IASBABA'S

60 DAYS PLAN

PRELIMS 2021

COMPILATIONS

GEOGRAPHY - PART 2

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Q.1) Which among the following are physical processes in soil formation?

1. Lateralization
2. Podzolization
3. Salinization
4. Gleization

Choose the correct option:

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

Q.1) Solution (d)

Basic Information:

- Soil forming processes are aggregate of many interrelated physical, chemical and biological processes.
- Physical processes:
  - Lateralization
  - Calcification
  - Salinization
  - Alkalinization
- Chemical processes:
  - Podzolisation/ Chelation/ Cheluviation
  - Gleization

***Note*:** Only Physical processes were asked in the question.

Q.2) With reference to "factors controlling the soil formation", consider the following statements:

1. Relief determines the fertility of soil.
2. Parent material determines the texture of soil.

Which of the above statements is/are correct?

a) 1 only

b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.2) Solution (c)

Basic Information:

- There are five basic factors controlling the formation of soils:
  I. parent material
  II. topography
  III. climate
  IV. biological activity
  V. time
- Climate and biological activity are considered **active agents** due to their intensity and influence in soil formation.
- Other factors like topography, parent material and time are **passive factors**.

Statement Analysis:

Statement 1	**Statement 2**
Correct	**Correct**
Topography/Relief is a passive factor in soil formation. The slopes or steepness can **regulate soil erosion and degradation**. Thus, steep slopes leads to swift flow of water which prevents soil formation as well as leads to soil erosion. Example: Chambal ravine. Low relief or gentle slope leads to deposition and thus deep soils are formed. Example: thick layers of fertile alluvial soils in North India.	Parent material determines both the physical as well as chemical characteristics of soil. It determines the **colour**, **mineral composition** and **texture** of soil.

Q.3) Consider the following statements:

1. Clayey soil has the highest water holding capacity.
2. Soil texture tells about the workability of soil.

Which of the above statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.3) Solution (a)

Basic Information:

Soil Characteristics:

I. **Soil Texture**:
- Soil is made up of different-sized particles. Soil texture refers to the size of the particles that make up the soil and depends on the proportion of sand, silt and clay-sized particles and organic matter in the soil.
- Sandy soils feel gritty when rubbed between your fingers. Silts feel smooth – a little like flour. Most clays are sticky and mouldable.
- Soils are made up of different combinations of sand, silt and clay particles. Soils that are a mixture of sand, silt and clay are called **loams**.

II. **Soil structure:**
- Soil structure describes the way the sand, silt and clay particles are clumped together.
- Organic matter (decaying plants and animals) and soil organisms like earthworms and bacteria influence soil structure.
- Clays, organic matter and materials excreted by soil organisms bind the soil particles together to form aggregates.
- Soil structure is important for plant growth, regulating the movement of air and water, influencing root development and affecting nutrient availability.
- Good quality soils are friable (crumbly) and have fine aggregates so the soil breaks up easily if you squeeze it.
- Poor soil structure has coarse, very firm clods or no structure at all.

III. **Soil porosity:**

- Porosity of soil controls the flow of water, its intake, drainage, and air ventilation (aeration).
- Coarse textured soils like sand have larger pore spaces than fine textured soils like clay or silt. Soil aeration is greatly influenced by pore spaces.
- Soil aeration regimes are very important in growth of roots, seed germination and microbial activities. Poor aeration suppresses root development and may reduce rates of absorption of water and nutrients.

Statement Analysis:

Statement 1	Statement 2
Correct	**Incorrect**
The water holding capacity is highest in **clayey soil** because it is made up of **very small tightly packed particles** that do not allow water to percolate.	**Soil texture** tells about the **water holding capacity of soil** or water availability to the soil. **Soil structure** tells about the **workability** (relative ease of tilth) of soil.

Q.4) Consider the following statements:

1. Pedocals are formed in humid conditions whereas pedalfars forms in arid and semi-arid conditions.
2. Pedalfars are acidic soil.
3. Pedocals have low organic content.

Which of the above statements is/are not correct?

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

Q.4) Solution (a)

Basic Information:

Pedocals:

- Pedocals are soils that are found in arid, semi-arid and the sub-humid zones in the world.
- Pedocals are very rich in calcium and mineral salts.
- With only a thin A horizon (topsoil), and intermittent precipitation calcite, other soluble minerals ordinarily removed by water may build up in the B horizon (subsoil) forming a cemented layer known as caliche.
- pH ranges from neutral to alkaline.
- There are 3 types of pedocals:
  - Seirozem (Desert soil)
  - Chernozem
  - Chestnut soil

Pedalfars:

- Pedalfer is composed of aluminum and iron oxides.
- Pedalfers usually occur in **humid areas**.
- Pedalfers have three subdivisions of which one is Lateritic soils.
- Pedalfer is a formative element in the United States soil taxonomic system for the **Alfisols** soil order. **Alf** is the formative element in the Alfisol name, and refers to aluminium (Al) and iron (Fe).

Statement Analysis:

Note: incorrect statements are asked.

Statement 1	Statement 2	Statement 3
Incorrect	**Correct**	**Correct**
Pedalfars are formed **in humid conditions** whereas **Pedocals** forms in **arid and semi-arid conditions.**	Pedalfars are acidic soil with pH less than 7.	Pedocal is rich in calcium carbonate and has low soil organic matter.

Q.5) Which of the following is/are correctly matched?

	Soil	*Remedy*
1.	Acidic soil	Gypsum
2.	Alkaline soil	Lime
3.	Saline soil	Leaching

Select the correct option using the codes given below:

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

Q.5) Solution (c)

Basic Information:

- In high **rainfall areas**, **acidic soils** are formed due to leaching of bases or salts.
- In **arid regions** where rainfall is low and temperature high, soils become **saline** or **alkaline** due to alkaline due to **accumulation of salts** in the surface soil.
- Effect of soil acidity on plants:
  - It has toxic effect on root tissues and adversely affects the permeability.
  - It disturbs the balance between basic and acidic constituents of the plant affects growth of plants.
  - It affects enzymic changes which are particularly sensitive to pH changes.
  - It affects the beneficial activity of soil micro-organisms.
  - Elements like aluminum, manganese andirons are highly soluble in acid medium excess amount causes toxic effect.
  - Due to soil acidity, calcium and potassium may be deficient.
  - It affects the availability e.g. phosphorus, copper and zinc.
  - Plant diseases are more prevalent in acidic soils.

	Soil	**Remedy**
1.	Acidic soil	Lime addition
2.	Alkaline soil	Gypsum
3.	Saline soil	Leaching

Q.6) Consider the following conditions:

1. Average rainfall of less than 75 cms.
2. Mean Annual temperature about 25-30 degree centigrade.
3. Mean Humidity less than 50 percent.
4. Trees found are low and widely scattered.

Which of the following forests type characterizes above mentioned conditions?

a) Tropical Dry Deciduous Forests
b) Montane Subtropical Forests
c) Tropical Thorn Forests
d) Swamp Forests

Q.6) Solution (c)

Basic Information:

India's vegetation can be divided into 5 main types and 16 sub-types.

Main Type	Sub Type
Moist Tropical Forests	• Tropical Wet Evergreen • Tropical Semi-Evergreen • Tropical Moist Deciduous • Littoral and Swamp
Dry Tropical Forests	• Tropical Dry Evergreen • Tropical Dry Deciduous • Tropical Thorn
Montane Subtropical Forests	• Subtropical Broad Leaved Hill • Subtropical Moist Hill (Pine) • Subtropical Dry Evergreen
Montane Temperate Forests	• Montane Wet Temperate • Himalayan Moist Temperate • Himalayan Dry Temperate
Alpine Forests	• Sub-Alpine • Moist Alpine Scrub

	• Dry Alpine Scrub

Tropical Thorn Forests are found in Rajasthan, western Kachchh, Saurashtra and in parts of Karnataka and Tamil Nadu. Trees here are widely scattered and low in height. Important species are Neem, Cacti, Babool, Khejri etc.

Q.7) Teak, Axlewood and Tendu are the trees of which type of forests in India?

a) Tropical Evergreen Forests
b) Montane Forests
c) Tropical Thorn Forests
d) Tropical Deciduous Forests

Q.7) Solution (d)

Basic Information:

Type of Forest	**Tree Types**
Tropical Evergreen Forests	Rosewood, Mahogony, Aini, Ebony
Tropical Deciduous Forests	Tendu, mahua, harra, amla, kusum, teak, sal, shisham, sandalwood
Tropical Thorn Forests	Babool, ber, date palm, khair, neem, khejri, palas
Montane forests	Oak, chestnut, chir pine, deodar, chinar, walnut, silver firs, junipers, birch

Q.8) Arrange the following sources of renewable energy in descending order in terms of their percentage of the global renewable power generation capacity.

1. Hydropower
2. Solar power
3. Wind energy
4. Bioenergy

Choose the correct option:

a) 1-2-3-4
b) 1-3-2-4
c) 2-3-1-4
d) 2-1-3-4

Q.8) Solution (b)

Basic Information:

Hydropower:

- Hydropower is the most widely-used renewable power source, with the global hydroelectric installed capacity exceeding 1,295GW, accounting for more than 18% of the world's total installed power generation capacity and more than **54%** of the global renewable power generation capacity.
- China has the biggest hydroelectric generation capacity in the world and hosts the world's largest hydropower plant, the Three Gorges (22.5GW).

Wind energy:

- Wind is the **second** most widely used renewable energy source, as global installed wind power capacity exceeded 563GW in 2018, accounting for approximately 24% of the world's total renewable energy generation capacity.
- China, with an installed capacity of more than 184GW, is the biggest wind energy generator in the world, followed by the US (94GW by the end of 2018).

Solar power:

- More than 486GW of installed capacity makes solar the **third biggest** renewable power source in the world, with photovoltaic (PV) technology being dominant.

- The use of concentrating solar power (CSP) technology is also on the rise, with global CSP installed capacity reaching 5.5GW by the end of 2018.
- China, US, Germany, Japan, Italy, and India possess the biggest solar PV capacity in the world, while Spain has 42% of the global CSP capacity.

Bio-power:

- Bio-power is the **fourth biggest** renewable power source after hydro, wind and solar. The world's net electricity production capacity from bio-mass currently exceeds 117GW, while global bio-power generation increased from 317TWh in 2010 to more than 495TWh in 2018.
- The US, Brazil, China, India, Germany, and Sweden are currently the leading bio-power generators in the world.

Q.9) With reference to "unconventional sources of natural gas", consider the following statements:

1. Shales are fine-grained sedimentary rocks.
2. China is estimated to have the world's largest shale gas reserves.
3. Coalbed Methane extraction falls under Ministry of Coal.

Which of the above statements is/are correct?

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

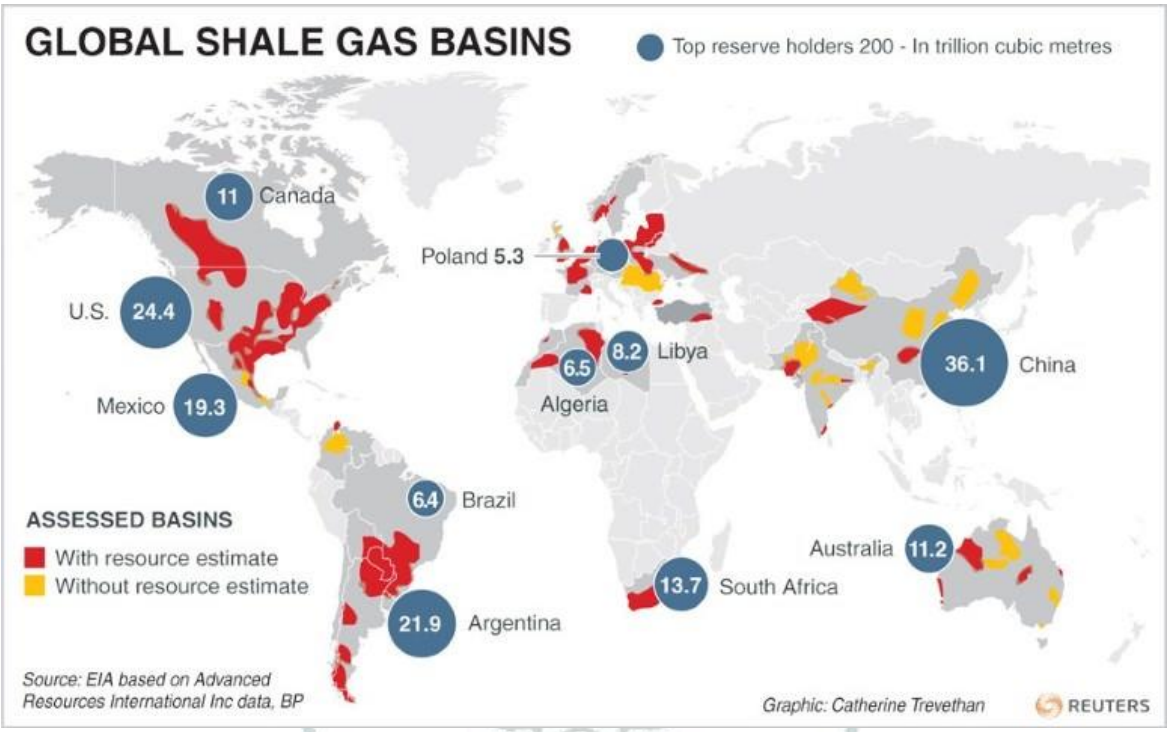
Q.9) Solution (a)

Basic Information:

Shale Gas:

- Shales are **fine-grained sedimentary rocks** formed of organic-rich mud at the bottom of ancient seas.
- Subsequent sedimentation and the resultant heat and pressure transformed the mud into shale and also produced natural gas from the organic matter contained in it.

- Over long spans of geologic time, some of the gas migrated to adjacent sandstones and was trapped in them, forming conventional gas accumulations.
- The rest of the gas remained locked in the nonporous shale.



Coalbed Methane (CBM):

- CBM, like shale gas, is extracted from what are known as unconventional gas reservoirs — where gas is extracted directly from the rock that is the source of the gas (shale in case of shale gas and coal in case of CBM).
- The methane is held underground within the coal and is extracted by drilling into the coal seam and removing the groundwater.
- The resulting drop in pressure causes the methane to be released from the coal.
- With one of the largest proven coal reserves, and one of the largest coal producer in the world, India holds significant prospects for commercial recovery of coalbed methane.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	Correct	Incorrect

Shales are **fine-grained sedimentary rocks** formed of organic-rich mud at the bottom of ancient seas.	Refer to the world map.	**CBM extraction** falls under **Ministry of Petroleum & Natural Gas** whereas coal mining falls under Ministry of Coal.

