whether physical, chemical or biological, which help in the formation of soils in a given region are called pedogenic processes or soil-forming processes they are classified into four groups.
- The formation of soil is, in fact, the result of the proportions of these processes over a definite time.

The following are the soil-forming processes :

- Soil enrichment
- Loss of materials from the soils
- Translocation of materials
- Transformation of materials

47. Correct Answer: (c)

Laterite Soil

- Laterite has been derived from the Latin word 'Later' which means brick. The laterite

soils develop in areas with high temperatures and high rainfall. These are the result of intense leaching due to tropical rain.

- With rain, lime and silica are leached away, and soils rich in iron oxide and aluminum compounds are left behind. The humus content of the soil is removed fast by bacteria that thrive well in high temperatures. 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, the application of manures and fertilizers are required for making the soil fertile for cultivation.
- Red laterite soils in Tamil Nadu, Andhra Pradesh, and Kerala are more suitable for tree crops like cashew nuts.
- Laterite soils are widely cut as bricks for use in house construction. These soils have mainly developed in the higher areas of the peninsular plateau. The laterite soils are commonly found in Karnataka, Kerala, Tamil Nadu, Madhya Pradesh and the hilly areas of Odisha and Assam.

48. Correct Answer: (d)

Factors affecting Soil Erosion

- Soil erosion is a naturally occurring process that affects all landforms. In agriculture, soil erosion refers to the wearing away of a field's topsoil by the natural physical forces of water and wind or through forces associated with farming activities such as tillage.
- Factors affecting soil erosions are deforestation and overgrazing as it loosens the soil leaving it prone to erosion.
- Excessive rainfall and excessive cultivation promote the cultivation of crops and forest productivity by binding the soil and make it more fertile.

49. Correct Answer: (b)

Temperate Grasslands

- Bordering the deserts, away from the Mediterranean regions and in the interiors of continents are the temperate grasslands.
- Though they lie in the Westerly wind belt, they are so remote from the maritime influence that the grasslands are practically treeless.
- In the northern hemisphere, the grasslands are far more extensive and are entirely continental.
- In the southern hemisphere, due to the narrowness of the temperate portions of the southern continents, the grasslands are rather restricted and less continental.
- Their location in continental interiors implies a continental climate with temperature extremes.
- But the temperate grasslands in Southern Hemisphere have a milder climate due to maritime influence.
- Their greatest difference from the tropical savanna is that they are practically treeless and the grasses are much shorter.
- The temperate grasslands are known by different names in different parts of the world.
- Pampas - Argentina; Velds - South Africa; Downs - Australia; Pustaz - Hungary

50. Correct Answer: (b)

Soils and their content

- Alluvial soil is widespread in the northern plains and the river valleys. The alluvial soil varies in nature from sandy loam to clay. They are generally rich in potash but poor in phosphorous.
- The Black soils are rich in lime, iron, magnesia, and alumina. They also contain potash. But they lack in phosphorus, nitrogen and organic matter. The color of the soil ranges from deep black to grey.
- Laterite soils are poor in organic matter, nitrogen and phosphate and calcium, while iron oxide and potash are in excess.
- Arid or desert soil lack moisture and humus. Nitrogen is insufficient and the phosphate content is normal.

51. Correct Answer: (d)

Human Settlement and distribution of population

Geographical Factors:

- **Availability of water:** It is the most important factor for life. So, people prefer to live in areas where freshwater is easily available.
- **Landforms:** People prefer living on flat plains and gentle slopes. This is because such areas are favourable for the production of crops and to build roads and industries. The mountainous and hilly areas hinder the development of the transport network and hence initially do not favour agricultural and industrial development.
- **Climate:** An extreme climate such as very hot or cold deserts are uncomfortable for human habitation. Areas with very heavy rainfall or extreme and harsh climates have a low population.
- **Soils:** Fertile soils are important for agricultural and allied activities. Therefore, areas that have fertile loamy soils have more people living on them as these can support intensive agriculture.

Economic Factors:

- **Minerals:** Areas with mineral deposits attract industries. Mining and industrial activities generate employment.
- **Urbanisation:** Cities offer better employment opportunities, educational and medical facilities, better means of transport and communication. It leads to rural to urban migration and cities grow in size.
- **Industrialisation:** Industrial belts provide job opportunities and attract large numbers of people

Social and Cultural Factors:

- Some places attract more people because they have religious or cultural significance. In the same way – people tend to move away from places where there is social and political unrest.

52. Correct Answer: (d)

Determinants of population growth

- The Crude birth rate is the number of birth per year per thousand, expressed by the formula $CBR = B/P \times 1,000$ where B is the number of birth/year and P is the total population.

The top four determinants of population growth are:

- Fertility
- Mortality
- Life expectancy
- Migration
- Economic development is positively correlated with life expectancy. More developed the country, higher the life expectancy.
- Migration disrupts normal population growth by reallocation of resources as there is competition for the resources. So regions with rich resources are densely populated.
- Rapid economic growth along with the enhancement of employment opportunities also curbs fertility rates.
- Most of the world's population growth occurs in poor, developing nations, which are least able to support rapid population growth and whose socio-economic development is most likely to be hindered by high fertility. In most of these nations, fertility rates remain high.

