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Test Compilation

Week 9 & 10

Geography

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Q.1) Consider the following statements regarding Katabatic wind:

1. Katabatic winds blow down a slope because of gravity and it occurs at night, when the highlands radiate heat and are cooled.
2. When a katabatic wind is warmed by compression during its descent into denser air, it is called a foehn.

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

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.1) Solution: (c)

Basic Info:

Katabatic wind, also called downslope wind, or gravity wind, are winds that blows down a slope because of gravity. It occurs at night, when the highlands radiate heat and are cooled.

The air in contact with these highlands is thus also cooled, and it becomes denser than the air at the same elevation but away from the slope, it therefore begins to flow downhill.

This process is most pronounced in calm air because winds mix the air and prevent cold pockets from forming.

When a katabatic wind is warmed by compression during its descent into denser air, it is called a foehn. A large-scale katabatic wind that descends too rapidly to warm up is called a fall wind.

In areas where fall winds occur, homes and orchards are situated on hillslopes above the lowlands where the cold air accumulates.

Q.2) Consider the following characteristics and identify this particular biome:

1. The climate here is characterized by a very low mean annual temperature and mid-winter temperatures are as low as -40 to -50°C.
2. Precipitation is mainly in the form of snow and sleet and Convectional rainfall is generally absent.

3. There are mostly no trees present but lowest form of vegetation like mosses, lichens are found here and there.

Select the correct answer from the codes given below:

a) Taiga
b) Tundra
c) Desert
d) Grasslands

Q.2) Solution: (b)

Basic Info:

Tundra Biome:

Distribution: Found in regions north of the Arctic Circle and south of Antarctic Circle. The ice-caps are confined to highlands and high latitude regions of Greenland and Antarctica. In the southern hemisphere, Antarctica is the greatest single stretch of ice-cap (10,000 feet thick).

The lowlands – coastal strip of Greenland, the barren grounds of northern Canada and Alaska and the Arctic seaboard of Eurasia, have tundra climate.

Temperature: The tundra climate is characterized by a very low mean annual temperature. In mid-winter temperatures are as low as -40 to -50 °C. Summers are relatively warmer. Normally not more than four months have temperatures above freezing-point.

Within the Arctic and Antarctic Circles, there are weeks of continuous darkness (Rotation and Revolution). The ground remains solidly frozen and is inaccessible to plants. Frost occurs at any time and blizzards, reaching a velocity of 130 miles an hour are not infrequent.

Precipitation: Precipitation is mainly in the form of snow and sleet. Convectional rainfall is generally absent.

Natural Vegetation: There are no trees in the tundra. Lowest form of vegetation like mosses, lichens etc. are found here and there. Climatic conditions along the coastal lowlands are a little favorable.

Coastal lowlands support hardy grasses and the reindeer moss which provide the only pasturage for reindeers. In the brief summer, berry-bearing bushes and Arctic flowers bloom.

In the summer, birds migrate north to prey on the numerous insects which emerge when the snow thaws. Mammals like the wolves, foxes, musk-ox, Arctic hare and lemmings also live in tundra regions.

Note: The taiga has a dense forest of conifers such as pine and spruce, while trees are entirely absent in the tundra.

Q.3) Consider the following statements about Earth's structure:

1. Barysphere is the central core of the earth, which is filled with molten magma with a large quantity of iron and magnesium.
2. Cryosphere is the area of snow or ice, which are subject to temperatures below 32°F for at least part of the year.

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

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.3) Solution: (b)

Basic Info:

Barysphere: It is the central core of the earth. It is filled with molten magma with a large quantity of iron and **nickel.** Baryosphere has two zones: the inner core region (~800 miles radius) and the outer core region (~1400miles radius).

Cryosphere: There are places on Earth that are so cold that water is frozen solid. These areas of snow or ice, which are subject to temperatures below 32°F for at least part of the year, compose the cryosphere.

Ice and snow on land are one part of the cryosphere. This includes the largest parts of the cryosphere, the continental ice sheets found in Greenland and Antarctica, as well as ice caps, glaciers, and areas of snow and permafrost. When continental ice flows out from land and to the sea surface, we get shelf ice.

The other part of the cryosphere is ice that is found in water. This includes frozen parts of the ocean, such as waters surrounding Antarctica and the Arctic. It also includes frozen rivers and lakes, which mainly occur in polar areas.

Q.4) Consider the following statements:

1. The Sun is never overhead at any time of the year beyond the tropics.
2. At the poles, the days and nights are never equal.
3. The sun is vertically overhead at the equator always.

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

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

Q.4) Solution: (b)

Basic Info:

Apparent movements of the Sun: In the course of the year, the earth's revolution around the sun, with its axis inclined at 66.5 degrees to the plane of the ecliptic, changes the apparent altitude of the midday sun.

The sun is vertically overhead at the equator on two days each year. These are usually 21 March and 21 September though the date changes because of year is not exactly 365 days.

These two days are termed equinoxes meaning 'equal nights' because on these two days **all parts of the world have equal days and nights.**

After the March equinox, the sun appears to move north and is vertically overhead at the Tropic of Cancer (23.5 degrees North) on about 21 June. This is known as the June or summer solstice when the northern hemisphere will have its longest day and night.

By about 22 December, the sun is overhead at the Tropic of Capricorn (23.5 degrees South). This is the winter solstice when the southern hemisphere will have its longest day and shortest night.

The tropics thus mark the limits of the overhead sun, for, beyond these, the sun is never overhead at any time of the year.

Q.5) With reference to Oort cloud, which of the following statements is/are true ?

1. Objects in the Oort cloud are also referred to as Trans-Neptunian objects.

2. The Oort cloud is roughly circular, and is thought to be the origin of most of the long-period comets that have been observed.
3. The Oort Cloud is very distant from the Sun and it can be disrupted by the nearby passage of a star.

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

a) 2 only
b) 1 and 2 only
c) None of the above
d) 1, 2 and 3

Q.5) Solution: (d)

Basic Info:

Oort Cloud:

The Oort Cloud is an extended shell of icy objects that exist in the outermost reaches of the solar system. It is named after astronomer Jan Oort, who first theorized its existence.

The Oort Cloud is roughly spherical, and is thought to be the origin of most of the long-period comets that have been observed.

This cloud of particles is theorized to be the remains of the disc of material that formed the Sun and planets. Astronomers now refer to those primeval objects as a protoplanetary disk.

The most likely theory is that the material now in the Oort Cloud probably formed closer to the young Sun in the earliest epochs of solar system formation. As the planets grew, and in particular as Jupiter coalesced and migrated to its present position, its gravitational influence is thought to have scattered many icy objects out to their present position in the Oort cloud.