Q.10) Consider the following statements:

1. India has increased its non-fossil fuel target to 450 GW by 2030.
2. IRIX is a platform initiated by Ministry of New and Renewable Energy.

Which of the above statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.10) Solution (c)

Basic Information:

India's renewable power capacity is the **fourth largest** in the world and is growing at the fastest speed among all major countries.

The renewable energy capacity in India is currently **136 Giga Watts,** which is about **36%** of its total capacity.

Statement Analysis:

Statement 1	**Statement 2**
Correct	**Correct**
At the United Nations Climate Action Summit, Prime Minister Narendra Modi had announced increasing the renewable energy target to **450 GW** by **2030** from 175 GW by 2022.	Initiated and moderated by the Ministry of New and Renewable Energy (MNRE), **IRIX** is a platform that promotes the exchange of ideas among energy conscious Indians and the Global community.

Q.11) Consider the following statements about gleization:

1. It is a dominant process in well-drained soils.
2. High rainfall always results in the formation of glays.

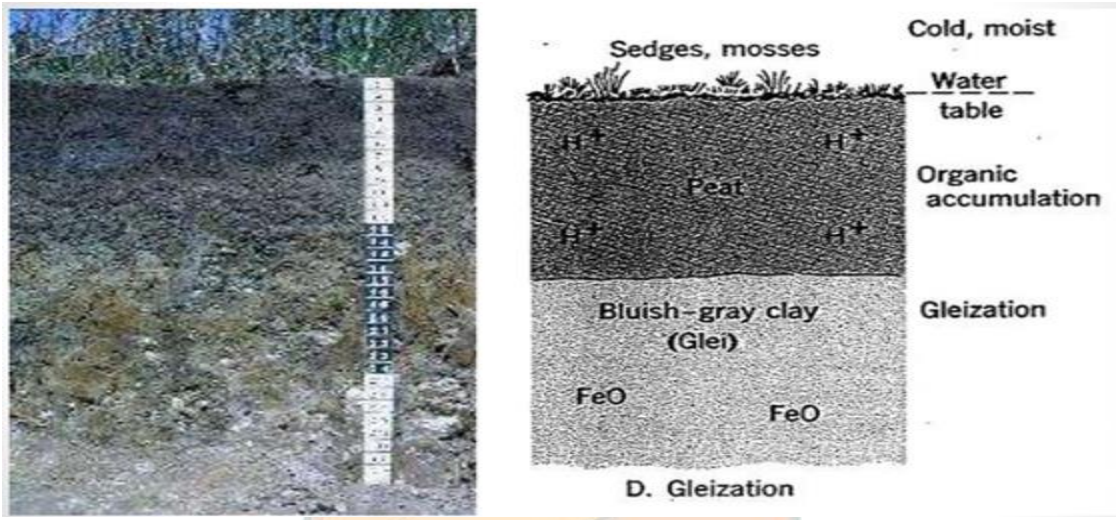
Which of the following statements is/are correct?

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

Q.11) Solution (d)

Basic Information:

- The term 'glei' is of Russian origin which means blue, grey or green clay.
- Gleization is a process of soil formation resulting in the development of a glei (or gley horizon) in the lower part of the soil profile above the parent material due to poor drainage condition (lack of oxygen) and where waterlogged conditions prevail.
- The process is not particularly dependent on climate (high rainfall as in humid regions) but often on drainage conditions.
- Under reducing conditions, due to ferrous compounds, the soil colour becomes blue-grey or grey, and the rate of decomposition of organic matter is very low. These together results into the accumulation of a sticky compact layer of blue-grey or grey colour at the bottom of B- horizon. This process is called 'gleization' and the soil is called 'glays'.



Statement Analysis:

Statement 1	Statement 2
Incorrect	**Incorrect**
Gleization takes place in poorly drained soils.	Not rainfall, but topography is the dominant factor. High rainfall in a well-drained soil will result into formation of glays.

Q.12) Select the incorrect statement about laterization:

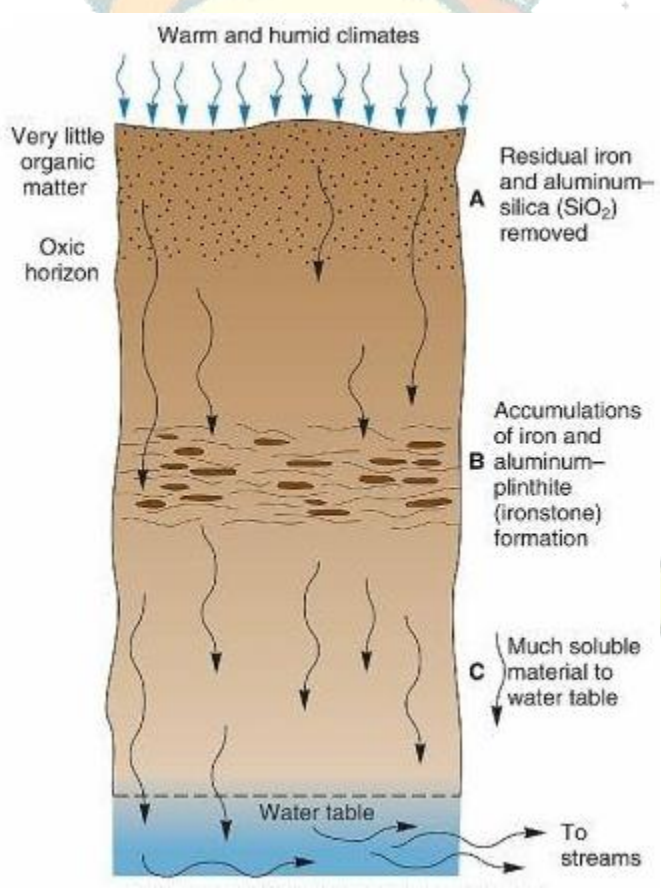
a) This is a dominant process in high rainfall areas within the tropics.
b) Sesquioxides get leached away due to heavy rainfall.
c) Eluviated layer of the soil contains very little silica.
d) Laterite soils are not very fertile.

Q.12) Solution (b)

Basic Information:

- Laterization refers specifically to a particular cemented horizon in certain soils which when dried, become very hard, like a brick.
- Such soils (in tropics) when massively impregnated with aluminium and iron sesquioxides to the extent of 70 to 80% of the total mass, are called laterites. The soil forming process is called Laterization.

- Under high temperature regimes and high rainfall in the tropics, the silicate minerals are very unstable and get leached away.
- These sesquioxides of the parent minerals are resistant to decomposition. It leaves a residue of primary laterite.
- The process operates under the following conditions.
    - Climate- Unlike podzolization, the process of laterization operates most favourable in warm and humid (tropical) climate with 2000 to 2500 mm rainfall and continuous high temperature (25°C) throughout the year.
    - Natural vegetation- The rain forests of tropical areas are favourable for the process.
    - Parent Material- Basic parent materials, having sufficient iron bearing ferromagnesian minerals, which on weathering release iron, are congenial for the development of laterites.



Q.13) Consider the following statements about soil structure:

1. It is the arrangement of the solid parts of the soil and of the pore spaces located between them.
2. The soil structure is enhanced under most types of cultivation.
3. Biological activity affects soil structure.

Which of the following statements is/are correct?

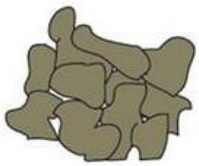
a) 1 only
b) 2 and 3 only
c) 1 and 3 only
d) 1, 2 and 3 only

Q.13) Solution (c)

- Soil structure describes the arrangement of the solid parts of the soil and of the pore spaces located between them.
- Aggregation is the result of the interaction of soil particles through rearrangement, flocculation and cementation. It is enhanced by: the precipitation of oxides, hydroxides, carbonates and silicates; the products of biological activity (such as biofilms, fungal hyphae and glycoproteins); ionic bridging between negatively charged particles (both clay minerals and organic compounds) by multivalent cations; and interactions between organic compounds (hydrogen bonding and hydrophobic bonding).
- The quality of soil structure will **decline under most forms of cultivation**—the associated mechanical mixing of the soil compacts and shears aggregates and fills pore spaces; it also exposes organic matter to a greater rate of decay and oxidation. A further consequence of continued cultivation and traffic is the development of compacted, impermeable layers or 'pans' within the profile.

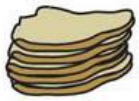
Granular (high permeability)

Aggregated (high permeability)



Blocky (moderate permeability)

Columnar/prismatic (moderate permeability)



Platey (low permeability)

Massive (low permeability)

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	**Incorrect**	**Correct**
Structure can be understood as shape of soil aggregates.	Most cultivation degrades the soil structure.	Biological activity such as biofilms can enhance soil structure.

Q.14) Consider the following statements related to soil pH:

1. Soil pH has a huge effect on the solubility of minerals and nutrients in the soil.
2. Rainwater leaching away basic ions can increase pH.

Which of the following statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2 are correct.
d) Neither 1 nor 2 is correct.

Q.14) Solution (a)

Basic Information:

- The effect of soil pH is great on the solubility of minerals or nutrients. Fourteen of the seventeen essential plant nutrients are obtained from the soil. Before a nutrient can be used by plants it must be dissolved in the soil solution. Most minerals and nutrients are more soluble or available in acid soils than in neutral or slightly alkaline soils.
- Soils tend to **become acidic (decrease in pH)** as a result of: (1) rainwater leaching away basic ions (calcium, magnesium, potassium and sodium); (2) carbon dioxide from decomposing organic matter and root respiration dissolving in soil water to form a weak organic acid; (3) formation of strong organic and inorganic acids, such as nitric and sulfuric acid, from decaying organic matter and oxidation of ammonium and sulfur fertilizers. Strongly acid soils are usually the result of the action of these strong organic and inorganic acids.
- Lime is usually added to acid soils to increase soil pH.

Statement Analysis:

Statement 1	Statement 2
Correct	**Incorrect**
Most minerals and nutrients are more soluble or available in acid soils.	This process will increase acidity in the soil, thus the pH will decrease.

Q.15) Consider the following statements about peaty soils in India:

1. Peaty soils are found in areas of high rainfall.
2. Peaty soils are highly acidic.
3. Peaty soils are found in north-west Bihar.

Which of the following statements is/are *incorrect*?

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

Q.15) Solution (d)

Basic Information:

- Peaty or marshy soils contain large amount of organic matter and considerable amount of soluble salts.
- The most humid regions have this type of soil.
- They are black, heavy and highly acidic.
- They are found in Kottayam and Alappuzha districts of Kerala where it is called kari.
- They also occur in the coastal areas of Odisha and Tamil Nadu, Sunderbans of West Bengal, north-west Bihar and Almora district of Uttarakhand.
- Most of the peaty soils are under water during the rainy season but as soon the rains cease, they are put under paddy cultivation.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	**Correct**	**Correct**
High rainfall makes this soil marshy.	Due to high organic content and their decomposition, these soils turn acidic.	See distribution of peaty soil.

Q.16) Which of the following statements is incorrect among the given options?

a) Forest soils are high in soil organic carbon.
b) Forest soils are neutral to slightly alkaline in character.
c) High organic content helps in retention of soil moisture.
d) All the above statements are correct.

Q.16) Solution (b)

Basic Information:

- Forest soils form where it is not too hot, and not too cold. The type of soil that forms depends on what type of vegetation grows.
- Soils that formed under deciduous forests are very fertile and productive agricultural lands because of the decomposing leaves at the soil surface. However, soils formed under pine trees are usually more acidic and sandy, and are less suited to growing crops.

- Forests are very important, as they store a great deal of carbon in the leaves, trees, and soil, which is why it is important to protect the forests.
- High organic content helps in keeping the soil moisture intact for longer duration of time.
- Due to presence of more organic content, these soils are acidic in nature.

Q.17) Consider the following statements about humus:

1. Humus is formed due to the process called mineralization.
2. Humus has a dark color due to accumulation of organic carbon.

Which of the following statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2 are correct.
d) Neither 1 nor 2 is correct.

Q.17) Solution (b)

Basic Information:

- Humus is the dark organic matter that forms in soil when dead plant and animal matter (including aerobic compost) breaks down further, specifically through the action of anaerobic organisms. Humus has many nutrients that improve the health of soil, nitrogen being the most important. The ratio of carbon to nitrogen (C:N) of humus is 10:1.
- Microorganisms decompose a large portion of the soil organic matter into inorganic minerals that the roots of plants can absorb as nutrients. This process is termed "mineralization". In this process, nitrogen (nitrogen cycle) and the other nutrients (nutrient cycle) in the decomposed organic matter are recycled. Depending on the conditions in which the decomposition occurs, a fraction of the organic matter does not mineralize, and instead is transformed by a process called "**humification**" into concatenations of organic polymers. Because these organic polymers are resistant to the action of microorganisms, they are stable, and constitute humus. This stability implies that humus integrates into the permanent structure of the soil, thereby improving it.
- Organic matter is humified by a combination of saprotrophic fungi, bacteria, microbes and animals such as earthworms, nematodes, protozoa, and arthropods.

- Much of the humus in most soils has persisted for more than 100 years, rather than having been decomposed into CO2, and can be regarded as stable; this organic matter has been protected from decomposition by microbial or enzyme action because it is hidden (occluded) inside small aggregates of soil particles
- Humus has a characteristic black or dark brown color and is organic due to an accumulation of organic carbon.

Statement Analysis:

Statement 1	Statement 2
Incorrect	**Correct**
Humus is formed due to humification.	Humus has a characteristic black or dark brown colour and is organic due to an accumulation of organic carbon.

Q.18) Consider the following statements about the Taiga Biome:

1. It is the largest land biome.
2. These are dense forests formed due to heavy precipitation throughout the year.
3. Fire has been one of the important factors shaping the taiga forests.

Which of the following statements is/are correct?