53. Correct Answer: (a)

Old Age Population

- The Longevity Dividend is used to describe the economic and health benefits that would accrue to individuals and societies if we extend healthy life by slowing the biological processes of aging.
- The idea is to extend a healthy life by shifting our emphasis from disease management to delayed aging.
- The Longevity Dividend is an approach to public health based on a broader strategy of fostering health for all generations by developing a new horizontal model to health promotion and disease prevention.

- Unlike the current vertical approach to disease that targets individual disorders as they arise, the Longevity Dividend model seeks to prevent or delay the root causes of disease and disability by attacking the one main risk factor for them all - biological ageing.

54. Correct Answer: (c)

Population Ageing

- It is the process by which the share of the older population becomes proportionally larger. Sub-replacement fertility is a total fertility rate (TFR) that (if sustained) leads to each new generation being less populous than the previous one in a given area.
- A demographic trap is a combination of high fertility (birth rates) and declining mortality (death rates) in developing countries, resulting in a period of high population growth rate (PGR). But, not the majority of people may be in the working-age group.
- **Demographic dividend:** As defined by the United Nations Population Fund (UNFPA) means, "the economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working-age population (15 to 64) is larger than the non-working-age share of the population (14 and younger, and 65 and older).

55. Correct Answer: (a)

Population Pyramid & its types

- **Population pyramids:** A population pyramid reflects the characteristics of the population like age-sex structure.

The shapes of pyramids represent different meanings.

- A bell-shaped pyramid represents a constant population and is called Stationary or near-stationary population pyramids. It displays somewhat equal numbers or percentages for almost all age groups.
- A pyramid of narrow base and tapered top explains the declining population (not expanding) like that of Japan.

- Triangular shaped pyramid explains expanding population and usually a feature of developing nations like India.
- The population pyramid of Australia is an example of an expanding population and it's expanding continuously.

56. Correct Answer: (a)

Human Development

- Human development is defined as the process of enlarging people's freedoms and opportunities and improving their well-being. Human development is about the real freedom ordinary people have to decide who to be, what to do, and how to live.
- The human development concept was developed by economist Mahbub-ul-Haq.
- The idea of human development is supported by 4 pillars namely equity, sustainability, productivity, and empowerment.
- Equity refers to making equal access to opportunities available to everybody. The opportunities available to people must be equal irrespective of their gender, race, income and in the Indian case, caste. Yet this is very often not the case and happens in almost every society.
- Sustainability means continuity in the availability of opportunities. To have sustainable human development, each generation must have the same opportunities.
- All environmental, financial and human resources must be used keeping in mind the future. Misuse of any of these resources will lead to fewer opportunities for future generations.
- Productivity here means human labour productivity or productivity in terms of human work. Such productivity must be constantly enriched by building capabilities in people.
- Ultimately, it is people who are the real wealth of nations. Therefore, the effort to increase their knowledge or provide better health facilities ultimately leads to better work efficiency.

- Empowerment means to have the power to make choices. Such power comes from increasing freedom and capability. Good governance and people-oriented policies are required to empower people. The empowerment of socially and economically disadvantaged groups is of special importance.

57. Correct Answer: (a)

Causes of Migration

- People, generally are emotionally attached to their place of birth but millions of people leave their places of birth and residence for a variety of reasons.

These reasons can be put into two broad categories:

Push Factors

- These cause people to leave their place of residence or origin.
- In India, people migrate from rural to urban areas mainly due to poverty, high population pressure on the land, lack of basic infrastructural facilities like health care, education, etc.
- Apart from these factors, natural disasters such as floods, drought, cyclonic storms, earthquakes, tsunami, wars and local conflicts also give an extra push to migrate.

Pull Factors

- These attract people from different places.
- The most important pull factor for the majority of the rural migrants to urban areas is better opportunities, availability of regular work and relatively higher wages.
- Better opportunities for education, better health facilities and sources of entertainment, etc. are also quite important pull factors.

58. Correct Answer: (d)

Multidimensional Poverty Index

- The Multi-dimensional Poverty Index (MPI) has been developed by the Oxford Poverty and Human Development Initiative (OPHI) for the United Nations Development

Programmes (UNDP) forthcoming 2010 Human Development Report.

- This is a new index and attempts to capture more than just income poverty at the household level. It is composed of ten indicators:
- Years of schooling and child enrolment (education);
- Child mortality and nutrition (health)
- Electricity, flooring, drinking water, sanitation, cooking fuel and assets (standard of living).
- Each education and health indicator has a 1/6 weight, each standard.
- So all the above mentioned indicators are used in the Multi-dimensional Poverty Index (MPI).

59. Correct Answer: (a)

Rural settlement

Following are the rural settlement pattern in different areas:

- **Linear Pattern:** In such settlements, houses are located along a road, railway line, and river, canal edge of a valley or along a levee.
- **Rectangular Pattern:** Such patterns of rural settlements are found in plain areas or wide intermontane valleys. The roads are rectangular and cut each other at right angles.
- **Radial Pattern:** In this type, a number of streets converge on one centre which may be a source of water (pond, well), a temple or mosque, a centre of commercial activity or simply an open space.
- **Circular Pattern:** Circular villages develop around lakes, tanks and sometimes the village is planned in such a way that the central part remains open and is used for keeping the animals to protect them from wild animals.

60. Correct Answer: (a)

Urbanization

- Urbanization means the increase in the proportion population of a country that lives in urban areas. The most important

cause of urbanisation is rural-urban migration.