Objects in the Oort Cloud are also referred to as Trans-Neptunian objects. This name also applies to objects in the Kuiper Belt.

The Oort Cloud is very distant from the Sun and it can be disrupted by the nearby passage of a star, nebula, or by actions in the disk of the Milky Way. Those actions knock cometary nuclei out of their orbits, and send them on a headlong rush toward the Sun.

Q.6) Consider the following statements:

1. Earth's polarity is not constant and it keeps changing.
2. In Reverse Polarity, Earth's North Magnetic Pole is the South Pole of its Magnetic Field.

3. The geomagnetic dipole is currently tilted at an angle of about 11 degrees to Earth's rotational axis.

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

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

Q.6) Solution: (c)

Basic Info:

Geomagnetism: Earth's magnetic field comes from this ocean of iron, which is an electrically conducting fluid in constant motion. Sitting atop the hot inner core, the liquid outer core seethes and roils like water in a pan on a hot stove.

The outer core also has "hurricanes"- whirlpools powered by the Coriolis forces of Earth's rotation. These complex motions generate our planet's magnetism through a process called the dynamo effect.

The Earth has two dominant magnetic poles, and several very weak 'quadrupolar' poles of which there are, at least mathematically, about 8 in number. These poles are far weaker than the dipole field and measure only weak departures of the local geographic field strength from the basic dipolar North South field.

Approximately, geomagnetic dipole is currently tilted at an angle of about 11 degrees to Earth's rotational axis.

Earth's polarity is not a constant and it keeps changing. Compass needles in Africa, for instance, are drifting about 1 degree per decade. And globally the magnetic field has weakened 10% since the 19th century.

The Earth's field has alternated between periods of normal polarity, in which the predominant direction of the field was the same as the present direction, and reverse polarity, in which it was the opposite.

In Normal Polarity, Earth's North Magnetic Pole is the South Pole of its Magnetic Field.

In Reverse Polarity, Earth's North Magnetic Pole is the North Pole of its Magnetic Field.

Q.7) Which of the following characteristics can be associated with metamorphic rocks?

1. Banding
2. Lineation
3. Presence of fossils
4. Recrystallization

Select the correct answer from the codes given below:

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

Q.7) Solution: (c)

Basic Info:

Metamorphic rocks: Metamorphic 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.

In Metamorphism consolidated rocks undergo **recrystallization** and reorganization of materials within original rocks.

In the process of metamorphism in 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** and rocks displaying banding are called banded rocks.

Metamorphic rocks have been put under great pressure, heated, squashed or stretched. So fossils do not usually survive these extreme conditions. Generally**, it is only sedimentary rocks that contain fossils.**

Q.8) Consider the following statements regarding Seafloor spreading:

1. The continental crust rocks are much younger than the ocean rocks.
2. The age of the rocks increases as one moves away from the crest of the Mid Oceanic Ridges.
3. The deep trenches have deep-seated earthquakes while in the mid-oceanic ridge areas, the quake foci have shallow depths.

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

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

Q.8) Solution: (a)

Basic Info:
Seafloor spreading:

Post Continental drift theory many studies were done which revealed the following facts.

It was realized that all along the midoceanic ridges, volcanic eruptions are common and they bring huge amounts of lava to the surface in this area.

The rocks equidistant on either side of the crest of mid-oceanic ridges show remarkable similarities in terms of the period of formation, chemical compositions, and magnetic properties.

The age of the rocks increases as one moves away from the crest of the Ridges.

The ocean crust rocks are much younger than the continental rocks. The age of rocks in the oceanic crust is nowhere more than 200 million years old while some of the continental rock formations are as old as 3,200 million years.

The sediments on the ocean floor are unexpectedly very thin.

The deep trenches have deep seated earthquake occurrences while in the mid-oceanic ridge areas, the quake foci have shallow depths.

These facts led Harry Hess to propose his hypothesis, known as the “seafloor spreading”. The force of the Seafloor spreading was found to be Convective current as postulated by Arthur Holmes.

Magma continuously wells upwards at the mid-oceanic ridges producing currents of magma flowing in opposite directions and thus generating the forces that pull the seafloor apart at the mid-oceanic ridges.

As the ocean floor is spread apart, cracks appear in the middle of the ridges allowing molten magma to surface through the cracks to form the newest ocean floor. Here, new crust is generated.

As the ocean floor moves away from the midoceanic ridge, it eventually comes into contact with a continental plate at a convergent boundary, subducted underneath the continent and the crustal mass is consumed here.

Q.9) Which of the following are the regions of Divergent Plate Boundaries ?

1. East African Rift
2. Gakkel Ridge
3. Carlsberg Ridge
4. Juan de Fuca Ridge
5. Baikal Rift Zone

Select the correct answer from the codes given below:

a) 2, 3 and 5 only
b) 4 and 5 only
c) 1 only
d) 1, 2, 3, 4 and 5

Q.9) Solution: (d)

Basic Info:

Divergent Plate boundaries:

These are areas where plates move away from each other, forming either mid-oceanic ridges or rift valleys. These are also known as constructive boundaries.

Regions of Divergent Boundaries:

- East African Rift (Great Rift Valley) in eastern Africa
- Mid-Atlantic Ridge system separates the North American Plate and South American Plate in the west from the Eurasian Plate and African Plate in the east.

- Gakkel Ridge is a slow spreading ridge located in the Arctic Ocean
- East Pacific Rise, extending from the South Pacific to the Gulf of California
- Baikal Rift Zone in eastern Russia
- Red Sea Rift
- Aden Ridge along the southern shore of the Arabian Peninsula
- Carlsberg Ridge in the eastern Indian Ocean
- Gorda Ridge off the northwest coast of North America
- Explorer Ridge off the northwest coast of North America
- Juan de Fuca Ridge off the northwest coast of North America

Q.10) Consider the following pairs:

1. Recumbent Fold: In this fold the two limbs are so much inclined that they become horizontal.
2. Monoclinal Fold: One limb makes a right angle with the surface but the other limb is ordinarily inclined.
3. Plunging Fold: Here the axis of the fold is not parallel to the horizontal but makes an angle with it.

Which of the following pairs is/are incorrectly matched ?

a) 1 and 2 only
b) 2 and 3 only
c) All of the above
d) None of the above

Q.10) Solution: (d)

Basic info:

Types of Folds:

According to the shape, the folds are of many types:

Symmetrical Folds: These are ordinary folds. The limbs of the folds are equally inclined on either side.

Asymmetrical Fold: One of the limbs is more inclined than the other.

Monoclinal Fold: In this fold, one limb makes a right angle with the surface but the other limb is ordinarily inclined.