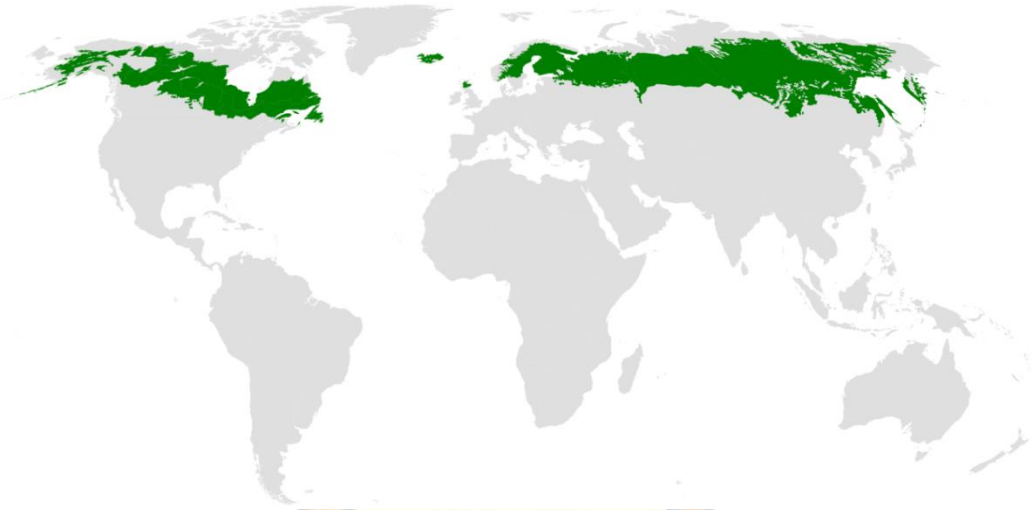
a) 3 only
b) 1 and 2 only
c) 1 and 3 only
d) 1 only

Q.18) Solution (a)

Basic Information:

- Taiga, generally referred to in North America as boreal forest or snow forest, is a biome characterized by coniferous forests consisting mostly of pines, spruces, and larches.
- In North America, it covers most of inland Canada, Alaska, and parts of the northern contiguous United States. In Eurasia, it covers most of Sweden, Finland, much of Russia from Karelia in the west to the Pacific Ocean (including much of Siberia), much

of Norway and Estonia, some of the Scottish Highlands, some lowland/coastal areas of Iceland, and areas of northern Kazakhstan, northern Mongolia, and northern Japan.



- The taiga experiences relatively low precipitation throughout the year (generally 200–750 mm annually and upto 1,000 mm in some areas), primarily as rain during the summer months, but also as snow or fog.
- As evaporation is consequently low for most of the year, annual precipitation exceeds evaporation, and is sufficient to sustain the dense vegetation growth including large trees.
- Fire has been one of the most important factors shaping the composition and development of boreal forest stands; it is the dominant stand-renewing disturbance through much of the Canadian boreal forest.
- Taiga covers 17 million square kilometres (6.6 million square miles) or 11.5% of the Earth's land area, second only to deserts and xeric shrublands. The largest areas are located in Russia and Canada. However, it is the most consistent largest land biome.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Incorrect	**Incorrect**	**Correct**
It is second largest area wise.	Rainfall is low, but effective rainfall is high.	Frequency of fires is low, but it is significantly modified by the fire.

Q.19) Match the following grasslands with its area of existence.

1. Chaurs	A. Brahmaputra plains
2. Terai grasslands	B. Gujarat
3. Vidis	C. Satpuras
4. Valley grasslands	D. Himachal Pradesh

Select the correct options:

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

Q.19) Solution (b)

Basic Information:

- Grasslands occupy nearly **24 percent** of the geographical area in India.
- According to Rawat and Adhikari (2015), the major types of grasslands in India are
    i) the alpine moist meadows of the Greater Himalayas;
    ii) alpine arid pastures or steppe formations of the trans Himalayas;
    iii) hillside grasslands in the mid-elevation ranges of the Himalayas;
    iv) 'Chaurs' of the Himalayan foothills;
    v) 'Terai' grasslands on the Gangetic and the Brahmaputra floodplains;
    vi) 'Phumdis' or floating grasslands of Manipur;
    vii) 'Banni' and 'Vidis' of Gujarat;
    viii) savannas of western and peninsular India;
    ix) plateau and valley grasslands in the Satpuras and Maikal hills;
    x) dry grasslands of the Andhra Pradesh and Tamil Nadu plains and
    xi) 'Shola' grasslands of the Western Ghats.

Q.20) Consider the following statements about gas hydrates:

1. Gas hydrates are a type of clathrate compound.
2. Gas hydrates are found in areas of high pressure and low temperature conditions.
3. A large reserve of gas hydrates have been discovered in the Arabian Sea off the Mumbai coast.

Which of the following statements is/are correct?

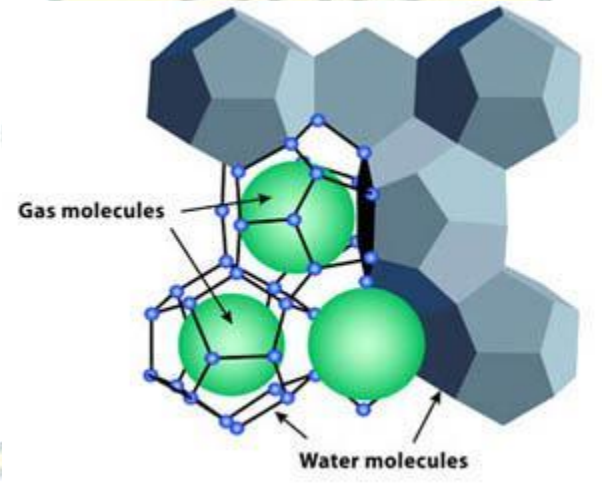
a) 1 and 3 only
b) 1 only
c) 2 only
d) 1 and 2 only

Q.20) Solution (d)

Basic Information:

What are gas hydrates?

- Gas hydrates are a crystalline solid formed of water and gas. It looks and acts much like ice, but it contains huge amounts of methane; it is known to occur on every continent; and it exists in huge quantities in marine sediments in a layer several hundred meters thick directly below the sea floor and in association with permafrost in the Arctic. It is not stable at normal sea-level pressures and temperatures, which is the primary reason that it is a challenge to study.



- The hydrate reservoir may have strong influence on the environment and climate, because methane is a significant greenhouse gas.
- Gas hydrate deposits are found wherever methane occurs in the presence of water under **elevated pressures and at relatively low temperatures**, such as beneath permafrost or in shallow sediments along deepwater continental margins.
- Methane that forms hydrate can be both biogenic, created by biological activity in sediments, and thermogenic, created by geological processes deeper within the earth.

- Once assumed to be rare, gas hydrates are now thought to occur in vast volumes and to include 250,000–700,000 trillion cubic feet of methane and the formation thickness can be several hundred meters thick.
- ONGC has struck gas hydrate reserves in the deep sea off the Andhra Pradesh coast. The reserves are located in the Krishna-Godavari basin.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	**Correct**	**Incorrect**
Clathrate compounds are also called "caged" compounds. See the diagram.	In high temperature conditions ice cubes won't be formed.	Discovery has taken place in the Bay of Bengal region.

Q.21) Consider the following statements:

1. Growth in agriculture sector in the last decade has been consistent.
2. Volume of food grain production has surpassed horticulture production recently.

Which of the above statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

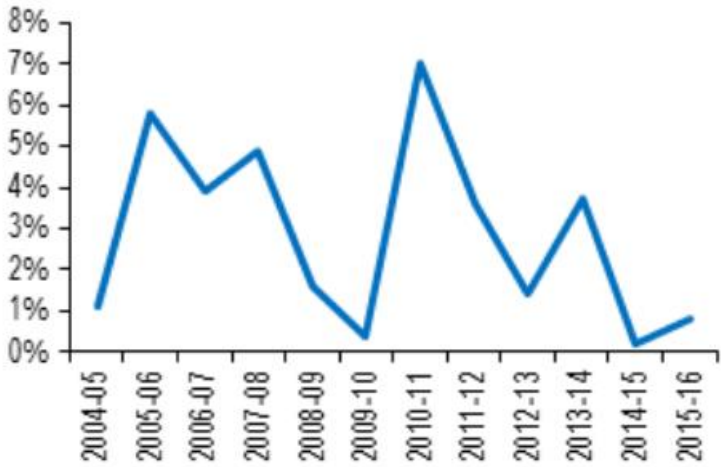
Q.21) Solution (d)

Basic Information:

- Agriculture plays a vital role in India's economy.
- **54.6%** of the total workforce is engaged in **agricultural and allied sector activites** (Census 2011) and accounts for **17.1%** of the country's Gross Value Added (GVA) for the year 2017-18 (at current prices).
- As per the Land Use Statistics 2014- 15, the total geographical area of the country is **328.7 million hectares**, of which 140.1 million hectares is the reported net sown area and 198.4 million hectares is the gross cropped area with a **cropping intensity** of **142%.**

- The net area sown works out to be 43% of the total geographical area.
- The net irrigated area is 68.4 million hectares.

Growth in Agriculture sector:



Statement Analysis:

Statement 1	Statement 2
Incorrect	**Incorrect**
Agricultural growth has been **fairly volatile** over the past decade, ranging from 5.8% in 2005-06 to 0.4% in 2009-10 and -0.2% in 2014-15.	**Horticulture** production was **310.74 million** tonne (2018-19). **Food grain** production stood at **285.17** million tonne (2018-19).

Q.22) With reference to "Dryland Agriculture", consider the following statements:

1. The cultivation of crops is done entirely under natural rainfall without irrigation.
2. Dryland areas have almost no contribution to wheat and rice production.
3. Major dry farming crops are millets.

Which of the above statements is/are correct?

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

Q.22) Solution (c)

Basic Information:

Dryland Agriculture refers to growing of crops **entirely** under rainfed conditions.

Based on the amount of rainfall received, dryland agriculture can be grouped into three categories:

1. **Dry Farming**: Cultivation of crops in areas where rainfall is less than 750 mm per annum
2. **Dryland Farming**: Cultivation of crops in areas receiving rainfall above 750 mm
3. **Rainfed Farming**: Cultivation of crops in regions receiving more than 1,150 mm.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	**Incorrect**	**Correct**
Dryland Agriculture refers to cultivation of crops entirely under natural rainfall without irrigation.	Dryland areas also contribute significantly to wheat and rice production. **33% of wheat and 66% of rice are still rainfed.**	Major dry farming crops are millets such as jwar, bajra, ragi, oilseeds like mustard, rapeseed, and pulse crops like pigeon pea , gram and lentil.

Q.23) Consider the following statements:

1. Kerela is the largest producer of large cardamom.
2. Spices Board of India is a statutory body under Ministry of Agriculture and Farmers' Welfare.

Which of the above statements is/are correct?

a) 1 only

b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.23) Solution (d)

Basic Information:

- India produces a wide range of spices and holds a prominent position in world spice production.
- Because of the varying climates - from tropical to sub-tropical to temperate-almost all spices grow splendidly in India.
- In reality almost all the states and union territories of India grow one or the other spices.
- Under the act of Parliament, a total of **52 spices** are brought under the purview of Spices Board, however 109 spices are notified in the ISO list.

Statement Analysis:

Statement 1	**Statement 2**
Incorrect	**Incorrect**
Sikkim is the largest producer of large cardamom followed by West Bengal. **Kerala** is the largest producer of **small cardamom**.	Spices Board was constituted on 26th February 1987 under the **Spices Board Act 1986** with the merger of the erstwhile Cardamom Board (1968) and Spices Export Promotion Council (1960). Spices Board is one of the five Commodity Boards functioning under the **Ministry of Commerce & Industry**.

Q.24) "It is a plant of tropical and subtropical climates. It can withstand a wide range of temperature varying from 16°C to 35°C. It normally requires 100 cm of rainfall but it can also be successfully grown in areas of 50cm rainfall provided the rainfall is fairly distributed. Frost is injurious to its growth. Well drained friable sandy loams are best suited for it. Soil rather than climate is the determining factor for its geographical distribution." Which one of the following is that crop?

a) Sugarcane

b) Jute
c) Tobacco
d) Cotton

Q.24) Solution (c)

Basic Information:

In India tobacco is predominantly cultivated in AP, Gujarat, Karnataka, UP and Bihar.

- Gujarat accounts for 45 per cent of the area (0.13 M ha) and 30 per cent of production (0.16 M t).
- Productivity is also highest (1700 kg ha-1) in Gujarat followed by AP.

Q.25) Arrange the following states into the *decreasing* order of graphite reserves in India:

1. Odisha
2. Jharkhand
3. Arunachal Pradesh
4. Jammu and Kashmir

Select the correct option using the codes given below:

a) 4-3-2-1
b) 4-1-2-3
c) 3-4-1-2
d) 3-4-2-1

Q.25) Solution (c)

Basic Information:

- Graphite occurrences are reported from various States but the deposits of economic importance are located in Chhattisgarh, Jharkhand, Odisha and Tamil Nadu.
- Graphite, also known as plumbago or blacklead or mineral carbon, is a stable form of naturally occurring carbon.
- Arunachal Pradesh accounts for 37% of the total resources which is followed by Jammu & Kashmir (32%), Odisha (9.7%), Jharkhand (9%) and Tamil Nadu (4%).

Q.26) With reference to iron ore of India, consider the following statements:

1. Majority of the haematite iron ores are concentrated in eastern parts of India.
2. Limonite is also known as black ore due to blackish colour.
3. Magnetite ores are concentrated in the southern sector.

Which of the above statements is/are NOT correct?

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

Q.26) Solution (a)

Basic Information:

Ores are the minerals from which metal is conveniently and profitably extracted. Haematite, Magnetite, Siderite, Iron pyrites are the ores of the metal Iron. Among all the ores of Ferrous (Iron) magnetite is the finest quality of iron ore.

The iron ore is found in following four types:

1. **Magnetite**: It is the most important and best kind of iron ore. It contains about 72 percent metallic iron in it. It is black in colour.
2. **Hematite**: It is also an important source. It contains about 60-70 percent metallic iron in it. It is red and brown in colour.
3. **Limonite**: It contains about 30 to 40 percent metallic iron in it. It is mostly yellow in colour. It is a low-grade iron ore.
4. **Siderite**: It has more impurities. It contains about 48 percent metallic iron content in it. It is brown in colour. It contains a mixture of iron and carbon. It is a low-grade iron ore.

Statement Analysis:

Note: incorrect statements are asked.