Different forms of Urbanization:

- The term conurbation was coined by Patrick Geddes in 1915 and applied to a large area of urban development that resulted from the merging of originally separate towns or cities.
- Counter-urbanization is a process involving the movement of population away from inner urban areas to a new town, a new estate, a commuter town or a village on the edge or just beyond the city limits or rural-urban fringe.
- **Re-urbanisation:** The development of activities to increase residential population densities within the existing built-up area of a city. This may include the re-development of vacant land and the refurbishment of housing and the development of new business enterprises.
- **Suburbanization:** The outward growth of towns and cities to engulf surrounding villages and rural areas. This may result from the out-migration of the population from the inner urban area to the suburbs or from inward rural-urban movement.

61. Correct Answer: (b)

Tropic of Cancer

- 5-degree North latitude is known as Tropic of Cancer.
- It is present above the Equator.
- At this place, the midday sun rays are vertical on 21 June.
- It is also referred to as Northern Tropic. Tropic of Cancer passes through 16 Countries.

Tropic of Cancer passes through eight Indian states including Gujarat.

- ❖ Rajasthan.
- ❖ Madaya pradesh
- ❖ Chhattisgrah.
- ❖ Jharkhand
- ❖ West Bengal.
- ❖ Tripura
- ❖ Mizoram.

62. Correct Answer: (b)**Indian Islands**

- The Union of India has 247 islands of which 204 lies in the Bay of Bengal and 43 islands lie in the Arabian sea.
- The Andaman and Nicobar Islands and the Malaysian Archipelago (Indonesia, Malaysia et al) are all formed due to the interaction of the Indo-Australian Plate and the Eurasian Plate. It is part of the Arakan Mountains.
- The mountain ranges start from Manipur and enter Myanmar and submerged into the sea at Cape Negrais, then after a long stretch emerged in the form of Andaman Island.
- The Nicobar group has about 19 major islands. The largest being great Nicobar. About 86 percent of the Andaman and Nicobar group is covered by dense tropical evergreen and mangrove forests.
- Pamban Island is situated between India and Sri Lanka and is a rocky island and represents the extension of the peninsular landmass in the Ramnad district in Tamil Nadu. Fringing coral reefs are very popular here.
- Andrott Island is the largest island of Lakshadweep whereas Minicoy is the second-largest and southernmost island of this group.

63. Correct Answer: (b)**The Himalayas**

- In our country, debris avalanche and landslides occur very frequently in the Himalayas.

There are many reasons for this:

- The Himalayas are tectonically active.
- They are mostly made up of sedimentary rocks and unconsolidated and semi-consolidated deposits.
- The slopes are very steep.
- Compared to the Himalayas, the Nilgiris bordering Tamilnadu, Karnataka, Kerala and the Western Ghats along the west coast are relatively tectonically stable and are mostly made up of very hard rocks; but, still, debris

avalanches and landslides occur though not as frequently as in the Himalayas, in these hills.

- Many slopes are steeper with almost vertical cliffs and escarpments in the Western Ghats and Nilgiris.
- Mechanical weathering due to temperature changes and ranges is pronounced.
- They receive heavy amounts of rainfall over short periods. So, there is almost direct rock fall quite frequently in these places along with landslides and debris avalanches.

64. Correct Answer: (c)**Arunachal Himalayas**

- These extend from the east of the Bhutan Himalayas up to the Diphu pass in the east.
- The general direction of the mountain range is from southwest to northeast. Some of the important mountain peaks of the region are Kangtu and Namcha Barwa.
- An important aspect of the Arunachal Himalayas is the numerous ethnic tribal community inhabiting these areas.
- Some of the prominent ones from west to east are the Monpa, Abor, Mishmi, Nyishi and Nagas.
- Most of these communities practice Jhumming. It is also known as shifting or slash and burn cultivation. This region is rich in biodiversity which has been preserved by the indigenous communities.
- Due to rugged topography, the inter-valley transportation linkages are nominal. Hence, most of the interactions are carried through the duar region along the Arunachal-Assam border.

65. Correct Answer: (d)**North Indian Plains**

- The Great North Indian plains are homogeneous surfaces with an invisible slope. These are alluvial fertile plains formed by the deposition process of the Himalayan Rivers. Along with the Himalayan Rivers, the Vindhyan Rivers are also having a prominent role in making the land fertile. It deposits a large number of sediments along the foothills

The Great North Indian plain is divided into following subdivisions on the basis of relief features:

- The Bhabar Plains lie to the south of Shiwalik from Jammu to Assam. The Bhabar tract consists of gravel and un-assorted sediment deposits and is not suitable for cultivation.
- The Terai Plains lies south to the Bhabar tract. It is a marshy tract with a malarial climate. The width of the Terai tract is more in the eastern region.
- The Bhangar are older alluvial plain which represents upland alluvial tract. These areas are well-drained and suitable for cultivation.
- The Khadar is new alluvial deposits along the course of the river. It is enriched by fresh deposits of silt every year.
- Delta Plains are considered as the extension of Khadar land. This area is a depositional area in the lower reaches of the Ganga River.