Isoclinal Fold: The two limbs are so much inclined in such a way that they appear equally inclined and parallel to each other.

Recumbent Fold: In this fold the two limbs are so much inclined that they become horizontal.

Overturned Fold: In this fold one limb is overturned over the other limb. The difference between the overturned and recumbent folds is that the overturned limbs are not horizontal like those of recumbent fold.

Plunging Fold: If the axis of the fold is not parallel to the horizontal but makes an angle with it, it is known as Plunging Fold.

Fan Fold: It is a great anticline which has many small anticlines and synclines. It is also known as Anticlinorium. A great syncline having many small anticlines and synclines is called Synclinorium.

Q.11) With reference to Snow line, consider the following statements:

1. Moving equator to polewards, the height of the snowline keeps decreasing.
2. The average temperature is always below freezing point at the snow line.

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

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.11) Solution: (c)

Basic Info:

Snow line is generally defined as a zone between permanent and seasonal snow.

It denotes that height above which there is a permanent snow cover and **thus it corresponds to the level where average temperature is always below freezing point even during the warmest month of the year.**

The snowline keeps on changing due to seasonal variations**. As we move from equator to polewards, the height of the snowline keeps decreasing** and that in the polar region, it is almost equal to the mean sea level.

Q.12) Consider the following statements regarding Upper air inversion:

1. The thermal upper air inversion is caused by the presence of ozone layer lying between the heights of 15 to 35 km.
2. Mechanical inversion caused by the subsidence of air currents is generally associated with the cyclonic conditions.

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

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.12) Solution: (a)

Basic Info:
Upper air inversion is of two type's:
(i) Thermal upper air inversion and (ii) Mechanical upper air inversion.

The thermal upper air inversion is caused by the presence of ozone layer lying between the heights of 15 to 35 km (even up to 80 km) in the stratosphere.

The mechanical inversion of temperature is caused at higher heights in the atmosphere due to subsidence of air and turbulence and convertible mechanisms.

Mechanical inversion caused by the subsidence of air currents is generally associated with the **anticyclones conditions.** This type of inversion of temperature is very common in the middle latitude where high pressures are characterized by sinking air.

The pole wards regions of the winds are also characterized by high pressure caused by the subsidence of air resulting into mechanical inversion of temperature.

The temperature inversion causes stability in the atmosphere. This is the reason that the poleward parts of trade winds are characterized by arid conditions.

Q.13) Consider the following statements:

1. White Sea is surrounded by Russia only.

2. Aral Sea is surrounded by Kazakhstan and Uzbekistan only.
3. Black Sea is surrounded by Turkey, Bulgaria, Romania, Ukraine, Russia only.

Which of the following statements is/are correct ?

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

Q.13) Solution: (b)

Basic Info:

The Black Sea is an inland sea located between far-southeastern Europe and the far-western edges of the continent of Asia and the country of Turkey**. It's bordered by Turkey, and by Bulgaria, Romania, Ukraine, Russia, and Georgia.**

The White Sea is a southern inlet of the Barents Sea located on the northwest coast of Russia.

The Aral Sea stands at the boundary between Kazakhstan to the north and Uzbekistan to the south. It was once a large saltwater lake of Central Asia and the world's fourth largest body of inland water.

Q.14) Consider the following statements regarding Jet Stream:

1. Due to Earth's rotation the winds blow from west to east in jet streams.
2. Rossby waves are formed when polar air moves toward the Equator while tropical air is moving poleward.

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

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.14) Solution: (c)

Basic Info:

Jet Stream: Jet streams are relatively narrow (50 -150 km) bands of strong wind in the upper levels of the atmosphere below the Tropopause.

The winds blow from west to east in jet streams, due to the Earth's rotation, but the flow often shifts to the north and south. Jet streams follow the boundaries between hot and cold air.

When the temperature contrast is maximum, jet stream flows in near straight path. But when temperature contrast reduces, the jet stream starts to follow a meandering path.

As the difference in temperature increases between the two locations the strength of the wind increases.

Therefore, the regions around 30° N/S and 50°-60° N/S are also regions where the wind, in the upper atmosphere, is the strongest. These are called Subtropical Jet Streams and Polar Jet correspondingly.

Near poles or equator, these streams are weak in nature.

The meandering jet streams are called Rossby Waves. Rossby waves are formed when polar air moves toward the Equator while tropical air is moving poleward.

Q.15) Consider the following statements:

1. Sub tropical Jet streams is deflected to the right in the northern hemisphere and to the left in the southern hemisphere.
2. Doldrums are equatorial regions of light ocean currents and winds within the inter tropical convergence zone.
3. Tropical easterly jetstreams is found between 5° and 20°N.

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

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

Q.15) Solution: (b)

Basic Info:

Atmospheric Circulations:

Doldrums, also called equatorial calms, equatorial regions of light ocean currents and winds within the intertropical convergence zone (ITCZ), a belt of converging winds and rising air encircling Earth near the Equator.

The northeast and southeast trade winds meet there; this meeting causes air uplift and often produces clusters of convective thunderstorms. Doldrums lies at equator i.e. from 5 degrees north to 5 degrees south.

Tropical easterly jet streams (TEJ) are major high-velocity winds in the lower troposphere called low-level jets (LLJs). In the tropics, the most prominent of these are the Somali Jet and the African Easterly Jet.

The TEJ is a unique and dominant feature of the northern hemispheric summer over southern Asia and northern Africa. **The TEJ is found near between 5° and 20°N.** These are usually considered as temporary jet streams.

However, the Subtropical jet streams (STJ) are permanent in nature. As its name suggests they are formed in the subtropical areas. **STJ is deflected to the right in the northern hemisphere and to the left in the southern hemisphere**, and at about 30° latitude, it becomes concentrated as the subtropical jet streams.

During winter, the STJ is nearly continuous in both hemispheres. The STJ exists all year in the southern hemisphere. However, it is intermittent in the northern hemisphere during summer when it migrates north.

Subtropical Jet Streams are always westerlies and Tropical Jet Streams are always easterlies. It is due to the effect of the Coriolis force.

In the middle latitudes, the circulation is that of sinking cold air that comes from the poles and the rising warm air that blows from the subtropical high. At the surface, these winds are called westerlies and the cell is known as the Ferrel cell.

However, Ferrel cell does not derive its strength from the walker cell. Walker cell is associated with the El-Nino event that takes place in the central Pacific Ocean where warm waters slowly move towards South America.

A large part of the energy that drives the Ferrel cell is provided by the polar and Hadley cells circulating on either side or that drag the Ferrel cell with it.