Statement 1	Statement 2	Statement 3
Correct	**Incorrect**	**Correct**

Most of the haematite ores are found in Dharwad and Cuddapah rock systems of the peninsular India. **Over 80%** are concentrated in **eastern parts** of India comprising of important iron producing states of Odisha, Jharkhand, Chattisgarh and Andhra Pradesh.	Limonites are inferior ores which are yellowish in colour. **Magnetite** is known as **black ore** due to blackish colour.	**Magnetite** ores are found in Karnataka, Kerala, Tamil Nadu, Rajasthan and Andhra Pradesh. Karnataka has the more than 70% of the magnetite reserve.

Q.27) Consider the following descriptions of a mineral found in India:

1. It does not occur free in nature and is found in association with copper, uranium and other metals.
2. It is used as an important alloying material.
3. Polymetallic sea nodules are another source of it.
4. Odisha has the largest reserve of this mineral.

Which of the following minerals is described in the above statements?

a) Zinc
b) Nickel
c) Lead
d) Tungten

Q.27) Solution (b)

Basic Information:

- Nickel is a lustrous, silvery-white metal having a high melting point.
- It exhibits high resistance to corrosion and oxidation, excellent strength and toughness at high temperatures

Nickel Deposits in India

The total resources of nickel ore have been estimated at 189 million tonnes. The distribution of Nickel in the states in descending order is given below:

- Odisha has about 92% resources; i.e., 175 million tones.

The remaining 8% resources are distributed in:

- Jharkhand (9 million tonnes)
- Nagaland (5 million tonnes)
- Karnataka (0.23 million tonnes) has only nominal resources.

Nickel is not produced from primary sources in the country and the entire demand is met through imports. However, it is being recovered as nickel sulphate crystals, a by-product obtained during copper production.

- Nickel occurs principally as oxides, sulphides and silicates in India.
- Important occurrence is nickeliferous limonite in the overburden of chromite in Sukinda Valley, Jeypore district, Odisha, where it occurs as oxide. A suitable process is being developed for its utilisation.
- Nickel also occurs in sulphide form along with copper mineralisation in East Singhbhum district, Jharkhand. In addition, it is found associated with uranium deposits at Jaduguda, Jharkhand
- Other reported occurrences of nickel are from Karnataka, Kerala and Rajasthan.
- Polymetallic sea nodules are another source of nickel.

Q.28) The trees of tropical rainforest have buttress roots because:

a) They help to provide aeration to soils
b) The organisms found in the buttress have a symbiotic relationship
c) The trees belong to gramineae family
d) The buttresses have to bear the mechanical load of hardwoods

Q.28) Solution (d)

Basic Information:

- Buttress roots are large, wide roots on all sides of a shallowly rooted tree.
- Typically, they are found in nutrient-poor tropical forest soils that may not be very deep.
- They prevent the tree from falling over (hence the name buttress) while also gathering more nutrients.
- When the roots spread horizontally, they are able to cover a wider area for collecting nutrients.
- They stay near the upper soil layer because all the main nutrients are found there.
- Buttress roots are essential as rainforests have a shallow layer of fertile soil, so trees only need shallow roots to reach the nutrients. However, shallow roots can't support huge rainforest trees, so they have grown buttress roots to support them.

Q.29) Arrange the following varieties of silk in India in their order of decreasing production.

1. Muga
2. Eri
3. Mulberry
4. Tasar

Select the correct option using the codes given below:

a) 3-2-4-1
b) 3-4-2-1
c) 2-4-1-3
d) 2-1-4-3

Q.29) Solution (a)

Basic Information:

- India is the second largest producer of silk in the world.
- Among the four varieties of silk produced in 2018-19, **Mulberry** accounts for **71.50** per cent (25,213 MT), **Tussar 8.44 per** cent (2,977 MT), **Eri 19.40 per cent** (6,839 MT) and **Muga 0.66 per** cent (232 MT) of the provisional total raw silk production of 35,261 MT.
- To benefit farmers engaged in sericulture, Central Silk Board is implementing a restructured **Central Sector Scheme 'Silk Samagra'**, which mainly focuses on improving quality and productivity of domestic silk thereby reducing the country's dependence on imported silk.

- Karnataka is the leading producer State in India.

Q.30) Consider the following statements:

1. Phreatophytes are plants that are adapted to grow in active volcanic lava region.
2. India is the second largest producer of iodised salt in the world next only to China.
3. In the areas of extensive agriculture, per worker productivity is high whereas in the areas of intensive agriculture, per hectare productivity is high.

Which of the above statements is/are correct?

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

Q.30) Solution (c)

Basic Information:

Phreatophytes:

- Desert plants, known as phreatophytes, grow long deep roots that are capable of reaching the water table, which depths depend on the geology and nearby water sources.
- Phreatophytes live in areas with standing or running water, in arid areas and along the riverbeds and areas, apparently dry, where the water table is very shallow and near the surface. These plants have very deep roots that are able to reach the water table.
- Phreatophytes are not only characteristic of arid or desert zones, but also of wetlands, floodplains, depressions that hold water and estuaries.

BASIS FOR COMPARISON	INTENSIVE FARMING	EXTENSIVE FARMING

BASIS FOR COMPARISON	INTENSIVE FARMING	EXTENSIVE FARMING
Meaning	Intensive Farming refers to an agricultural system, wherein there is high level use of labor and capital, in comparison to the land area.	Extensive Farming is a farming technique, in which large farms are being cultivated, with relatively lower inputs, i.e. capital and labor.
Population	It is practiced in densely populated region.	It is practiced in moderately populated region.
Land holding	Small and expensive	Large and inexpensive
Farmland	Near to the market	Remotely located
Per hectare output	Large	Small

Statement Analysis:

Statement 1	Statement 2	Statement 3
Incorrect	**Incorrect**	**Correct**
A phreatophyte is a deep-rooted plant that obtains a significant portion of the water that it needs from the **phreatic zone** (zone of saturation) or the capillary fringe above the phreatic zone.	India is the **third largest** producer of iodised salt in the world next to China and USA.	In the areas of extensive agriculture, per worker productivity is high whereas in the areas of intensive agriculture, per hectare productivity is high.

Q.31) Consider the following statements about zero budget natural farming:

1. It is a method of chemical-free agriculture.
2. This method results in a huge surge of agricultural yields.
3. Jeevamrutha is a concoction of neem leaves & pulp, tobacco and green chilies prepared for insect and pest management.

Which of the following statements is/are correct?

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

Q.31) Solution (b)

Basic Information:

- Zero budget natural farming is a method of chemical-free agriculture drawing from traditional Indian practices.
- It was originally promoted by agriculturist Subhash Palekar, who developed it in the mid-1990s as an alternative to the Green Revolution's methods that are driven by chemical fertilizers and pesticides and intensive irrigation.
- It is a unique model that relies on Agro-ecology.
- It aims to bring down the cost of production to nearly zero and return to a pre-green revolution style of farming.
- It claims that there is no need for expensive inputs such as fertilisers, pesticides and intensive irrigation.
- ZBNF is based on 4 pillars:
    - Jeevamrutha: It is a mixture of fresh cow dung and aged cow urine (both from India's indigenous cow breed), jaggery, pulse flour, water and soil; to be applied on farmland.
    - Bijamrita: It is a concoction of neem leaves & pulp, tobacco and green chilies prepared for insect and pest management that can be used to treat seeds.
    - Acchadana (Mulching): It protects topsoil during cultivation and does not destroy it by tilling.

- Whapasa: It is the condition where there are both air molecules and water molecules present in the soil. Thereby helping in reduction of irrigation requirement.

- Sikkim (India's first organic state), has seen some decline in yields following conversion to organic farming.
- Many farmers have reverted to conventional farming after seeing their ZBNF returns drop after a few years.
- While ZBNF has definitely helped preserve soil fertility, its role in boosting productivity and farmers' income isn't conclusive yet.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	**Incorrect**	**Incorrect**
This is the basis of ZNBF.	A relatively lower output has been observed.	Jeevamrutha is a mixture of fresh cow dung and aged cow urine (both from India's indigenous cow breed), jaggery, pulse flour, water and soil; to be applied on farmland.

Q.32) Consider the following statements about farming in India:

1. Dry farming: it is production of crops without irrigation in areas where annual rainfall is less than 750 mm.
2. Dryland farming: it is cultivation of crops in areas receiving rainfall above 750 mm.

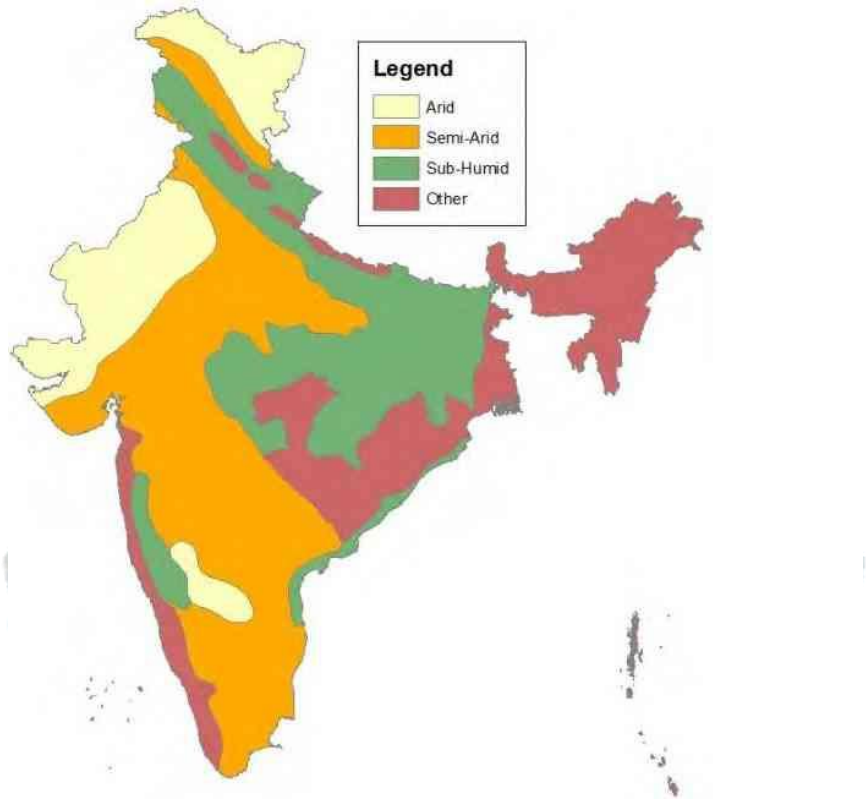
Which of the following statements is/are correct?

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

Q.32) Solution (c)

Basic Information:

- Depending on the amount of rainfall received, dryland agriculture has been grouped into three categories:
    - **Dry farming**: it is production of crops without irrigation in areas where annual rainfall is less than 750 mm. Crop failures are more frequent under dry farming condition owing to prolonged dry spells during crop period. The growing season is less than 200 days. It is generally practiced in arid regions of the country
    - **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.
    - **Rainfed farming**: It is practice of crop cultivation without irrigation in areas receiving 1150 mm rainfall, mostly in sub-humid and humid areas. Here chances of crop failure and water stress are very less.



Q.33) Select the incorrect statement from the options given below:

a) Most dominant crop of India is wheat.
b) Uttar Pradesh is the largest producer of wheat in India.
c) Wheat requires long days for ripening
d) West Bengal is the largest producer of rice in India.

Q.33) Solution (a)

Basic Information:

- In India, wheat crop is grown mainly in the northern states, with Uttar Pradesh being the top-most contributor of wheat with a total production of 25.22 million tonnes, followed by Punjab (15.78 MT) and Madhya Pradesh (14.18 MT)
- Wheat crop is usually sown from months of September to December in various states of India depending upon the suitable climate, and the harvesting is done from February to May depending upon the climate as well as the time it is seeded. The temperature required for sowing ideally should be the winter temperature of 10°C-15°C and summer temperature of 21°C-26°C. The temperature at sowing needs to be low while at the harvesting time, higher temperatures are necessary for the proper ripening of Wheat.
- Rice is one of the chief grains of India. Moreover, this country has the largest area under rice cultivation, as it is one of the principal food crops. It is in fact the dominant crop of the country. India is one of the leading producers of this crop. Rice is the basic food crop and being a tropical plant, it flourishes comfortably in hot and humid climate. Rice is mainly grown in rain fed areas that receive heavy annual rainfall. That is why it is fundamentally a kharif crop in India.
- West Bengal is the largest producer of rice in India.

Q.34) Consider the following statements about drip irrigation

1. Drip irrigation is suitable for all types of crops.
2. Drip irrigation helps in increasing fertilizer use efficiency.
3. Drip irrigation is unsuitable for undulating and hilly terrains.

Which of the following statements is/are correct?