66. Correct Answer: (a)

River Narmada

- The Narmada is the largest west flowing river of peninsular India.
- The Narmada flows westwards through a rift valley between the Vindhyan Range on the north and the Satpura Range on the south.
- It rises from the Maikala range near Amarkantak in Madhya Pradesh, at an elevation of about 1057 m.
- Narmada basin extends over states of Madhya Pradesh, Gujarat, Maharashtra, and Chhattisgarh having an area ~1 Lakh Sq.km.
- The hilly regions are in the upper part of the basin, and lower-middle reaches are broad and fertile areas well suited for cultivation.
- Jabalpur is the only important urban centre in the basin.
- The river slopes down near Jabalpur where it cascades (a small waterfall, especially one in a series) 15 m into a gorge to form the Dhuandhar (Cloud of Mist) Falls.
- Since the gorge is composed of marble, it is popularly known as the Marble Rocks.

- There are several islands in the estuary of the Narmada of which Aliabet is the largest.

67. Correct Answer: (c)

The Himalayan Drainage

- The Himalayan drainage system has evolved through a long geological history.
- It mainly includes the Ganga, the Indus, and the Brahmaputra river basins. Since these are fed both by melting of snow and precipitation, rivers of this system are perennial.
- These rivers pass through the giant gorges carved out by the erosional activity carried on simultaneously with the uplift of the Himalayas.
- Besides deep gorges, these rivers also form V-shaped valleys, rapids, and waterfalls in their mountainous course.
- While entering the plains, they form depositional features like flat valleys, oxbow lakes, flood plains, braided channels, and deltas near the river mouth.
- In the Himalayan reaches, the course of these rivers is highly tortuous, but over the plains, they display a strong meandering tendency and shift their courses frequently.

68. Correct Answer: (b)

The Evolution of Peninsular Drainage System

- Three major geological events in the distant past have shaped the present drainage systems of Peninsular India:
- 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.
- The 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 trough faults and fill the original cracks with their detritus materials. Hence, there is a lack of alluvial and deltaic deposits in these rivers.
- Slight tilting of the Peninsular block from northwest to the south-eastern direction.

- All the above events gave this orientation to the entire drainage system towards the Bay of Bengal during the same period.

69. Correct Answer: (d)

Tributaries of Indus River System

- The Indus receives a number of Himalayan tributaries such as the Shyok, the Gilgit, the Zaskar, the Hunza, the Nubra, the Shigar, the Gasting, and the Dras.
- It finally emerges out of the hills near Attock where it receives the Kabul river on its right bank.
- The other important tributaries joining the right bank of the Indus are the Khurram, the Tochi, the Gomal, the Viboa, and the Sangar. They all originate in the Sulaiman ranges.
- The river flows southward and receives 'Panjnad' a little above Mithankot.
- The Panjnad is the name given to the five rivers of Punjab, namely the Satluj, the Beas, the Ravi, the Chenab, and the Jhelum. It finally discharges into the Arabian Sea, east of Karachi.
- The Indus flows in India only through Jammu and Kashmir.

70. Correct Answer: (d)

Heat Waves

- As the sun moves northwards after March equinox, central India heats up during April and northwest India during May. This heat is transferred to eastern regions through advection and resulting in heatwave conditions in these areas also.
- Anti-cyclone conditions in the Bay of Bengal prevent the extension of maritime influence in the coastal regions and leading to a rise in temperature there also.
- The reason behind heatwaves is believed to be a sudden increase in the atmospheric pressure, due to the descent of the heavier air from the upper levels of the atmosphere, happening especially over interior parts of the country.
- Regions of northwest India like Western UP, Haryana, and Rajasthan where it is given name 'loo' face regular heatwaves. Interior

regions of other states like Odisha, Andhra Pradesh, and West Bengal also face heatwave conditions.

- In recent years because of the global warming effect, frequent El-Nino the events of heatwaves have increased and in the year 2015 more than 2000 people died because of heatstroke, mostly in the regions of Telangana and Andhra Pradesh.

71. Correct Answer: (a)

Southern Mountain Forests

- The southern mountain forests include the forests found in three distinct areas of Peninsular India viz; the Western Ghats, the Vindhyas and the Nilgiris.
- As they are closer to the tropics, and only 1,500 m above the sea level, vegetation is temperate in the higher regions, and subtropical on the lower regions of the Western Ghats, especially in Kerala, Tamil Nadu, and Karnataka.
- The temperate forests are called Sholas in the Nilgiris, Anaimalai and Palani hills.
- Some of the other trees of this forest of economic significance include magnolia, laurel, cinchona, and wattle.
- Such forests are also found in the Satpura and the Maikal ranges.

72. Correct Answer: (b)

Factors causing Water Logging

- Waterlogging is caused by a combination of excess rainfall (for the site), poor external drainage (runoff), poor internal drainage (water movement in the soil profile) and the inability of the soil to store much water.
- Further, sugar cane cultivation experiences natural waterlogging.
- The introduction of irrigation in optimum quantities facilitates productivity. However, over-irrigation is an important cause of waterlogging.

73. Correct Answer: (b)

Soil conservation in India

- Soil erosion is defined as the wearing away of topsoil. Topsoil is the most fertile part of

the soil because it contains the most organic, nutrient-rich materials.

Some of the factors responsible are:

- Afforestation
- Limiting shifting cultivation
- Avoiding crop rotation and encouraging the use of chemical fertilizers further leads to soil degradation.

74. Correct Answer: (a)

Montane Forests

- Mountain forests can be classified into two types, the northern mountain forests, and the southern mountain forests.