Q.16) Consider the following statements regarding atomic minerals:

1. Kazakhstan is the largest producer of uranium in the world, followed by Namibia.
2. Plutonium-239 contains the highest quantities of fissile material and is notably one of the primary fuels used in nuclear weapons.

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

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.16) Solution: (b)

Basic Info:

Kazakhstan had the highest uranium production in the world in 2020. In fact, the country's total output of 19,477 tonnes accounted for 41 percent of the global uranium supply, **followed by Australia (13%) Namibia (11%) and Canada (8%).**

Over two-thirds of the world's production of uranium from mines is from Kazakhstan, Canada, and Australia.

In 2020, Namibia produced 11% of uranium worldwide, ranked as the 4th largest producer, behind Kazakhstan, Canada, and Australia.

The various isotopes of plutonium have been used in a number of applications. **Plutonium-239 contains the highest quantities of fissile material and is notably one of the primary fuels used in nuclear weapons.**

Plutonium-238 has more benign applications and has been used to power batteries for some heart pacemakers, as well as provide a long-lived heat source to power NASA space missions. Like uranium, plutonium can also be used to fuel nuclear power plants, as is done in a few countries.

Depleted uranium is a by-product of the enrichment of natural uranium to make nuclear fuel. It is less radioactive than naturally occurring uranium as it contains less of fissionable material U-235.

Q.17) Tropical Cyclones differs from Temperate Cyclone in a number of ways. Keeping this in view, which of the following statements is incorrect?

a) The Temperate Cyclones affect a much larger area as compared to the Tropical cyclone.
b) The Temperate Cyclones move from west to east and Tropical Cyclones, move from east to west.
c) The Temperate Cyclones can originate over the land and sea but Tropical Cyclones can originate only over the seas.
d) The Tropical Cyclones have a clear frontal system whereas the Temperate Cyclones do not have the frontal system.

Q.17) Solution: (d)

Basic Info:

-Cyclones are large scale air mass that rotates around a strong center of low atmospheric pressure. Based on the geographical location, the Cyclones are of two types namely Tropical Cyclones and Temperate Cyclones (Extra Tropical Cyclones).

Tropical Cyclones

-Tropical Cyclones are violent storms that originate over the seas in the Low Pressure belt of the tropical areas and move eastward over to the coastal areas.

-They bring about large scale destruction caused by violent winds, very heavy rainfall and storm surges which make them as one of the most devastating natural calamities.

-They are known as Cyclones in the Indian Ocean, Hurricanes in the Atlantic, Typhoons in the Western Pacific and South China Sea, and Willy-willies in the Western Australia.

-They originate only over the seas because of the need of continuous moisture to energize the Cyclones regularly. This is why they dissipate once reaching the land.

-They are violent because of the energy coming from the condensation process in cumulonimbus clouds surrounding the Cyclones.

-They move from east to west because they are facilitated by the Trade wind.

Temperate Cyclone

-This system develops in the mid and high latitude along the polar front (boundary between the warm air and cold air).

-As the polar front develops over entire polar frontal system, this cyclone affects a much larger area of around 2000 km. **Also it develops over land and sea both as far as there is frontal system.**

-It moves from west to east due to the influence of Westerlies

Q.18) With reference to Sinai Peninsula, consider the following statements:

1. Sinai Peninsula is located in the Asian part of Egypt between the Mediterranean Sea and the Red Sea.
2. It is linked to the African continent by the Isthmus of Suez.

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

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.18) Solution: (c)

Basic Info:

The Sinai Peninsula, is a peninsula in Egypt, and the only part of the country located in Asia. It is between the Mediterranean Sea to the north and the Red Sea to the south, and is a land bridge between Asia and Africa.

Countries with international borders to Sinai are Palestinian territories (Gaza Strip) and Israel.

It is linked to the African continent by the Isthmus of Suez, a 125 kilometers (78 mi) wide strip of land, containing the Suez Canal. The eastern isthmus, linking it to the Asian mainland, is around 200 kilometers (120 mi) wide. The peninsula's eastern shore separates the Arabian plate from the African plate.

Q.19) The Tropic of Cancer passes through which of the following water bodies ?

1. Pacific Ocean
2. Atlantic Ocean
3. Red Sea
4. Gulf of Aden

Select the answer from the codes given below:

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

Q.19) Solution: (b)

Basic Info:

The Tropic of Cancer passes through the following water bodies:

- Red Sea
- Indian Ocean
- Taiwan Strait
- Pacific Ocean
- Philippine Sea
- Gulf of California
- Gulf of Mexico

- Atlantic Ocean

Q.20) With reference to Theories on Origin of the Universe, consider the following statements:

1. Nebular Hypothesis considered that the planets were formed from a collision between the Sun and another star.
2. Planetesimal Hypothesis considered that the planets were formed out of a cloud of material associated with a youthful sun.

Which of the following statements is/are correct ?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.20) Solution: (d)

Basic Info:
Theories on Origin of the Universe

Nebular Hypothesis – This theory was developed by Immanuel Kant and modified in 1796 by Pierre Laplace. According to this hypothesis, the planets were formed out of a cloud of material associated with a youthful sun, which was slowly rotating.

Planetesimal Hypothesis - When the intruding star came very close to the Proto-Sun infinite number of small particles were detached from the outer surface of proto-sun due to massive gravitational pull exerted by the giant intruding star. This matter which is dust, gases, rock fragments eventually accrete forming planets & other celestial bodies that revolve around the proto sun.

The Big Bang Theory - This explains the origin of the universe. It is also called the expanding universe hypothesis. In 1927, Abbe Georges Lemaitre, a Belgian astronomer was the first to provide a theory on the origin of the Universe. It was Edwin Hubble who provided evidence that the universe is expanding. According to this theory, all matter that formed the universe existed in one point (tiny ball) called singularity having an unimaginable small volume, infinite temperature and infinite density.

Q.21) Consider the following pairs:

1. Guru Shikar: Satpura range
2. Amarkantak: Aravali range
3. Gali Konda: Palkonda range
4. Kaimur: Vindhyan range

Which of the following pairs are correctly matched ?

a) 3 only
b) 4 only
c) None of the above
d) 1 and 2 only

Q.21) Solution: (b)

Basic Info:

Hills of the Peninsular India:

Most of the hills in the peninsular region are of the relict type (residual hills).

Aravali Range

They are aligned in north-east to south-west direction. At the south-west extremity the range rises to over 1,000 m. Here Mt. Abu (1,158 m), a small hilly block, is separated from the main range by the valley of the Banas. **Guru Sikhar** (1,722 m), the highest peak, is situated in Mt. Abu.