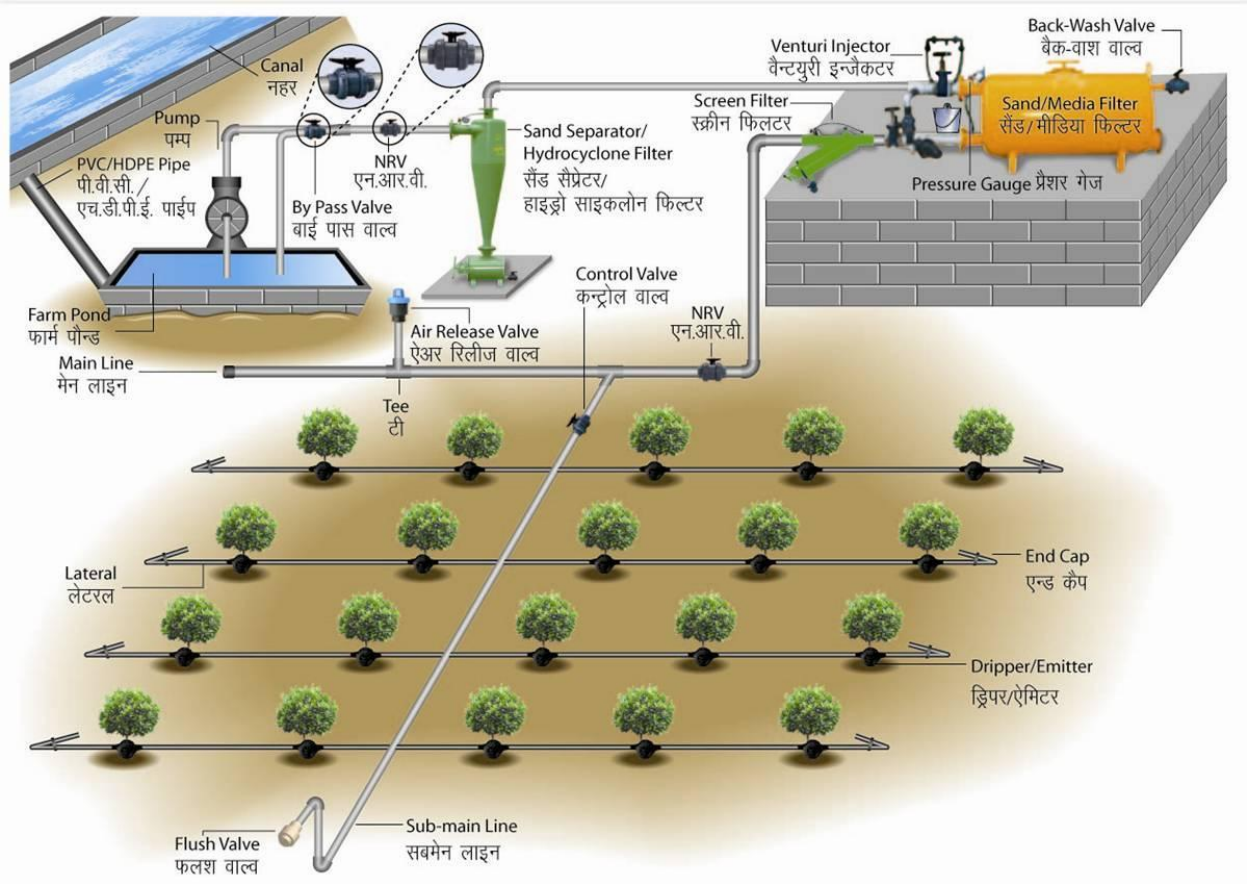
a) 1, 2 and 3
b) 2 and 3 only
c) 2 only

d) 1 and 3 only

Q.34) Solution (c)

Basic Information:

- Drip irrigation is sometimes called trickle irrigation and involves dripping water onto the soil at very low rates (2-20 litres/hour) from a system of small diameter plastic pipes fitted with outlets called emitters or drippers. Water is applied close to plants so that only part of the soil in which the roots grow is wetted, unlike surface and sprinkler irrigation, which involves wetting the whole soil profile. With drip irrigation water, applications are more frequent (usually every 1-3 days) than with other methods and this provides a very favourable high moisture level in the soil in which plants can flourish.



Layout of Drip Irrigation System (ड्रिप सिंचाई पद्धति का रेखाचित्र)

- Benefits of drip Irrigation
  - Increase in yield up to 230 %.
  - Saves water up to 70% compare to flood irrigation. More land can be irrigated with the water thus saved.
  - Crop grows consistently, healthier and matures fast.
  - Early maturity results in higher and faster returns on investment.
  - Fertilizer use efficiency increases by 30%.
  - Cost of fertilizers, inter-culturing and labour use gets reduced.
  - Fertilizer and Chemical Treatment can be given through Micro Irrigation System itself.
  - Undulating terrains, Saline, Water logged, Sandy & Hilly lands can also be brought under productive cultivation.

Drip irrigation is most suitable for row crops (vegetables, soft fruit), tree and vine crops where one or more emitters can be provided for each plant. Generally only high value crops are considered because of the high capital costs of installing a drip system.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Incorrect	**Correct**	**Incorrect**
Drip irrigation is suitable for crops in which considerable amount of spacing is required. For close spaced crops like rice and wheat sprinkler irrigation will be more beneficial.	Fertilizer use efficiency increases by 30%.	Drip irrigation is very beneficial for hilly terrain as it will reduce water led surface erosion.

Q.35) Select the incorrect statement from the below given options:

a) Three crops of paddy are grown in a year are Aus, Aman and Boro.
b) Zaid crops are sown after kharif crops.
c) Jowar and bajra are important kharif crops.
d) None of the above statements is incorrect.

Q.35) Solution (b)

Basic Information:

- Kharif crops are grown with the onset of monsoon in different parts of the country and these are harvested in September-October. Important crops grown during this season **are paddy, maize, jowar, bajra, tur (arhar), moong, urad, cotton, jute, groundnut and soyabean**.
- In states like Assam, West Bengal and Odisha, three crops of paddy are grown in a year. These are **Aus, Aman and Boro.**
- In between the rabi and the kharif seasons, there is a short season during the summer months known as the Zaid season. Some of the crops produced during 'zaid' are watermelon, muskmelon, cucumber, vegetables and fodder crops.

Q.36) Consider the following statements:

1. Coal reserves of North-east India are older than the reserves of peninsular India.
2. India has 3rd largest coal reserves in the world.
3. Jharkhand is the largest coal producing state in India.

Which if the following statement is/are *incorrect*?

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

Q.36) Solution (a)

Basic Information:

- In 2017, India had 315.14 billion metric tons (347.38 billion short tons) of coal. The estimated total reserve of lignite coal that year was 44.70 billion metric tons (49.27 billion short tons). Due to high demand and poor average quality, India imports coking coal to meet the requirements of its steel plants.
- Dhanbad city is the largest coal producing city.
- India has the fourth largest coal reserves in the world.

- The Coal resources of India are available in older Gondwana Formations of peninsular India and younger Tertiary formations of north-eastern region.
- Jharkhand, Odisha and Chattisgarh are the top three coal producing states in India.

Statement Analysis:

Note: Incorrect statements are asked.

Statement 1	Statement 2	Statement 3
Incorrect	**Incorrect**	**Correct**
Tertiary coal is younger than Gondwana coal.	India has 4th largest reserve of coal in the world.	Jharkhand is the top producing state in India.

Q.37) Consider the following statements about tourism sector in India:

1. Nepal is the largest source country for foreign tourists' arrivals in India.
2. Maharashtra hosts the largest number of foreign tourists in India.

Which of the following statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2 are correct.
d) Neither 1 nor 2 is correct.

Q.37) Solution (b)

Basic Information:

- Tourism in India is important for the country's economy and is growing rapidly. The World Travel and Tourism Council calculated that tourism generated ₹16.91 lakh crore or 9.2% of India's GDP in 2018 and supported 42.673 million jobs, 8.1% of its total employment. The sector is predicted to grow at an annual rate of 6.9% to ₹32.05 lakh crore by 2028 (9.9% of GDP).

- The World Tourism Organization reported that India's receipts from tourism during 2012 ranked 16th in the world and 7th among Asian and Pacific countries.
- Bangladesh, USA and UK are top three source countries for foreign tourists in India, while Tamil Nadu is for domestic tourists.
- Delhi, Mumbai, Chennai, Agra and Jaipur were the five most visited cities of India by foreign tourists during the year 2015. Worldwide, Delhi is ranked 28th by the number of foreign tourist arrivals, while Mumbai is ranked 30th.

Statement Analysis:

Statement 1	Statement 2
Incorrect	**Correct**
Bangladesh is the largest source country.	Maharashtra is the largest destination for foreign tourists in India.

Q.38) Consider the following statements about nuclear sector in India:

1. Carnotite and brannerite are uranium minerals.
2. Canada is world's largest uranium producer.
3. Thorium is more abundant in nature than uranium.
4. Narora nuclear power plant is located in Maharashtra.

Which of the following statements is/are correct?

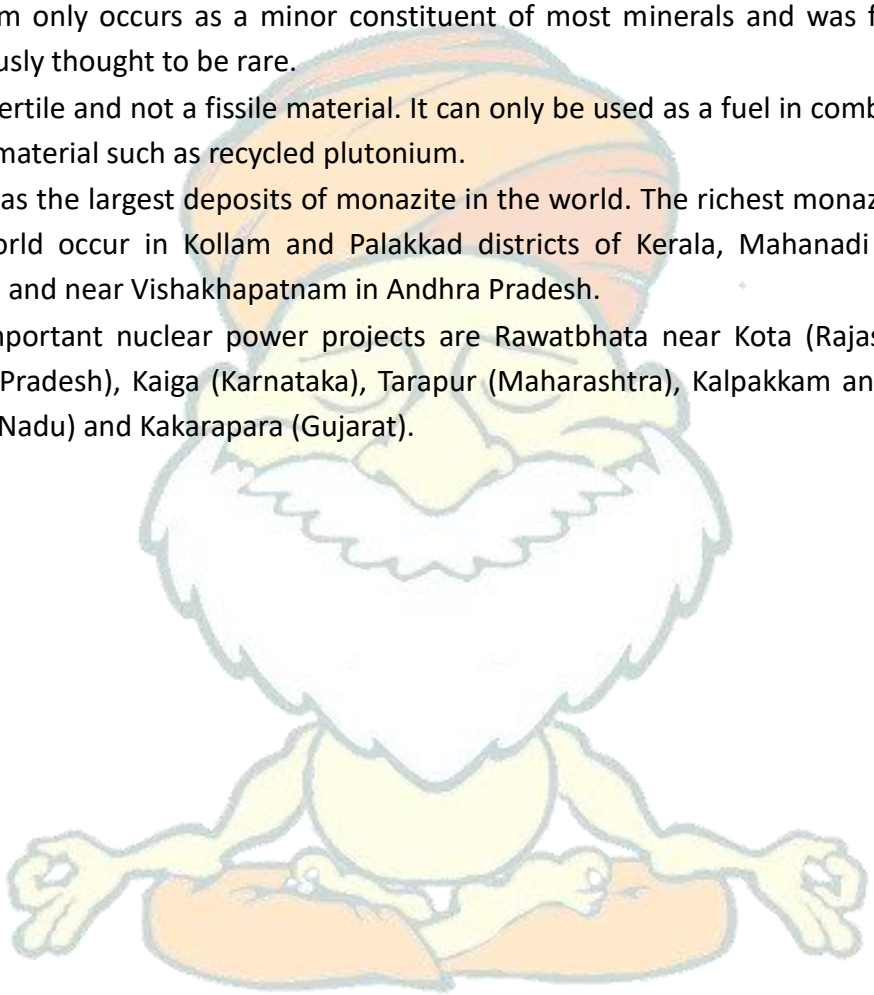
a) 1 and 2 only
b) 1, and 3 only
c) 2, 3 and 4 only
d) All of the above

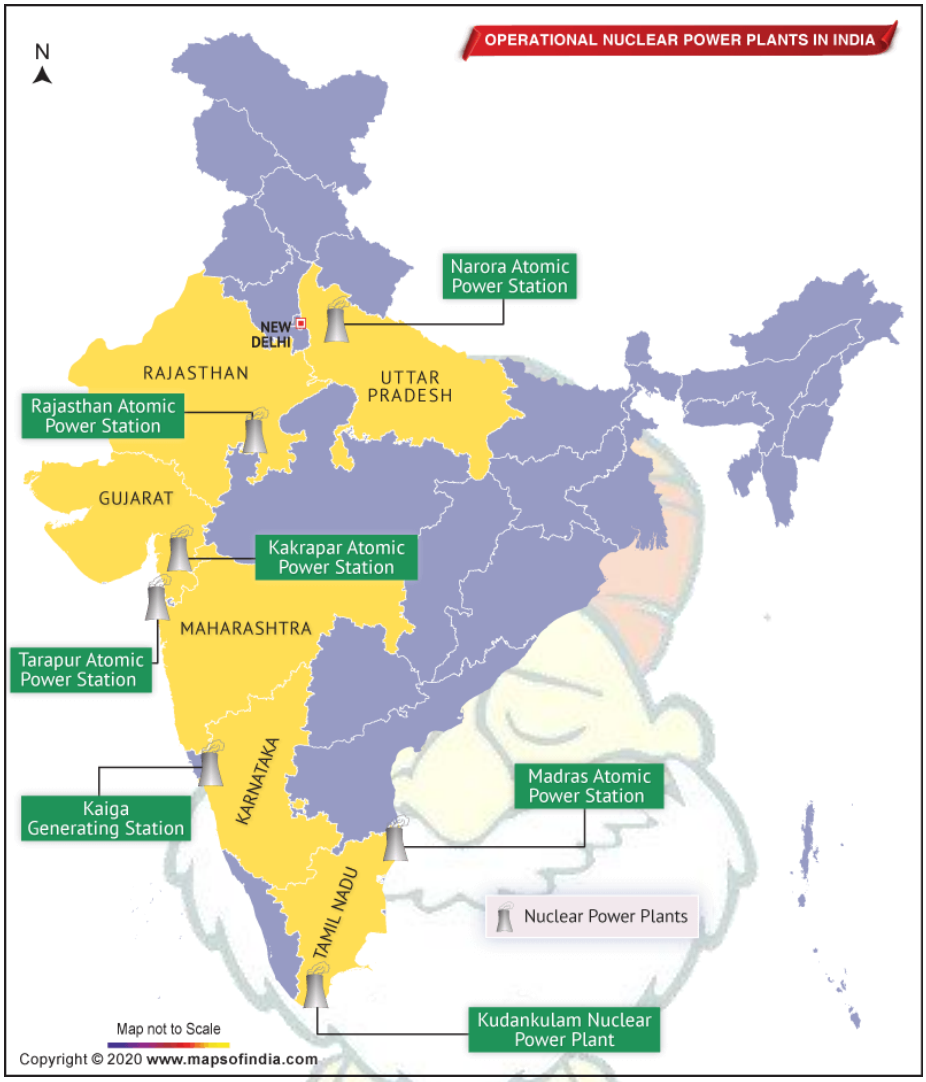
Q.38) Solution (b)

Basic Information:

- Commercial deposits of uranium may include concentrations of uranium minerals such as carnotite, brannerite and uraninite.

- Canada was the world's largest uranium producer for many years, but in 2009 was overtaken by Kazakhstan.
- Australia possesses around 30% of the world's known recoverable uranium reserves. Australia has the largest reserves of uranium in the world.
- Natural thorium is usually almost pure 232Th, which is the longest-lived and most stable isotope of thorium
- Thorium is more abundant in nature than uranium.
- Thorium only occurs as a minor constituent of most minerals and was for this reason previously thought to be rare.
- It is a fertile and not a fissile material. It can only be used as a fuel in combination with a fissile material such as recycled plutonium.
- India has the largest deposits of monazite in the world. The richest monazite deposits in the world occur in Kollam and Palakkad districts of Kerala, Mahanadi river delta in Odisha and near Vishakhapatnam in Andhra Pradesh.
- The important nuclear power projects are Rawatbhata near Kota (Rajasthan), Narora (Uttar Pradesh), Kaiga (Karnataka), Tarapur (Maharashtra), Kalpakkam and Kudankulam (Tamil Nadu) and Kakarapara (Gujarat).