Northern mountain forests

- In mountainous areas, the decrease in temperature with increasing altitude leads to a corresponding change in natural vegetation (from the tropical to the tundra).
- Deciduous forests are found in the foothills of the Himalayas.
- It is succeeded by the wet temperate type of forests between altitudes of 1,000-2,000 m. In the higher hill ranges of northeastern India, hilly areas of West Bengal and Uttaranchal, evergreen broadleaf trees such as oak and chestnut are predominant.
- Between 1,500-1,750 m, pine forests are also well-developed in this zone, with Chir Pine as a very useful commercial tree. 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 this zone. Blue pine and spruce appear at altitudes of 2,225- 3,048 m.
- At many places in this zone, temperate grasslands are also found.
- 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. However, these pastures are used extensively for transhumance by tribes like

the Gujjars, the Bakarwals, the Bhotiyas and the Gaddis.

- The southern slopes of the Himalayas carry a thicker vegetation cover because of relatively higher precipitation than the drier north-facing slopes. At higher altitudes, mosses and lichens form part of the tundra vegetation.

Southern mountain forests

- It includes the forests found in three distinct areas of Peninsular India viz; the Western Ghats, the Vindhyas and the Nilgiris.
- As they are closer to the tropics, and only 1,500 m above the sea level, vegetation is temperate in the higher regions and subtropical on the lower regions of the Western Ghats, especially in Kerala, Tamil Nadu, and Karnataka.
- The temperate forests are called Sholas in the Nilgiris, Anaimalai and Palani hills.
- Some of the other trees of this forest of economic significance include magnolia, laurel, cinchona, and wattle. Such forests are also found in the Satpura and the Maikal ranges.

75. Correct Answer: (d)

Reasons for declining soil fertility

- Soil degradation can be defined as the decline in soil fertility when the nutritional status declines and the depth of the soil goes down due to erosion and misuse.
- The degree of soil degradation varies from place to place according to the topography, wind velocity and amount of the rainfall.

Following are the reasons for declining soil fertility in India:

- Soil erosion (Himalayan region, Chambal Ravines)
- Deficiency of nutrients (Red, lateritic and other soils)
- Desertification (around the Thar Desert, rain-shadow regions like parts of Karnataka, Telangana, etc)
- Waterlogging (Punjab-Haryana plain)
- Salinity and alkalinity (excessively irrigated regions of Punjab, Haryana, and Karnataka)

- Overgrazing and shifting cultivation
- Overexploitation of soils due to increasing in population, and
- Encroachment of agricultural land due to urban and transport development.

76. Correct Answer: (d)

Agriculture in India

- Agriculture in India dates back to Indus Valley Civilization Era and even before that in some parts of Southern India.
- The agricultural crop year in India is from July to June.

Cropping season in India

- India has many growing seasons due to the prevalence of high temperatures over a long period. Different crop seasons are

Kharif

- Crops are sown at the beginning of the south-west monsoon and harvested at the end of the south-west monsoon.
- Sowing seasons – May to July
- Harvesting season – September to October
- Important crops: Jowar, bajra, rice, maize, cotton, groundnut, jute, hemp, sugarcane, tobacco, etc.

Rabi

- Crops need a relatively cool climate during the period of growth but warm climate during the germination of their seed and maturation.
- Sowing season – October to December
- Harvesting season – February to April
- Important crops: wheat, barley, gram, linseed, mustard, masoor, pea, and potatoes.

Zaid

- Besides the Kharif and rabi crops, there are certain crops that are being raised throughout the year due to artificial irrigation.
- Zaid Kharif crops are sown in August-September and harvested in December-January.

- Important crops: rice, jowar, rapeseed, cotton, oilseeds.
- Zaid rabi crops are sown in February-March. Harvesting is in April-May.
- Important crops: watermelon, cucumber, leafy and other vegetables.

77. Correct Answer: (b)

Land use pattern in India

The land-use categories as maintained in the Land Revenue Records are as follows:

- **Forests:** It includes the area classified as forest and is different from the area under forest.
- **Land put to Non-agricultural Uses:** Land under settlements (rural and urban), infrastructure (roads, canals, etc.), industries, shops, etc. are included in this category. An expansion in the secondary and tertiary activities would lead to an increase in this category of land-use.
- **Barren and Wastelands:** The land which may be classified as a wasteland such as barren hilly terrains, desert lands, ravines, etc. normally cannot be brought under cultivation with the available technology.
- **The area under Permanent Pastures and Grazing Lands:** Most of this type of land is owned by the village 'Panchayat' or the Government. Only a small proportion of this land is privately owned. The land owned by the village panchayat comes under 'Common Property Resources'.

The area under Miscellaneous Tree Crops and Groves (Not included in Net sown Area):

- The land under orchards and fruit trees are included in this category. Much of this land is privately owned.
- **Culturable Waste-Land:** Any land which is left fallow (uncultivated) for more than five years is included in this category. It can be brought under cultivation after improving it through reclamation practices.
- **Current Fallow:** This is the land which is left without cultivation for one or less than one agricultural year. Fallowing is a cultural practice adopted for giving the land rest.

The land recoups lost fertility through natural processes.

- **Fallow other than Current Fallow:** This is also a cultivable land which is left uncultivated for more than a year but less than five years. If the land is left uncultivated for more than five years, it would be categorized as a culturable wasteland.
- **Net Area Sown:** The physical extent of land on which crops are sown and harvested is known as the net sown area.