Vindhyan Range

The Vindhyan Range, overlooking the Narmada valley, rises as an escarpment (a long, steep slope at the edge of a plateau or separating areas of land at different heights) flanking the northern edge of the Narmada-Son Trough. The Vindhyas are continued eastwards as the Bharner and **Kaimur hills**.

Satpura Range

Satpura range is a series of seven mountains. Dhupgarh (1,350 m) near Pachmarhi on Mahadev Hills is the highest peak. **Amarkantak** (1,127 m) is another important peak.

Madugula Konda range

The Madugula Konda range has higher elevations ranging from 1,100 m and 1,400 m with several peaks exceeding 1,600 m.

Jindhagada Peak (1690 m) in Araku Valley, Arma Konda (1,680 m), **Gali Konda** (1,643 m) and Sinkram Gutta (1,620 m) are important peaks

Q.22) Consider the following statements regarding Kashmir Valley:

1. Kashmir Valley constitutes the Nappe Zone representing a tectonic depression formed by the upliftment of Great Himalyan Range.
2. The Karewa Formation are glacio- fluvial-lacustrine and aeolian loess of Plio-Pleistocene age.

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

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.22) Solution: (b)

Basic Info:

Kashmir valley:

Kashmir Valley is surrounded by Great Himalayan Range in the northeast and the Pir Panjal Range in the southwest. The basin is formed by tectonic upliftment of Pir Panjal Range, which impound the drainage of Himalayan side and gave rise to a vast lake, known as "Karewa Lake". Tectonically **Kashmir Valley constitutes the Nappe Zone representing a tectonic depression formed by the upliftment of Pir Panjal Range** along the Panjal thrust.

The Valley in the form of a graben is flanked by two horsts, Pir Panjal Range in the southwestern side and Zanskar Range in the northeastern side.

The word "Karewa" is derived from Kashmiri dialect meaning "Wudars". The lake was drained through the Baramullah "Tatamulla Gorge" due to continued upliftment of Pir Panjal Range.

The sediments deposited in the lake are about 1300m in thickness, known as Quaternary sediments of Karewa Group.

Karewas are lacustrine deposits. According geographers, **the Karewa Formation are glacio-fluvial-lacustrine and aeolian loess of Plio-Pleistocene age.**

Q.23) Consider the following statements regarding Rock system in India:

1. Bengal gneiss and Nilgiri gneiss are examples of the Archaean rocks.
2. The Cuddapah rocks have been formed by the erosion and deposition of Dharwar rocks.
3. The rocks of Cambrian, Ordovician, Silurian, Devonian, and Carboniferous periods fall under the Aryan rock system.

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

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

Q.23) Solution: (a)

Basic Info:

Rock system of India: Based on the geological history of India, it is of four types viz. Archaean Rock System (oldest), Purana Rock System, Dravidian Rock System, and Aryan Rock System.

The Archaean rock system includes:

Archaean Rocks: These are very old primary rocks, which have been metamorphosed into gneiss and schist. Bundelkhand Gneiss (Bellary Gneiss) is the oldest among them. **Bengal gneiss and Nilgiri gneiss are other examples of these rocks.**

Dharwar Rocks: These are the layered rocks formed after the erosion and deposition of the Archean rocks. These are highly metamorphosed and fossils are not found inside. These rocks are found in Dharwar and Bellary districts of Karnataka, Aravalli range, Balaghat, Rewa, Chota Nagpur, etc.

The Purana rock system includes:

Cuddapah Rocks: These rocks have been formed by the erosion and deposition of Dharwar rocks. These are less metamorphosed but devoid of fossils. These rocks are found in Krishna valley, Nallamalai hills area, Papaghani, and Cheyar valleys.

Vindhyan Rocks: These rocks have been formed after the formation of Cuddappah rocks. These rocks are spread from Chittorgarh of Rajasthan to Sasaram of Bihar.

Dravidian Rock System (Palaeozoic) was formed about 600 – 300 million years ago and found in the Extra Peninsular region (Himalayas and Ganga plain) and are very rare in Peninsular

India. **The rocks of Cambrian, Ordovician, Silurian, Devonian, and Carboniferous periods fall under the Dravidian system.**

Carboniferous rocks comprise mainly of limestone, shale and quartzite Mount Everest is composed of Upper Carboniferous limestones. Coal formation started in the Carboniferous age.

Aryan Rock System includes Gondwana System, Jurassic System, Deccan Trap, and the Tertiary System.

Gondwana Rocks: These are the rocks formed in upper Carboniferous to Jurassic era, hence these are especially important for coal deposits. About 98% of the coal deposits of India are found in these rocks. These rocks are found in the river valleys of Damodar, Mahanadi and Godavari and its tributaries.

Jurassic system: The marine transgression in the latter part of the Jurassic gave rise to thick series of shallow-water deposits in Rajasthan and in Kuchchh. Coral limestone, sandstone, conglomerates, and shales occur in Kuchchh.

Deccan Trap: This was formed in the Cretaceous period of the Mesozoic era due to volcanic eruption (Reunion Hotspot) through fissure.

Tertiary System: It is the most significant period in India's geological history because the Himalayas were born and India's present form came into being in this period.

Q.24) Consider the following statements regarding Major passes in Western Ghats:

1. The Thal ghat was the ancient route developed by Satavahana to connect the ports of Choul, Revdanda Panvel on the Konkan coast.
2. Bhor Ghat is a ghat section in the Western Ghats near the town of Kasara in Maharashtra.
3. Haldighati Pass is located in the Aravali Range in the state of Rajasthan.

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

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

Q.24) Solution: (c)

Basic Info:

Bhor Ghat is a mountain passage located between Palasdari and Khandala for railway and between Khopoliand Khandala on the road route in Maharashtra, India situated on the crest of the Western Ghats.

It is located at an elevation of four hundred and forty-one meters elevation above sea level. The ghat has a bit of historical evidence. The ghat was the ancient route developed by Satavahana to connect the ports of Choul, Revdanda Panvel, etc. on the Konkan coast and the surrounding areas on the Deccan plateau.

Thal Ghat is a ghat section (mountain incline or slope) in the Western Ghats near the town of Kasara in Maharashtra. The Thal Ghat is located on the busy Mumbai–Nashik route, and is one of the four major routes, rail, and road routes, leading into Mumbai. The railway line, which passes through the ghat is the steepest in India with a gradient of 1 in 37

Haldighati Pass is located in the Aravali Range in the state of Rajasthan. Located about 40 km from Udaipur, the mountain pass is said to be the historic location of the 'Battle of Haldighati' between the Mewar king Maharana Pratap and the Mughals under Emperor Akbar in 1576. The Government of India commissioned the setting up of the Maharana Pratap National Memorial in 1997 on the site which included a bronze statue of Maharana Pratap's horse Chetak.