Statement Analysis:

Statement 1	Statement 2	Statement 3	Statement 4
Correct	**Incorrect**	**Correct**	**Incorrect**
Pitchblende is also uranium mineral.	Kazakhstan is the largest producer.	It is a fact.	Narora is located in Uttar Pradesh.

Q.39) Consider the following sources of renewable energy:

1. Small hydropower
2. Bioenergy
3. Solar power
4. Wind power

Arrange the following in the decreasing order of their consumption in the world.

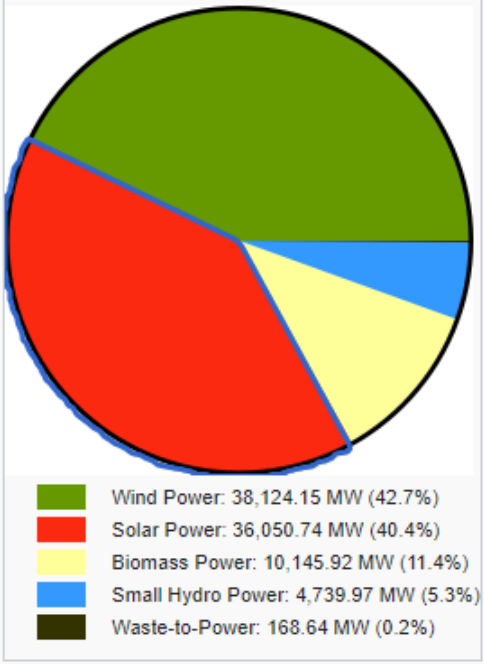
a) 1-2-3-4
b) 4-3-2-1
c) 3-4-2-1
d) 4-3-1-2

Q.39) Solution (d)

Basic Information:

- India was the first country in the world to set up a ministry of non-conventional energy resources (Ministry of New and Renewable Energy (MNRE)), in the early 1980s, and its public sector undertakings the Solar Energy Corporation of India is responsible for the development of solar energy industry in India. Hydroelectricity is administered separately by the Ministry of Power and not included in MNRE targets.
- Unlike most countries, until 2019 India did not count large hydro power towards renewable energy targets as hydropower was under the older Ministry of Power instead of Ministry of New and Renewable Energy. This system was changed in 2019 and the power from large hydropower plants is since also accounted for.

Installed grid interactive renewable power capacity in India as of 30 September 2020 (excluding large hydro)[8][9]



Year wise renewable energy generation (GWh)[20]

Source	2014-15	2015-16	2016-17	2017-18	2018-19	2019-2020
Large Hydro	129,244	121,377	122,313	126,134	135,040	155,970
Small Hydro	8,060	8,355	7,673	5,056	8,703	9,366
Solar	4,600	7,450	12,086	25,871	39,268	50,103
Wind	28,214	28,604	46,011	52,666	62,036	64,639
Bio mass	14,944	16,681	14,159	15,252	16,325	13,843
Other	414	269	213	358	425	366
Total	**191,025**	**187,158**	**204,182**	**227,973**	**261,797**	**294,288**[21]
Total utility power	1,105,446	1,168,359	1,236,392	1,302,904	1,371,517	1,385,114
% Renewable power	17.28%	16.02%	16.52%	17.50%	19.1%	21.25%

Q.40) Select the incorrect statement from the given options:

a) China has the largest network of pipeline in the world.
b) India is the largest importer of crude oil in the world.
c) Maharashtra is the largest producer of crude oil in India.
d) All the above statements are incorrect.

Q.40) Solution (d)

Basic Information:

- Pipeline transport is the long-distance transportation of a liquid or gas through a system of pipes—a pipeline—typically to a market area for consumption. The latest data from 2014 gives a total of slightly less than 3,500,000 km of pipeline in 120 countries of the world. The United States had 65%, Russia had 8%, and Canada had 3%, thus 75% of all pipeline were in these three countries.

- India is heavily dependent on crude oil and LNG imports with 82.8% import dependence for crude oil and 45.3% for natural gas/LNG.
- India is the second biggest importer of crude oil and its products after China.
- India is the third largest consumer of crude oil in the world, after the United States and China.
- Assam is the largest producer of crude oil in India.

Region	Crude oil reserves (in million metric tonnes)	Share of oil (%)	Natural gas reserves (in BCM)	Share of gas (%)
Arunachal Pradesh	1.52	0.25	0.93	0.07
Andhra Pradesh	8.15	1.35	48.31	3.75
Assam	159.96	26.48	158.57	12.29
Coal Bed Methane	0	0	106.58	8.26
Eastern Offshore[a]	40.67	6.73	507.76	39.37
Gujarat	118.61	19.63	62.28	4.83
Nagaland	2.38	0.39	0.09	0.01
Rajasthan	24.55	4.06	34.86	2.70
Tamil Nadu	9.00	1.49	31.98	2.48
Tripura	0.07	0.01	36.10	2.80
Western Offshore[b]	239.20	39.60	302.35	23.44
Total	**604.10**	**100**	**1,289.81**	**100**

Western offshore includes Bombay High offshore, Rajasthan and joint venture companies for Crude Oil, and Bombay High offshore, Rajasthan and Madhya Pradesh for Natural Gas.

Q.41) Which of the following affect the natural population growth of a place?

1. Crude Birth Rate
2. Crude Death Rate
3. Immigration
4. Emigration

Choose the correct option:

a) 1 and 2 only

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

Q.41) Solution (a)

Basic Information:

- **Natural population growth** is the population increase determined by births and deaths. Migration flows are not taken into account.
- Natural increase is the difference between the numbers of births and deaths in a population; the rate of natural increase is the difference between the birthrate and the death rate.
- The **rate of population growth** is the rate of **natural increase combined** with the effects of **migration**. Thus a high rate of natural increase can be offset by a large net out-migration, and a low rate of natural increase can be countered by a high level of net in-migration. Generally speaking, however, these migration effects on population growth rates are far smaller than the effects of changes in fertility and mortality.

Q.42) With reference to "Socio-Economic and Caste Census (SECC)", consider the following statements:

1. It was conducted for the first time along with the first synchronous census in India of 1881.
2. SECC 2011 has three census components which were conducted by three separate authorities but under the overall coordination of Ministry of Home Affairs.
3. The Census under Census Act, 1948 provides a tool to identify beneficiaries of state support while the SECC is portrait of the Indian population.

Which of the above statements is/are not correct?

a) 1 and 2 only
b) 2 and 3 only
c) 1 and 3 only
d) 1,2 and3

Q.42) Solution (d)

Basic Information:

Census

- The origin of the Census in India goes back to the colonial exercise of 1881.
- Census has evolved and been used by the government, policymakers, academics, and others to capture the Indian population, access resources, map social change, delimitation exercise, etc.

SECC

- SECC was conducted for the first time since 1931.
- SECC is meant to canvass every Indian family, both in rural and urban India, and ask about their:
  - Economic status, so as to allow Central and State authorities to come up with a range of indicators of deprivation, permutations, and combinations of which could be used by each authority to define a poor or deprived person.
  - It is also meant to ask every person their specific caste name to allow the government to re-evaluate which caste groups were economically worst off and which were better off.
- SECC has the potential to allow for a mapping of inequalities at a broader level.

Statement Analysis:

Note: incorrect statements are asked.

Statement 1	Statement 2	Statement 3
Incorrect	**Incorrect**	**Incorrect**
SECC was conducted for the first time in 1931.	SECC 2011 has **three census components** which were conducted by three separate authorities but under the overall coordination of **Department of Rural Development** in the Government of India. • Census in Rural Area has	The Census provides a portrait of the Indian population, while the SECC is a tool to identify beneficiaries of state support.

	been conducted by the Department of Rural Development (DoRD). • Census in Urban areas is under the administrative jurisdiction of the Ministry of Housing and Urban Poverty Alleviation (MoHUPA). • Caste Census is under the administrative control of Ministry of Home Affairs: Registrar General of India (RGI) and Census Commissioner of India.	

Q.43) Which of the following is/are correctly matched?

Population Density	Description
1. Arithmetic Density	Total number of people per unit land
2. Physiological Density	Ratio of the number of farmers to the amount of arable land
3. Agricultural Density	In a region, number of people supported by a unit area of arable land

Select the correct option using the codes given below:

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

Q.43) Solution (a)

Basic Information:

Different types of measurement of population density:

- The first method used to measure population density is the arithmetic density, which is the total number of people in any given area as compared to one square unit of land.
- Agricultural density measures the number of farmers specifically on each unit of farmland. This means people who work the earth on specific plots of land that are used for this.
- Physiological density is located right in the middle of these. It measures the total number of people and divides them between the total amount of farmable land. So the amount of land to be used is much smaller than for arithmetic density but the amount of people is much larger than what is used in agricultural density.

All three of these are used to get a more accurate understanding of the population density of any given area, but they will then be used in different ways according to the type.

Q.44) Consider the following statements:

1. Khasi language is part of Sino-Tibetan Languages family.
2. Female Labour Force Participation Rate of rural area is higher than that of urban.

Which of the above statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.44) Solution (b)

Basic Information:

The speakers of major Indian languages belong to four language families:

Language Family	Languages
Indo-European Family (Aryan)	Hindi, Bengali, Marathi, Urdu, Gujarati, Punjabi, Kashmiri, Rajasthani, Sindhi, Maithili

	and Odia
Dravidian Family (Dravida)	Kannada, Tamil, Telugu, Malayalam
Austric Family (Nishada)	Kol, Mundari, Nicobari, **Khasi**, Santhali, Ho, Birhor
Sino-Tibetan family (Kirata)	Nepalese, Bodo, Manipuri

- **Labour Force Participation Rate (LFPR):** LFPR is defined as the percentage of persons in the labour force (i.e. working or seeking or available for work) in the population.
- **Female Labour Force Participation Rate**: It is the share of working-age women who report either being employed, or being available for work.
- Female labour-force participation in India has declined from 34 per cent in 2006 to 24.8 per cent in 2020, according to a new study.

Statement Analysis:

Statement 1	Statement 2
Incorrect	**Correct**
Khasi language is part of Austric Family (Nishada).	Female Labour Force Participation Rate of rural area is higher than that of urban and also the decline is greater for rural FLFPR.

Q.45) According to the recently released report 'International Migration 2020 Highlights', by the Population Division of the UN Department of Economic and Social Affairs (UN DESA), which country hosts the largest Indian Diaspora?

a) United States of America
b) Saudi Arabia
c) United Arab Emirates
d) Canada

Q.45) Solution (c)

Basic Information:

- India has the largest diaspora population in the world with **18 million people** from the country living outside their homeland in 2020.
- The report **'International Migration 2020 Highlights'**, by the Population Division of the UN Department of Economic and Social Affairs (UN DESA) says the spatial distribution of transnational populations varies greatly and India's diaspora, the largest in the world, is distributed across a number of major countries of destination.
- In 2020, 18 million persons from India were living outside their country of birth. Other countries with a large diaspora population included Mexico and Russia (11 million each), China (10 million) and Syria (8 million).
- India's large diaspora is distributed across the **United Arab Emirates (3.5 million**), the **United States of America (2.7 million)** and **Saudi Arabia (2.5 million).** Other countries hosting large numbers of Indian migrants included Australia, Canada, Kuwait, Oman, Pakistan, Qatar and the United Kingdom, the report said.

Q.46) "It refers to outward expansion of an urban centre towards its periphery. Here, the core of the city shifts to the fringe areas or hinterland. This term was coined by Edward Soja. It leads to the development of the 'city outside a city'." Which of the following best describes the above city?

a) Flex Cities
b) Exopolis
c) Cosmopolis
d) World City

Q.46) Solution (b)

Basic Information:

Exopolis:

- It is a post-modern large city in which outward expansion of an urban centre is towards its periphery. Here, the core of the city shifts to the fringe areas or hinterland. This term was coined by Soja. It leads to the development of the 'city outside a city' for example in Los Angeles.
- The city that no longer conveys the traditional qualities of cityness.
- Growth of the outer city and city edges and characterized by more urban life.

Q.47) With reference to settlements, consider the following statements:

1. Type of settlement implies the degree of dispersion or nucleation of the dwellings.
2. Pattern of settlement refers to the geometrical shapes formed by the arrangements of dwellings.
3. Bihar has the highest number of villages according to Census of India 2011.

Which of the above statements is/are correct?

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

Q.47) Solution (a)

Basic Information:

Type of settlement

- It implies the degree of dispersion or nucleation of the dwellings.
- They are of three types:
  - **Compact Settlements:** A compact settlement is based on farming. These are mostly found in highly productive alluvial plains like Indo-Gangetic Plains, the Hwang Ho Valley, Valley o Nile. The houses are compact and congested with narrow plains.
  - **Semi-Compact Settlement**: Semi-Compact is a transitional phase in the growth of compact settlement. The emergence is because of the difference of semi-arid regions from humid regions and marginal productive land to that of fertile land. Increase in population cause villages to grow in number of houses. These houses occupy open spaces and lead to semi-compact settlement which ultimately acquires a nucleated settlement.
  - **Dispersed Settlement:** These 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.

Pattern of settlement:

- It refers to the geometrical shapes formed by the arrangements of dwellings.

- The rural settlements are classified under following patterns: Rectangular, Linear, Circular, Semi-circular, Star-like, Triangular, and Nebular Pattern. The settlements is linear in valleys and mountainous areas, rectangular in fertile plains, circular near the lakes and ponds, triangular at cross roads and in exceptional cases it resembles the nebular form and on river terraces it is star-type.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	**Correct**	**Incorrect**
As discussed above.	**As discussed above.**	According to census of India 2011, there are 640,867 villages in the country including uninhabited villages. The largest number 106,704 (more than 16.6%) are in **Uttar Pradesh** alone.

Q.48) With reference to census conducted in India, consider the following statements:

1. The reference date of census is taken as 1st March for every state.
2. The population count is taken as on sunrise of 1st March.