78. Correct Answer: (d)

Dryland Farming

- Cultivation of crops in areas receiving rainfall above 750 mm is known as dryland farming. Dry spell during crop duration occurs, but crop failures are less frequent. Semi-arid regions are included under this category.
- Major dry farming crops are millets such as jowar, bajra, ragi, oilseeds like mustard, rapeseed, and pulse crops like pigeon pea, gram and lentil.

Characteristics of dryland farming:

- Uncertain, ill-distributed and limited annual rainfall;
- Occurrence of extensive climatic hazards like drought etc;
- Undulating soil surface; Occurrence of extensive and large holdings;
- Practice of extensive agriculture i.e. prevalence of mono-cropping etc;
- Relatively large size of fields, similarity in types of crops raised by almost all the farmers of a particular region;
- Very low crop yield;
- Poor market facility for the produce;
- Poor economy of the farmers;
- and Poor health of cattle as well as farmers.

79. Correct Answer: (d)

Rice cultivation

- Rice is a staple food for the overwhelming majority of the population in India. It is bi-

seasonal crop that means it can grow in Kharif as well as Rabi season.

- In the Himalayas and north-western parts of the country, it is grown as a Kharif crop during the Southwest Monsoon season. However, in southern states and West Bengal, the climatic conditions allow the cultivation of two or three crops of rice in an agricultural year.
- In West Bengal farmers grow three crops of rice called 'aus', 'aman' and 'boro'.

80. Correct Answer: (c)

- Pond Irrigation is found more in plateau regions
- In plateau regions, the fertile land is less and is scattered. Therefore, there is no sufficient profit in the development of canal irrigation.
- Besides, there are natural pits formed by the volcanic caldera of the Pre-Cambrian Period which acts as the water storage for the ponds. Also, there is very little percolation due to hard surface rocks.
- Therefore, the pond irrigation is highly popular in Tamil Nadu, Andhra Pradesh and Karnataka, etc.

81. Correct Answer: (a)

Coal Reserves in India

- The Coal resources of India are available in older Gondwana Formations of peninsular India and younger Tertiary formations of the north-eastern region.
- About 80 percent of the coal deposits in India are of the bituminous type and are of non-coking grade.
- Jharkhand has the largest reserves of coal in India followed by Odisha and Chhattisgarh.

82. Correct Answer: (a)

Indian Cotton Textile Industries

- The Cotton Textile centres in India are distributed in four regions: Western Region, Southern Region, Northern Region, and Eastern Region.
- The states like Maharashtra, Gujarat, Tamil Nadu, Uttar Pradesh, Karnataka, Madhya Pradesh, Rajasthan, and West Bengal have a

very high degree of concentration of this industry and especially in the three cities of Bombay, Ahmedabad and Coimbatore.

- Saharanpur, Dewas, Warangal, Kolhapur, and Tuticorin is the correct order of Indian Cotton Textile Industries from North to South Direction.

83. Correct Answer: (c)

Bauxite

- It is found mainly in tertiary deposits and is associated with laterite rocks occurring extensively either on the plateau or hill ranges of peninsular India. Aluminium is extracted from the Bauxite ores.
- All the iron producers found in India are of laterite type where red and yellow iron extracts are found in maximum.
- The major Bauxite extracting regions in India are Ranchi and Palamu in Jharkhand; Kheda in Gujarat; Shahdol and Balaghat in Madhya Pradesh; Durgand Surguja in Chhatisgarh; Kolhapur, Thane and Ratnagiri in Maharashtra; Belgaum and Bababudan Hills in Karnataka; and Palani, Javadi and Shevaroy hills regions in Tamil Nadu.
- Presently, India is the sixth-largest Bauxite producer and has the fourth-largest Bauxite reserve (4%) in the world. Odisha with 49% contribution was leading producer of bauxite followed by Gujarat (24%), Jharkhand (9%), Chhattisgarh and Maharashtra.

84. Correct Answer: (a)

Copper

- Copper is a highly ductile, strong and good conductor of electricity. It is mainly used in electrical machinery, automobile, stainless steel. When alloyed with zinc, it is known as 'brass' and with tin as 'bronze'.

Copper in India

- **Chilpi Series:** It stretches over parts of Balaghat, and Chhindwara districts of Madhya Pradesh. The series consists of quartzite, copper-pyrite, mica schist, and marble. The copper obtained from this

series is used in the Malanjkhand Copper Plant

- **Ghatsila:** Located in Jharkhand, it is a copper smelting plant. It is an electrolytic refinery. It manufactures brass sheets. It also obtains gold, silver, and nickel in the processing of copper.
- **Khetri:** It is an integrated copper mining-cum-ore refining plant in the Jhunjhunu district of Rajasthan. It was established in 1967. It also obtains copper ore from the Malanjkhand copper mines of Madhya Pradesh. It also has a sulphuric acid plant, and a fertiliser plant.
- **Korba:** Bharat Aluminium Company Limited (BALCO) has an aluminium plant located at Korba, Bilaspur District of Chhattisgarh. It obtains bauxite deposits from the Amarkantak region and electricity from the Korba Thermal Power Plant. The government has disinvested its share to a private company, Sterlite.
- **Malanjkhand:** It is an open-cast copper mine in Balaghat District of Madhya Pradesh. A copper plant has been established at Malanjkhand. The copper ore is also sent to the Khetri Copper Plant of Rajasthan.
- **Rakha Project:** The Rakha Copper Plant is located in the Rakha District of Singhbhum of Jharkhand. It obtains copper ore from the mines of Rakha.
- **Tajola:** The Tajola Copper Plant is located in the Raigadh town in Maharashtra. The plant has imported copper cathodes. It manufactures copper rods

85. Correct Answer: (c)

Placer or Alluvial Gold

- The gold obtained from the sand and sedimentary deposits of the rivers are known as placer gold.
- Placer gold is found in the Subarnrekha (Gold streak) river of Jharkhand. It is also found in Singhbhum district of Jharkhand.