Q.25) Match the following:

	River Islands	Location
A.	Bhavani Island	1. Assam
B.	Umananda Island	2. Andhra Pradesh
C.	Munroe Island	3. Tamil Nadu
D.	Quibble Island	4. Kerala

Select the correct answer from the codes given below:

a) A-1; B-2; C-4; D-3
b) A-1; B-2; C-3; D-4
c) A-2; B-1; C-3; D-4
d) A-2; B-1; C-4; D-3

Q.25) Solution: (d)

Basic Info:

River islands of India:

These islands are formed by rivers hence called as riverine islands.
Bhavani Island situated in the midst of the Krishna River, at Vijayawada, Andhra Pradesh.

Munroe Island is an inland island group located at the confluence of Ashtamudi Lake and the Kallada River, in Kollam district, Kerala.

Umananda Island is the smallest river island in the world. It is in the midst of river Brahmaputra near Guwahati, Assam.

Sagar Island is an island in the Ganges delta, lying on the Continental Shelf of Bay of Bengal in West Bengal.

Quibble Island is a river island in the city of Chennai, Tamil Nadu. It is formed by the encirclement of the Adyar river and one of its tributaries.

Some other islands are Majuli (World's largest river island) in Assam, Abdul Kalam Island (or, Wheeler Island) in Odisha, Dibru-Saikhowa in Assam, Mandhata island, also known as Shivapuri or Omkareshwar in the Narmada river in
Madhya Pradesh.

Q.26) With reference to Himalayan Mountains which of the following statements are correct?

1. Bara Lacha-La, Shipki-La, Nathu-La, Zoji-La, Bomidi-La are present in the Himadari range.
2. The Shiwaliks comprises of Shimla, Dalhousie Darjeeling, Chakrata, Mussoorie and Nanital.

Select the correct answer from the codes given below:

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.26) Solution: (a)

Basic Info:
Himalayan Mountains:

Himalayas are the young fold mountains. This is the highest mountain range of the world. Himalayas act as natural barrier. The extreme cold, snow and rugged topography discourage

the neighbors to enter India through Himalayas. They run from west-east direction from Indus to Brahmaputra along the northern boundary of India covering a distance of 2500 km. Their width varies from 400 km in the west and 150 km in the East.

The Himalayas may be divided into three parallel ranges:

The Greater Himalayas or Himadari: The Greater Himalayas comprises of the northern most ranges and peaks. It has an average height of 6000 metres and width lies between 120 to 190 Kms. It is the most continuous range. It is snow bound and many glaciers descend from this range. It has high peaks like Mt. Everest, Kanchenjunga, Makalu, Dhaulagiri, Nanga Parbat etc. having a height of more than 8000 metres. Mt. Everest (8848 m) is the highest peak of the world and Kanchenjunga is the highest peak of Himalaya in India. High Mountain passes also exist in this range, namely, Bara Lacha-La, Shipki-La, Nathu-La, Zoji-La, Bomidi-La etc. The Ganga and Yamuna rivers originate from this Himalayas.

The Lesser Himalayas or Himachal: The altitude of this range lies between 1000 and 4500 metres and the average width is 50 km. The Prominent ranges in this are Pir Panjal, Dhaula Dhar and Mahabharata ranges. It comprises of many famous hill stations like **Shimla, Dalhousie Darjeeling, Chakrata, Mussoorie, Nanital** etc. It also comprises of famous valleys like Kashmir, Kullu, Kangra etc.

The Outer Himalayas or the **Siwaliks**: It is the outer most range of the Himalayas. The altitude varies between 900-1100 meters and the width lies between 10 km-50 km. They have low hills like Jammu Hills, etc. The valleys lying between Siwalik and Lesser Himalayas (Himachal) are called 'Duns' like Dehra Dun, Kotli Dun and Patli Dun.

Q.27) Consider the following statements regarding a river:

1. It is an antecedent river originating from the southern slope of the Himalayas.
2. One of its tributary forms the Indo-Nepal border.
3. It is the largest tributary of the Ganges by volume.

Select the correct answer from the codes given below:

a) Kali
b) Gandak
c) Kosi
d) Ghaghra

Q.27) Solution: (d)

Basic Info:

Ghaghra/ Karnali river:

It is an antecedent river originating from the southern slope of the Himalayas. It is the longest river in Nepal (507 km).

Kali/Sarda, which forms the Indo-Nepal border, is its tributary which meets Ghaghra at Brahmaghat in India. Thereafter it is known as Ghaghra, before this, it is known as Saryu.

It is the largest tributary of the Ganges by volume and the second-longest tributary of the Ganges in length after the Yamuna.

Q.28) Consider the following statements regarding Narmada river basin:

1. It flows eastwards through a rift valley between the Vindhyan Range and the Satpura Range.
2. Barna, Hiran River, Tendoni River are its major right bank tributaries.

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

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.28) Solution: (b)

Basic Info:

Narmada River: Narmada is the largest west flowing river of peninsular India. It 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 about 1 Lakh Sq.km.

It is bounded by the Vindhyas on the north, Maikala range on the east, Satpuras on the south, and by the Arabian Sea on the west. Its total length from its source in Amarkantak to its estuary in the Gulf of Khambhat is 1,310 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 center 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 Dhuan Dhar (Cloud of Mist) Falls.

Tributaries of Narmada River

Right bank tributaries are the Barna, Hiran River, Tendoni River, Choral River, Kolar River, Man River, Uri River, Hatni River, Orsang River

Left bank tributaries – Burhner River, Banjar River, Sher River, Shakkar River, Dudhi River, Tawa River, Ganjal River, Chhota Tawa River, Kaveri River, Kundi River, Goi River, Karjan River

The major Hydro Power projects in the basin are Indira Sagar, Sardar Sarovar, Omkareshwar, Bargi & Maheshwar.

Q.29) The extreme cold observed in parts of north and north west India are due to the following reasons:

1. Cold wave arriving from the west, through the Western Disturbance.
2. Low stratus clouds that are blanketed over a large geographical area.
3. Intensity of snowfall happening in Jammu and Kashmir, Ladakh, Himachal Pradesh and nearby areas.
4. Flow of north-westerly winds over northwest India.

Select the correct answer from the codes given below:

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

Q.29) Solution: (d)

Basic Info:

Extreme cold temperatures, rainfall and intense fog in the months of December and January are witnessed by north and northwest India.

Every year, in the second half of December and the first half of January, temperatures routinely drop to 2-4°C at some point of the day in many places in north and northwest India.