Which of the above statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.48) Solution (d)

Basic Information:

Census

- The census provides information on size, distribution and socio-economic, demographic and other characteristics of the country's population.
- A systematic and modern population census, in its present form was conducted non-synchronously between 1865 and 1872 in different parts of the country.
- However, the first synchronous census in India was held in 1881. Since then, censuses have been undertaken uninterruptedly once every ten years.
- India's last census was carried out in 2011 when the country's population stood at 121 crore. The Indian Census is one of the largest administrative exercises undertaken in the world.

Statement Analysis:

Statement 1	Statement 2
Incorrect	**Incorrect**
The reference date of census is taken as 1st March for **majority of the state**. But for snow-bound Jammu and Kashmir, Himachal Pradesh and Uttarakhand it is taken as October 1.	1951-1991: It was sunrise of 1st March (except 1971 which was 1st April). 2001 onwards the time is 00:00 (12 midnight) of 1st March.

Q.49) With reference to "international poverty line", consider the following statements:

1. The international poverty line has been set at $1.50 per day.
2. As per the latest estimates, more than 15% percent of the world's population lives at or below the poverty line.

Which of the above statements is/are not correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.49) Solution (c)

Basic Information:

International poverty line

- The international poverty line is a monetary threshold under which an individual is considered to be living in poverty. It is calculated by taking the poverty threshold from each country, given the value of the goods needed to sustain one adult and converting it into dollars. The international poverty line was originally set to roughly $1 a day.
- The World Bank sets the international poverty line at periodic intervals as the cost of living for basic food, clothing, and shelter around the world changes.
- In the 2008 update, the poverty line was set at $1.25 per day.
- In 2015, the threshold was updated to **$1.90 per day**.

Statement Analysis:

Note: incorrect statements are asked.

Statement 1	Statement 2
Incorrect	**Incorrect**
The world has made huge strides in overcoming global poverty. Since 1990, more than 1.2 billion people have risen out of extreme poverty. Now, **9.2%** of the world survives on **$1.90** a day or less, compared to nearly 36% in 1990.	Recent estimates for global poverty are that **9.2% of the world**, or **689 million people**, live in extreme poverty on $1.90 or less a day, according to the World Bank.

Q.50) Consider the following statements:

1. As per the first-ever Periodic Labor Force Survey (PLFS) community which has the highest Unemployment Rate is Christians.
2. Under disguised unemployment marginal productivity of labour is zero.

Which of the above statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.50) Solution (c)

Basic Information:

Periodic Labor Force Survey (PLFS):

- PLFS is India's **first computer-based survey** launched by the National Statistical Office (NSO) in 2017.
- It has been constituted based on the recommendation of **Amitabh Kundu.**
- PLFS has two fold objective:
  - To estimate the key employment and unemployment indicators (viz. **Worker Population Ratio, Labour Force Participation Rate, Unemployment Rate**) in the **short time interval of three months** for the **urban areas only** in the **Current Weekly Status (CWS).**
  - To estimate **employment and unemployment indicators** in both **usual status** and **CWS** in both **rural and urban areas annually.**
- Before PLFS the NSSO (previous name of NSO) used to bring the data related to **employment and unemployment** based on its **quinquennial household socio-economic survey programme.**

Statement Analysis:

Statement 1	**Statement 2**
Correct	**Correct**
Among religious groups, **Christians** have the highest UR in both urban and rural areas. In rural areas, Christians have a UR of 7.4 percent, Muslims have a UR of 6.5 percent,	Disguised unemployment exists where part of the labour force is either left without work or is working in a redundant manner where **marginal productivity of labour** is

Sikhs 6.3 percent and Hindus 5.2 %. In urban areas, Christians have a UR of 11 %, Sikhs 9.1 %, followed by Muslims 8.5 % and Hindus 7.6 %.	essentially zero.

Q.51) Which of the following statements given below is/are correct?

1. India covers 2.4% of land, but is home to more than 17% of world population.
2. In recent years, India's population growth rate has become negative.

Select the correct statements:

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

Q.51) Solution (a)

Basic Information:

- The current population of India is 1,388,864,178 as of Friday, February 26, 2021, based on Worldometer elaboration of the latest United Nations data.
- India 2020 population is estimated at 1,380,004,385 people at mid-year according to UN data.
- India population is equivalent to 17.7% of the total world population.
- India ranks number 2 in the list of countries (and dependencies) by population.
- Its population growth rate is 1.13%, ranking 112th in the world in 2017.

Statement Analysis:

Statement 1	Statement 2
Correct	**Incorrect**
India covers only 2.4% of land area, but hosts 17.7% of world's population.	India's population growth rate has declined, but has not become negative.

Q.52) Consider the following demographic attributes of India:

1. India's total fertility rate is well above replacement rate.
2. Fertility rate of Indians has consistently declined since independence.
3. Fertility rate in urban India is well below replacement rate.

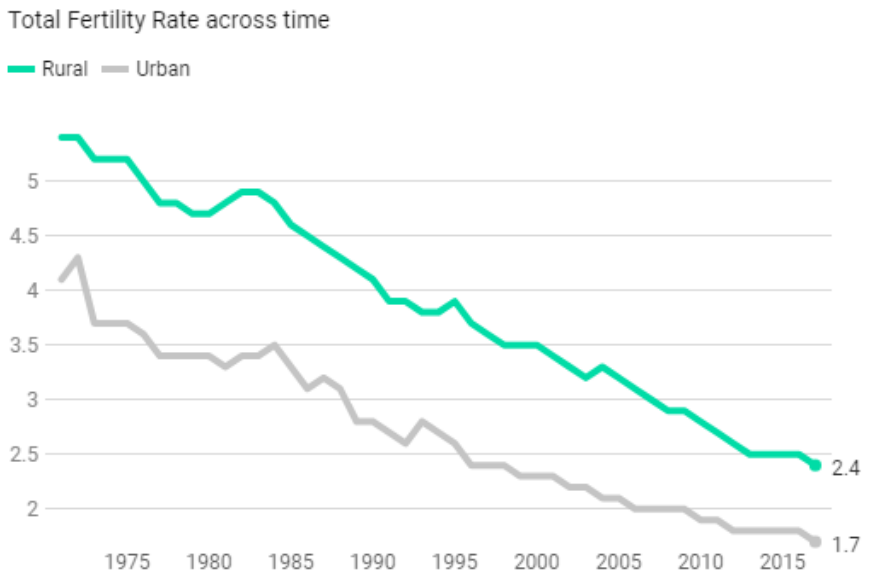
Which of the following statement is/are correct?

a) 1 only
b) 2 only
c) 3 only
d) None

Q.52) Solution (c)

Basic Information:

- A Total Fertility Rate (TFR) of 2.1 represents the Replacement-Level Fertility: the average number of children per woman needed for each generation to exactly replace itself without needing international immigration. A value below 2.1 will cause the native population to decline.
- The fertility rate for India in 2020 was 2.200 births per woman, a 0.9% decline from 2019.
- The current fertility rate for India in 2021 is expected to be 2.179 births per woman, a 0.95% decline from 2020.
- Fertility decline in India has not been smooth.
- The Total Fertility Rate or TFR (the average number of children that a woman will have in her lifetime) in urban India as a whole has now fallen to levels that in some countries are taken as a cause for concern in terms of being too low. TFR in urban India fell to 1.7 as of 2017, comparable to that of Belgium, Iceland and Norway, and lower than that of the United States or the United Kingdom (1.8).



Statement Analysis:

Statement 1	Statement 2	Statement 3
Incorrect	**Incorrect**	**Correct**
India's fertility rate has almost reached replacement rate.	There are various fertility reversal trends in India, especially in the 1980s.	TFR in urban India fell to 1.7.

Q.53) Match the following pairs:

Pair I

1. Most densely populated state of India.
2. Worst performing state of India in terms of female literacy.
3. Worst performing state of India in terms of female sex ratio.
4. Least urbanized state of India.

Pair II

A. Haryana
B. West Bengal
C. Bihar

D. Rajasthan
E. Arunachal Pradesh
F. Himachal Pradesh

Select the correct code from given options:

a) 1-C, 2-C, 3-A, 4-F
b) 1-B, 2-D, 3-A, 4-E
c) 1-C, 2-A, 3-E, 4-F
d) 1-C, 2-A, 3-D, 4-F

Q.53) Solution (a)

Basic Information:

- Most densely populated state of India is Bihar at 1106 persons per square kilometer.
- Worst female literacy rate is of Bihar at 52.33%.
- Worst female sex ratio is of Haryana at 877 females per thousand males.
- Least urbanized state is Himachal Pradesh at only 10.04% of urban population.

Note: all figures according to 2011 census.

Q.54) Consider the following statements about internal migration in India:

1. More than 2/3rd of internal migrants are females.
2. Bihar is the largest source of inter-state migrants in India.

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.54) Solution (a)

Basic Information:

- Internal Migrants in India constitute a large population of 309 million internal migrants or 30 percent of the population (Census of India 2001).
- Out of the total internal migrants, 70.7 percent are women (Census of India 2001) and marriage is one of the major reasons for female migration in both the rural and urban areas.
- Uttar Pradesh (-26.9 lakh) and Bihar (- 17.2 lakh) were the two states with the largest number of persons migrating out of the two states.

Q.55) Select the incorrect statement from below given options:

1. Migration in India is signified by only change in place of residence.
2. Migration always involves a change in residence.

Choose from below given options:

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

Q.55) Solution (a)

Basic Information:

- When a person or a group of the community move from one place to another, majorly across political and administrative borders; it gives rise to migration.
- The features of migration are mentioned in the table below:

Migration always is signified by movements of persons or a community
It can be forced or voluntary
It always involves a change of residence

It leads to population change in the area

Migration may lead to emigration (when a person leaves his/her own country to settle permanently in another country)

- In the Indian Census, migration is signified by two types:
  - Migration by birthplace
  - Migration by place of last residence
- The census also covers the reasons for migration which are:
  - Work/Employment
  - Business
  - Education
  - Marriage
  - Moved after birth
  - Moved with household

Statement Analysis:

Statement 1	Statement 2
Incorrect	**Correct**
Migration involves both change in place of residence and change in place of birth.	Migration always involves change in place of residence.

Q.56) Which of the following can cause burgeoning of slums?

1. Uncontrolled migration.
2. Rapid growth of urban population.
3. High land values in urban areas.

Select the correct code from below given options:

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

Q.56) Solution (c)

Basic Information:

- A slum is usually a highly populated urban residential area consisting mostly of closely packed, decrepit housing units in a situation of deteriorated or incomplete infrastructure, inhabited primarily by impoverished persons.
- Following are the factors that can cause slum formation:
    - Rapid growth of urban population.
    - Unemployment in rural areas.
    - Mass migration of unskilled and semi-skilled from rural to urban areas.
    - Limited employment opportunities to immigrant rural population in urban areas.
    - Limited land and highland values in urban areas.
    - Shortage of cheap residential accommodation in urban areas.
- While slums differ in size and other characteristics, most lack reliable sanitation services, supply of clean water, reliable electricity, law enforcement, and other basic services. Slum residences vary from shanty houses to professionally built dwellings which, because of poor-quality construction and/or lack of basic maintenance, have deteriorated.

Statement Analysis:

All the statements are correct.

Q.57) Arrange the following racial groups in chronological order on the basis of their entry into the Indian subcontinent:

1. Proto-Australoids
2. Nordics
3. Mediterraneans
4. Mongoloid

Select the correct code from below given options:

a) 1-4-3-2
b) 1-3-4-2
c) 2-1-3-4
d) 2-3-1-4

Q.57) Solution (a)

Basic information:

- The present day population of the country has been derived mainly from the following racial groups:
    - **Negritos**- earliest occupants of India.
    - **Proto-Australoids**- came to India after Negritos from east Mediterranean area.
    - **Mongoloids**- this race belongs to the China, they entered India from north through mountain passes.
    - **Mediterraneans**- came to india from eatern Mediterranean area or south-west Asia. They are believed to be the bearers of earliest form of Hinduism in India.
    - **Nordics**- constitute the last wave of migration into India. They spoke Aryan language and migrated to India sometime during the second millennium B.C.

Q.58) Consider the following statements about urban sprawl:

1. It refers to the migration of a population from populated towns and cities to adjoining low density suburban areas.
2. Urban sprawl can lead to environmental problems.
3. It can result from increased affluence, attractive land and housing prices.
4. Urban sprawl is a planning problem.

Which of the following statements is/are correct?

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

Q.58) Solution (d)

Basic information:

- **Urban sprawl**, also called sprawl or suburban sprawl, the rapid expansion of the geographic extent of cities and towns, often characterized by low-density residential housing, single-use zoning, and increased reliance on the private automobile for transportation.

- Urban sprawl is caused in part by the need to accommodate a rising urban population; however, in many metropolitan areas it results from a desire for increased living space and other residential amenities.
- Urban sprawl has been correlated with increased energy use, pollution, and traffic congestion and a decline in community distinctiveness and cohesiveness. In addition, by increasing the physical and environmental "footprints" of metropolitan areas, the phenomenon leads to the destruction of wildlife habitat and to the fragmentation of remaining natural areas.
- There are many factors that contribute to urban sprawl. As statistics show, population increases alone do not account for increases in a metropolitan area's urban extent. In many cases, urban sprawl has occurred in areas experiencing population declines, and some areas with rising populations experience little urban sprawl, especially in developing countries.
- Economic growth and globalization are often cited as the principal macroeconomic drivers of urban sprawl; however, increased affluence, attractive land and housing prices, and the desire for larger homes with more amenities (such as yards, household appliances, storage space, and privacy) play significant roles at the level of the individual.
- Many experts also believe that weak planning laws and single-use zoning also contribute to urban sprawl.

Statement Analysis:

Statement 1	Statement 2	Statement 3	Statement 4
Correct	**Correct**	**Correct**	**Correct**
Migration of urban population to the suburbs leads to expansion of urban areas.	Pollution and colonisation of new land and converting them into concrete jungles.	Mostly done by the rich to avoid congestion of core urban areas.	Lack of resources to control urbanization through planning leads to urban sprawl.