86. Correct Answer: (c)**Projects by National Highways Authority of India (NHAI)**

NHAI has taken up some major projects in the country under different phases:

- **Golden Quadrilateral:** It comprises construction of 5,846-km long 4/6 lane, high-density traffic corridor, to connect India's four big metro cities of Delhi-Mumbai-Chennai-Kolkata. With the construction of Golden Quadrilateral, the time, distance and cost of movement among the megacities of India will be considerably minimised.

North-South

- North-South corridor aims at connecting Srinagar in Jammu and Kashmir with Kanyakumari in Tamil Nadu (including Kochchi-Salem Spur) with 4,076-km long road.

East-West Corridor

- The East-West Corridor has been planned to connect Silchar in Assam with the port town of Porbandar in Gujarat with 3,640-km of road length.

87. Correct Answer: (d)**Geothermal Energy**

- When the magma from the interior of the earth, comes out on the surface, tremendous heat is released. This heat energy can successfully be tapped and converted to electrical energy.
- Apart from this, the hot water that gushes out through the geyser wells is also used in the generation of thermal energy. It is popularly known as geothermal energy.
- India has very limited potential for geothermal energy. According to one estimate, the total geothermal energy is about 600 MW.
- There are 115 hot water springs in the country and 350 sites from which geothermal energy can be produced.
- The Puga Valley in Jammu and Kashmir, the Manikaran area in Himachal Pradesh, the

western slopes of the Western Ghats in Maharashtra and Gujarat, the Narmada-Son Valley, and the Damodar Valley are the main areas which have the potential for the generation of geothermal energy.

88. Correct Answer: (a)**Comparison between thorium and uranium:**

- Uranium can be used directly in reactors whereas Thorium would go through a three-stage process only then it can be put into reactor assembly.
- Uranium-fuelled reactors can be built right away, but they use fuel inefficiently. Thorium-fuelled reactors, on the other hand, are fuel-efficient, almost perfectly.
- Thorium is fertile rather than fissile, whereas uranium is both fertile and fissile. Thorium can only be used as a fuel in conjunction with a fissile material such as recycled plutonium.
- India's thorium is mostly found in a contiguous belt formed by its eastern coastal states.

89. Correct Answer: (d)**Hydropower sector in India**

- India has one of the largest hydropower potentials in the world but only one-fifth of that potential has been harnessed so far.

The key problems include:

- High investment costs in building large dams
 - Dependency on hydrology
 - The problem of environment
 - Loss or modification of the fish habitat
 - Displacement of the local populations
- These projects have a long gestation period in comparison to thermal power projects.

90. Correct Answer: (d)**Key Issues with Renewable Power Generation in India**

- Regional Concentration of Renewable Energy Potential
- Because Renewable Energy is location-specific and not evenly distributed, there

are problems with scaling up grid-connected renewable power.

- Insufficiency and High cost of Evacuation Infrastructure
- Utilisation of variable Renewable Energy requires a robust transmission infrastructure from remotely located generating plants to the load centers. This requires infrastructure such as roads etc as well as land for installation.

Financial Barriers

- Renewable Energy technologies require large initial capital investment. These technologies need to be supported until technology breakthroughs and market volumes generated are able to bring the tariff down at the grid parity level.
- Low Penetration of Renewables for Urban and Industrial Applications

91. Correct Answer: (a)

- **Census 2011:** Intra and Inter-state Migration
- Between 2001 and 2011, there was an increase in the growth rate of migrants headed for other destinations within their own states as compared to those headed outward.
- The number of inter-state migrants grew at 55% between the 1991 and the 2001 Census. This came down to just 33% between the 2001 and 2011 Census.
- In contrast, the rate of growth in so-called inter-district migrants (or intra-state migrants) increased from 30% between the 1991 and 2001 census to 58% between 2001 and 2011.
- The growth in intra-district migration (movement within the same district) increased from 33% to 45% between 1991-2001 and 2001-11. Evidently, people are finding better opportunities closer home than they were before.

92. Correct Answer: (a)

Socio-Economic Caste Census (SECC) -2011

- The Socio-Economic Caste Census (SECC) was conducted through a comprehensive

door to door survey across India for generating data on a large number of social and economic indicators relating to households in both rural and urban areas.

- The SECC 2011 was not conducted under the Census Act of 1948 and hence, the information was collected on 'self-declaration by the respondents' model.
- SECC was conducted by the Ministry of Rural Development, Ministry of Urban Development, Ministry of Housing and Urban Poverty Alleviation, The Office of the Registrar General & Census Commissioner and the State Governments.
- It was the first-ever caste census post-Independence in India, the results of which were released by the government in 2015. SECC-2011 was also the first paperless census in the country conducted by handheld electronic devices in 640 districts in the country.
- Dr. N C Saxena committee (for rural areas) and S.R. Hashim committee (for urban areas) was constituted to suggest the design of the new BPL census. They recommended a three-fold classification of households.
- Excluded Households: these would be identified by assets owned and income and would not be eligible for welfare benefits of the government.
- Automatically included Households: these would be the households facing extreme social destitution and would automatically be included for the welfare benefits of the government.
- Other Households: these households would be eligible for graded benefits decided on the basis of multiple deprivation indicators.