A cold-day condition is said to prevail when the maximum temperature during the day is at least 4.5°C below normal.

If the maximum temperature is at least 6.5°C below normal, it is classified as a severe cold day.

The cold wave usually arrives from the west, through the Western Disturbance wind system. This system is also responsible for causing rains in northern and northwestern parts, after having picked up moisture on its way from the Mediterranean Sea.

The intensity of the cold also depends on the amount of snowfall that happens in Jammu and Kashmir, Ladakh, Himachal Pradesh and nearby areas.

They combine in different ways to produce different kinds of winter conditions.

The frequency and intensity of both heat waves and cold waves have increased in the last few years, and are predicted to increase further. The same is the case with extreme rainfall and drought.

Flow of north-westerly winds over northwest India that too over much lower levels, further fuelled the chill factor, making the days much colder than normal during December.

This extended cold spell has been triggered due to low stratus clouds that are blanketed over a large geographical area — between Pakistan, cutting across India and running up to Bangladesh.

Q.30) Which of the following climatic regions in India are correctly matched ?

1. Monsoon with short dry season (Amw): Coromandel coast of Tamil Nadu.
2. Monsoon with dry summer (As): West coast of India south of Goa.
3. Cold humid winter with short summer (Dfc): Arunachal Pradesh
4. Hot desert Extreme (BWhw): Western Rajasthan.

Select the correct answer from the codes given below:

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

Q.30) Solution: (d)

Basic Info:

Climatic Regions of India according to Koeppen's Scheme:

The whole of India has a monsoon type of climate. But the combination of elements of the weather, however, reveals many regional variations. These variations represent the subtypes of the monsoon climate. It is on this basis that the climatic regions can be identified.

Koeppen based his scheme of Climatic classification on monthly values of temperature and precipitation. He used letter symbols to denote climatic types. According to this scheme, the climatic regions in India are as follows:

- Monsoon with short dry season (Amw): It is found on the west coast of India south of Goa.
- Monsoon with dry summer (As): It is found on the Coromandel coast of Tamil Nadu.
- Tropical savannah (Aw): It is found in most of the peninsular plateaus, south of the Tropic of Cancer.
- Steppe climate (BShw): In North-western Gujarat, some parts of western Rajasthan and Punjab.
- Hot desert Extreme (BWhw): In western Rajasthan.
- Monsoon with dry winter (Cwg): In Ganga plain, eastern Rajasthan, northern Madhya Pradesh, and most of North-east India.
- Cold humid winter with short summer (Dfc): Arunachal Pradesh
- Polar type (E): Jammu and Kashmir, Himachal Pradesh and Uttarakhand.

Q.31) Which of the following factors lead to heat waves in India?

1. Anti-cyclonic conditions in the Bay of Bengal.
2. Sudden decrease in atmospheric pressure.
3. Northwards movement of the sun after March equinox.
4. Global warming.

Select the correct answer from the codes given below:

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

Q.31) Solution: (d)

Basic Info:

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.

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.

Q.32) Consider the following statements regarding Drake Passage:

1. It is the body of water between South America's Cape Horn and the South Shetland Islands of Antarctica.
2. It connects the southwestern part of the Atlantic Ocean with the Southern Ocean.

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

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.32) Solution: (c)

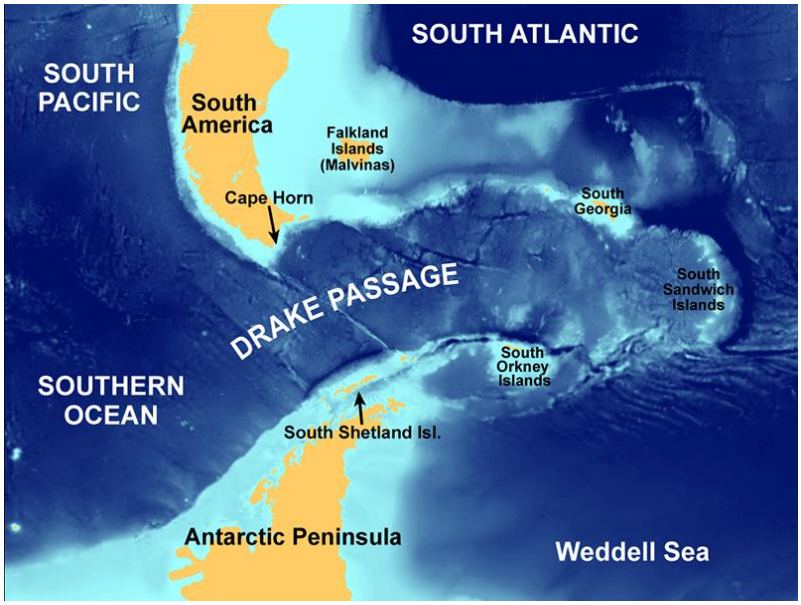
Basic Info:

Drake Passage

It is the body of water between South America's Cape Horn, Chile and the South Shetland Islands of Antarctica.

It connects the southwestern part of the Atlantic Ocean (Scotia Sea) with the southeastern part of the Pacific Ocean and extends into the Southern Ocean.

It is the shortest crossing from Antarctica to any other landmass. There is no significant land anywhere around the world at the latitudes of Drake Passage, which is important to the unimpeded flow of the Antarctic Circumpolar Current which carries a huge volume of water through the Passage and around Antarctica.



Q.33) With reference to e-Bkray an e-auction portal, which of the following statements is/are correct ?

1. It was launched by the Ministry of Finance.
2. The platform will enable online auction of attached assets by banks.

Select the correct answer from the codes given below:

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.33) Solution: (c)

Basic Info:

It was launched by Ministry of Finance. The platform will enable online auction of attached assets by banks.

The aim of this portal is to boost user experience via access to information by the search based on the type and location of property available for e-auction, put up by banks in India.

eBKray platform will give navigational links to all Public Sector Banks (PSBs) e-auction sites, property search feature and will also provide single-window access to information on properties up for e-auction, comparison of similar properties. It has videos and photographs of the uploaded properties as well.

With the help of this platform, buyers can easily navigate to the bank e-auction site once a notified property is selected. Users can also search for a property using state-wise, district-wise and bank-wise details.

Q.34) Considering the estimates of 2021, which of the following statements regarding Spices in India are correct ?

1. The export of spices contributes 30% of the total export earnings from all horticulture crops in the country.
2. Spices Board is the flagship organization for the development and worldwide promotion of Indian spices.
3. The top 5 exports are Chilli, Cumin, Turmeric, Ginger, Coriander.

Select the correct answer from the codes given below:

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

Q.34) Solution: (a)

Basic Info:

Spices Production in India: India is the world's largest producer, consumer and exporter of spices.