93. Correct Answer: (a)

Decadal Growth Rate 2001-2011

- According to Census 2011, Meghalaya has registered the highest decadal growth rate during 2001-11.

| Sl.No. | State | % Growth (2001–2011) |
|--------|-------------------|----------------------|
| 1. | Meghalaya | 27.80 |
| 2. | Arunachal Pradesh | 25.90 |
| 3. | Bihar | 25.10 |

| | | |
|----|-------------------|-------|
| 4. | Jammu and Kashmir | 23.70 |
| 5. | Mizoram | 22.80 |
| 6. | Chhattisgarh | 22.60 |
| 7. | Jharkhand | 22.30 |
| 8. | Rajasthan | 21.40 |
| 9. | Madhya Pradesh | 20.30 |

94. Correct Answer: (d)

Types of Rural Settlement

- Types of the settlement are determined by the extent of the built-up area and inter-house distance. In India compact or clustered village of a few hundred houses is a rather universal feature, particularly in the northern plains.
- However, there are several areas, which have other forms of rural settlements.
- There are various factors and conditions responsible for having different types of rural settlements in India.
- These include
 - a. physical features – nature of the terrain, altitude, climate and availability of water
 - b. cultural and ethnic factors – social structure, caste, and religion
 - c. security factors – defence against thefts and robberies.

Rural settlements in India can broadly be put into four types:

- Clustered, agglomerated or nucleated,
- Semi-clustered or fragmented,
- Hamleted

95. Correct Answer: (c)

Rural Settlement

- As per the census, 2011 data about 69% of the total population in India reside in rural areas. Rural settlements are of 3 types: Compact, Semi-compact, and Dispersed.
- Dispersed settlements are generally found in hills, plateaus, and grasslands. These are found in areas where it is essential that the farmer should live on his own land. Overpopulation is one of the reasons for dispersed settlement.
- The compact settlement is based on farming. These are mostly found in highly productive alluvial plains like Indo-Gangetic Plains, the Hwang Ho Valley and Nile valley.

- Socio-cultural factors like caste structure of the people living in a village and the functional needs of the people also have a close bearing on the shapes and size of rural settlement.

96. Correct Answer: (c)

Tribal Distribution

- Malasar Tribe – Kerala
- Jatapu Tribe – Andhra Pradesh
- Pahadi Korva tribes – Chattisgarh
- Asur tribe – Jharkhand

97. Correct Answer: (d)

Urban Settlements

- Urban settlements are generally compact and larger in size.
- They are engaged in a variety of non-agricultural, economic and administrative functions.
- Cities are functionally linked to rural areas around them. Thus, the exchange of goods and services is performed sometimes directly and sometimes through a series of market towns and cities.
- Thus, cities are connected directly as well as indirectly with the villages and also with each other.
- Depending on the size and the services available and functions rendered, urban centres are designated as a town, city, million cities, conurbation, and megalopolis.
- Some of the common basis of classification is the size of the population, occupational structure, location and administrative setup.

98. Correct Answer: (a)

The sister - city relationship

- Sister cities or twin towns are a form of legal or social agreement between towns, cities, counties, oblasts, prefectures, provinces, regions, states, and even countries in geographically and politically distinct areas to promote cultural and commercial ties.

- It fosters a long-term, cooperative relationship between two cities in different countries.
- The sister - city relationship will promote and broaden cultural and economic cooperation and trade relations. It will also carry out wide exchanges in the fields of education, culture, transportation, housing, tourism, health, environment, administrative and technical training.

Sister City ties have been signed between:

- Ahmadabad and Guangzhou.
- Mumbai and Los Angeles
- Kyoto and Varanasi

99. Correct Answer: (b)

Urbanisation

- According to the census 2011 data, 31% of the total population of India lives in urban areas. About 60% population of the country will live in cities by 2050 at current India's rate of urbanization.

Following are the recommendations for mitigating the adverse effects of urbanization in India:

- The planning needs to be decentralized and participatory to accommodate the needs of the urban dwellers.
- The use of geographical information systems to map all the properties in a city can have a huge impact on the assessment rate of properties that are not in the tax net.
- There is a need to broaden the user charge fee for water supply, sewerage and garbage disposal. For financing urban projects, Municipal bonds are also famous, which works on the concept of pooled financing.
- Time tested master plans should be strengthened instead of preparing quick fix City development plans.
- Populist policies instead worsen the adverse effects of urbanization. Also, decentralized approach has proven to be helpful in mitigating the adverse impacts of urbanization.

100. Correct Answer: (d)

Socio-Economic Caste Census (SECC)

- The Ministry of Rural Development, Government of India commenced the Socio- Economic and Caste Census (SECC).
- The SECC measures deprivation along with seven criteria: Households with only one room with no solid walls and roof,
- Those with no adult member aged 15-59
- Female-headed households with no adult male aged 15-59
- Those with differently-abled members and no able-bodied member
- SC/ST households
- Those with no literate member above the age of 25
- Landless households deriving a major portion of their income from manual casual Labour