Due to the varying climates - from tropical to subtropical to temperate-almost all spices grow splendidly in India.

Spices Board (Ministry of Commerce and Industry) is the flagship organization for the development and worldwide promotion of Indian spices. It was established by the Spices Board Act, 1986.

The export of spices contributes 41% of the total export earnings from all horticulture crops in the country. It ranks fourth among agricultural commodities, falling behind only the marine products, non basmati rice and basmati rice.

The largest spices-producing states in India are Madhya Pradesh, Rajasthan, Gujarat, Andhra Pradesh, Telangana, Karnataka, Maharashtra, Assam, Orissa, Uttar Pradesh, West Bengal, Tamil Nadu and Kerala.

The top 5 exports are Chilli, Cumin, Turmeric, Ginger, Coriander.

Q.35) Which of the following tribes are found in the State of Kerala?

1. Drokpa
2. Beda
3. Adiyan
4. Kadar

Select the correct answer from the codes given below:

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

Q.35) Solution: (b)

Basic Info:

Tribes in Ladakh

The total tribal population in Ladakh region is more than 97 percent.

The region is inhabited by following Scheduled Tribes which are Balti, Beda, Bot, Boto, Brokpa, Drokpa, Dard, Shin, Changpa, Garra, Mon, Purigpa, etc.

Tribes in Kerala: According to the 2001 census of India, the Scheduled Tribe population in Kerala is 3,64,189 (lunas – 180,169 and felunas – 184,020). Wayanad has the highest number of tribals (1,36,062)

Adiyan and Kadar are tribes found in Kerala.

Q.36) Which of the following pairs are correctly matched?

Hydro Power Plants: States

1. Shivanasamudra: Tamil Nadu
2. Salal: Jammu and Kashmir
3. Indira Sagar: Gujarat
4. Omkareshwar: Maharashtra

Select the correct answer from the codes given below:

a) 3 and 4 only
b) 1, 2, 3 and 4
c) None of the above
d) 2 only

Q.36) Solution: (d)

Basic Info:

Shivanasamudra Hydro Power Project was commissioned in 1902. It has a total installed capacity of 42 Megawatt. It is located in Karnataka.

Salal Hydroelectric Power Station, is a runoff the river hydropower project on the Chenab river in the Reasi district of the Jammu and Kashmir.

Indira Sagar Project is a multipurpose project with an installed capacity of 1000 MW, located in the state of Madya Pradesh.

Omkareshwar Hydel Power Plant (Omkareshwar Dam) is erected at 40 km downstream of Indira Sagar in the Khandwa district of Madhya Pradesh in India.

Q.37) Consider the following statements:

1. According to Hybrid Annuity Model the government will contribute to 40% of the project cost in the first three years through annual payments.
2. India's first Hybrid Annuity project in the sewerage sector, is located in Sarai village of Haridwar district of Uttarakhand.

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

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.37) Solution: (b)

Basic Info:

The Hybrid Annuity Model (HAM): In India, the new HAM is a mix of BOT Annuity and EPC models.

As per the design, the government will contribute to 40% of the project cost in the first five years through annual payments (annuity).

The remaining payment will be made on the basis of the assets created and the performance of the developer.

Here, hybrid annuity means the first 40% payment is made as a fixed amount in five equal installments whereas the remaining 60% is paid as variable annuity amount after the completion of the project depending upon the value of assets created.

As the government pays only 40%, during the construction stage, the developer should find money for the remaining amount. Here, he has to raise the remaining 60% in the form of equity or loans.

The private developer will recover his investment from the government by receiving annuity payments over a period of 15 years.

India's first Hybrid Annuity (HAM) project in the sewerage sector, the 14MLD Sewage Treatment Plant (STP) is located in Sarai village of Haridwar district of Uttarakhand.

The project has been developed under the Namami Gange project of National Mission for Clean Ganga (NMCG).

Q.38) Consider the following statements regarding mineral production in India:

1. India's richest haematite deposits, located in Barabil-Koira valley, are situated in Jharkhand.
2. Madhya Pradesh is the largest producer of copper in India.
3. Silver production comes from Zawar mines in Udaipur district of Rajasthan.

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

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

Q.38) Solution: (b)

Basic Info:

Minerals and India:

Odisha produces over 40 per cent iron ore of India. The most important deposits occur in Sundargarh, Mayurbhanj, Cuttack, Sambalpur, Keonjhar and Koraput districts**. India's richest haematite deposits are located in Barabil-Koira valley.**

Madhya Pradesh has become the largest producer of copper in India surpassing Karnataka, Rajasthan and Jharkhand in succession. The state is blessed with a fairly large belt in Taregaon area, in Malanjkhand belt of Balaghat district. This district has recoverable reserve of 84.83 million tonnes of copper ore having 1,006 thousand tonnes of metal.

Reserves of moderate size are also found in Kherlibazar-Bargaon area of Betul district. Some other areas are also reported to have copper ore reserves.

Silver is another precious metal produced in India. It is valued next only to gold for making ornaments due to its softness and attractive white colour.

The main production comes from Zawar mines in Udaipur district of Rajasthan. Here, silver is obtained as a by-product during the concentration and smelting of galena ore in Hindustan Zinc Smelter.

Q.39) Consider the following pairs:

1. Rourkela Steel Plant : West Bengal
2. Durgapur Steel Plant : Chhattisgarh
3. Korba Aluminum Plant : Maharashtra

Which of the following pairs is/are correctly matched ?

a) 1 and 2 only

b) 2 and 3 only
c) 3 only
d) None of the above

Q.39) Solution: (d)

Basic Info:

BALCO has its operations at Korba in the state of Chhattisgarh with a smelter capacity of 570 ktpa with capabilities to produce ingots, Alloy ingots, wire-rods, busbars and rolled products.

Rourkela Steel Plant, in Rourkela, Odisha is the first integrated steel plant in the public sector in India. It was set up with West German collaboration with an installed capacity of 1 million tonnes in the 1960s. It is operated by Steel Authority of India.

Durgapur Steel Plant is one of the integrated steel plants of Steel Authority of India Limited, located in Durgapur, in the eastern Indian state of West Bengal. It was set up with the help of United Kingdom.

Q.40) Which of the following locations have the potential for generation of geothermal energy in India?

1. Puga Valley
2. Damodar Valley
3. Narmada-Son Valley
4. Manikaran area

Select the correct answer from the codes given below:

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

Q.40) Solution: (c)

Basic Info:
Geothermal Energy:

When the magma from the interior of 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 of geothermal energy. According to one estimate, the total geo-thermal 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 potential for the generation of geothermal energy.