Q.59) Identify major industrial regions of India from below given options:

1. Chotanagpur Industrial Region

2. Vishakhapatnam-Guntur Industrial Region
3. Ambala-Amritsar Industrial Region
4. Kollam-Trivandrum Industrial Region

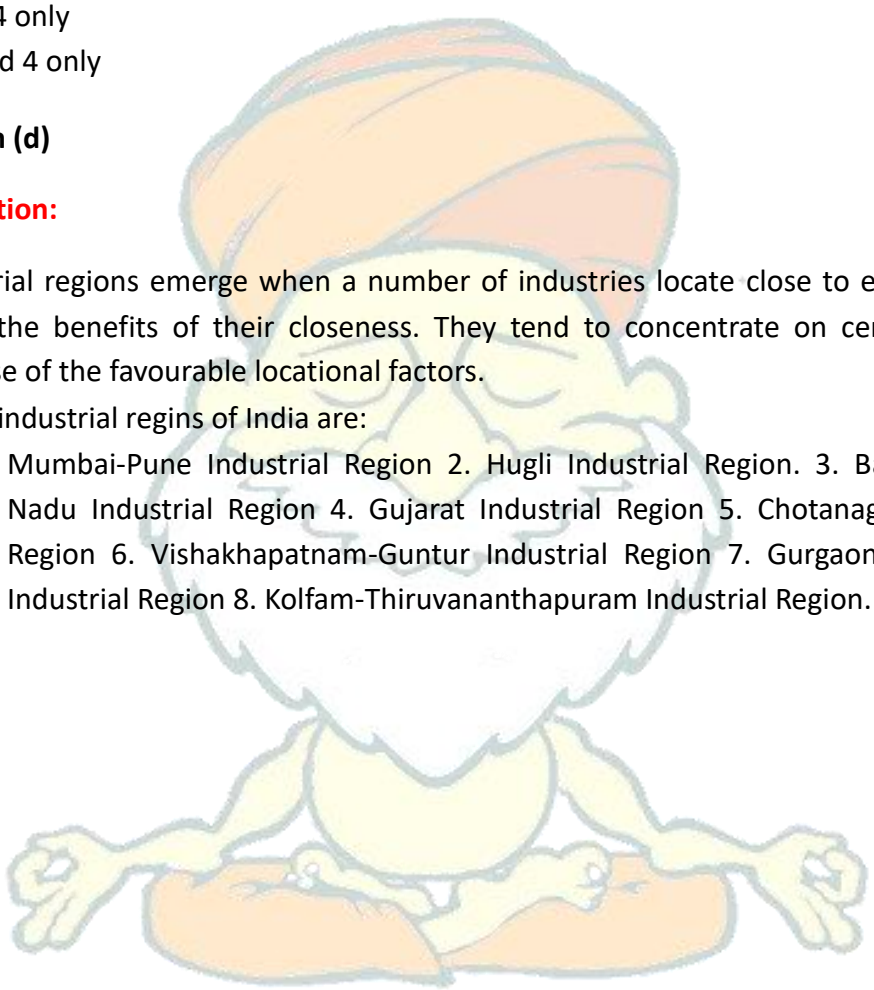
Select the correct code from below given options:

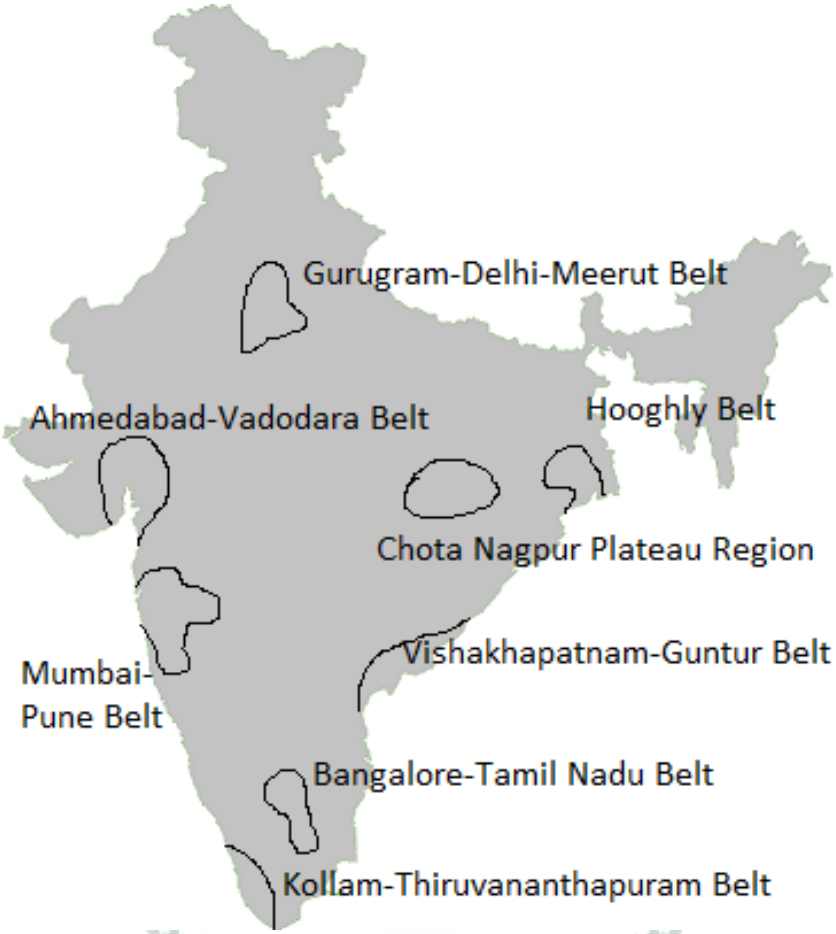
a) 1, 2, 3, 4
b) 1 and 3 only
c) 2 and 4 only
d) 1, 2 and 4 only

Q.59) Solution (d)

Basic Information:

- Industrial regions emerge when a number of industries locate close to each other and share the benefits of their closeness. They tend to concentrate on certain locations because of the favourable locational factors.
- Major industrial regins of India are:
    - Mumbai-Pune Industrial Region 2. Hugli Industrial Region. 3. Bangalore-Tamil Nadu Industrial Region 4. Gujarat Industrial Region 5. Chotanagpur Industrial Region 6. Vishakhapatnam-Guntur Industrial Region 7. Gurgaon-Delhi-Meerut Industrial Region 8. Kolfam-Thiruvananthapuram Industrial Region.





Q.60) Select the incorrect statements about major religious groups in India from below given options:

a) Child sex ratio is highest among Hindu religious group in India.
b) Literacy rate is highest among Christian religious group in India.
c) Female work participation rate is highest among Buddhist religious group in India.
d) All of the above statements are incorrect.

Q.20) Solution (b)

Basic Information:

Name of Religion	Percentage to total population	Sex ratio
Hindus	80.5	931
Muslims	13.4	936
Christians	2.3	1009
Sikhs	1.9	893
Buddhists	0.8	953
Jains	0.4	940
Other religions	0.6	992
India	**100**	**933**

Name of Religions	Percentage of 0-6 population to total population	Child Sex Ratio
Hindus	15.6	925
Muslims	18.7	950
Christians	13.5	964
Sikhs	12.8	786
Buddhists	14.4	942
Jains	10.6	870
Other religions	18.0	976
India	**15.9**	**927**

Name of Religion	Literacy Rate (Total)	Literacy Rate (Males)	Literacy Rate (Females)
Hindus	65.1	76.2	53.2
Muslims	59.1	67.6	50.1
Christians	80.3	84.4	76.2
Sikhs	69.4	75.2	63.1
Buddhists	72.7	83.1	61.7
Jains	94.1	97.4	90.6
Other religions	47.0	60.8	33.2
India	**64.8**	**75.3**	**53.7**

Name of Religion	Work participation Rate		
	Total	Male	Female
Hindus	40.4	52.4	27.5
Muslims	31.3	47.5	14.1
Christians	39.7	50.7	28.7
Sikhs	37.7	53.3	20.2
Buddhists	40.6	49.2	31.7
Jains	32.9	55.2	9.2
Other religions	48.4	52.5	44.2
India	**39.1**	**51.7**	**25.6**

Q.61) What does the term "Draas" refer to in geomorphology?

a) Karst landform
b) Erosional landform carved by glaciers.
c) Wave landform
d) Aeolian landform

Q.61) Solution (d)

Basic Information:

Draas:

- Draas are very large-scale dune bedforms, they may be tens or a few hundreds of metres in height, kilometres wide, and hundreds of kilometres in length.
- After a draas has reached a certain size, it generally develops superimposed dune forms. They are thought to be more ancient and slower-moving than smaller dunes, and to form by vertical growth of existing dunes.
- Draas are widespread in sand seas and are well-represented in the geological record.

Q.62) Which meridian forms the boundary line between the Indian Ocean and the Pacific Ocean?

a) The meridian of Cape of Tasmania
b) The meridian of Cape Town

c) The meridian of Wellington
d) The meridian of Perth

Q.62) Solution (a)

Basic Information:

Extending southward from the Tasman Basin (between New Zealand and eastern Australia) is the Macquarie Ridge, which forms a major boundary between the deep waters of the Pacific and Indian oceans.

Q.63) With reference to "vertical temperature distribution of ocean", consider the following statements:

1. Surface zone of temperate ocean water is narrower than that of equatorial waters.
2. Thermocline is steeper for equatorial waters than mid-latitude waters.

Which of the following statements is/are correct?

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

Q.63) Solution (b)

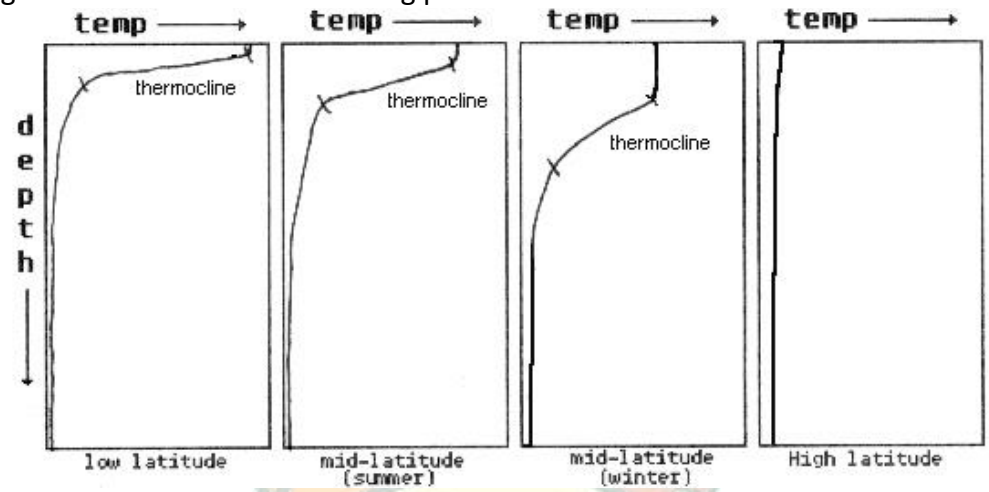
Basic Information:

Vertical Distribution of Temperature:

On the basis of the temperature, the ocean depths may be divided into the following three zones:

- **Surface Zone or Mixed Zone:** This is also known as the Photic zone or Euphoric zone. It is the upper layer of the ocean. In this layer, the temperature and salinity are relatively constant. It contains about 2 percent of the total volume of water in the ocean. It is limited to a depth of about 100 meters.
- **Thermocline:** It lies between 100 metres and 1000 metres. It contains about 18 percent of the total volume of water in the ocean. There is a steep fall in temperature in this zone. The density of water increases with increasing depth.
- **Deep Zone:** This zone lies below 1000 metres in the mid-latitudes. This zone contains

about 80 percent of the total volume of water in the ocean. The temperature in this zone remains constant. The ocean bottom always has a temperature which is one or two degrees Celsius above the freezing point.



Statement Analysis:

Statement 1	Statement 2
Incorrect	**Correct**
Surface zone of temperate ocean water is **deeper** than that of equatorial waters. Turbulence in mid-latitudes due to waves leads to constant mixing and hence the temperature does not change. Whereas, at equators the water is dead calm leading to less turbulent water and thus narrower surface zone.	Refer to the diagram.

Q.64) Consider the following features of the Red and Yellow soil:

1. It develops a reddish color when it is in a hydrated form.
2. They are derived from both igneous and metamorphic rocks.
3. These soils are poor growing soils, low in nutrients and humus and difficult to cultivate because of its lower water holding capacity.

Which of the above statements are correct?

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

Q.64) Solution (b)

Basic Information:

Red and Yellow Soils:

- Seen mainly in low rainfall area.
- Also known as **Omnibus group**.
- Porous, friable structure.
- Absence of lime, kankar (impure calcium carbonate)
- Deficient in lime, phosphate, manganese, nitrogen, humus and potash.
- Colour: Red because of Ferric oxide. The lower layer is reddish yellow or yellow.
- Texture: Sandy to clay and loamy.
- Wheat, cotton, pulses, tobacco, oilseeds, potato etc. are cultivated.
- Locally called 'Chalka' in Andhra Pradesh.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Incorrect	**Correct**	**Correct**
The soil develops a reddish colour due to a wide diffusion of iron in crystalline and metamorphic rocks. It looks **yellow** when it occurs in a **hydrated form**. Often, their **upper layer** is **red** and the **lower layer** is	This soil in India, also known as the omnibus group, have been developed over **Archaean granite**, **gneiss** and other crystalline rocks, the **sedimentaries** of the Cuddapah and Vindhayan basins and mixed Dharwarian group of rocks.	Red soil is not fertile, but it does respond to fertilizer.

yellow.		

Q.65) The "*Forchhammer's Principle" is related with?*

a) *Coral bleaching*
b) *Diurnal tides*
c) *Salinity of seawater*
d) *Ocean waves*

Q.65) Solution (c)

Explanation:

- Forchhammer's Principle refers to the chemical composition of ocean water.
- In 1865, the Danish geologist and mineralogist **Johan Georg Forchhammer**, collected numerous samples of seawater from the Northern Atlantic and the Arctic Ocean. He wanted to determine why the salinity (or "saltiness") of seawater varies in different areas of the ocean.
- Forchhammer put the samples through a detailed series of chemical analyses and found that the proportions of the major salts in seawater stay about the same everywhere. This **constant ratio** is known as **Forchhammer's Principle**, or the **Principle of Constant Proportions**. In addition to this principle, Forchhammer is credited with **defining** the term **salinity** to mean the concentration of major salts in seawater.
- Forchhammer's discovery helped scientists understand that salinity levels in seawater vary due to the **addition or removal of fresh water**, **rather than differing amounts of salt minerals in the water**. The principle is still applied today in marine research, and provides a simple way to estimate salinity and trace the mixing of water masses in the global ocean.

Q.66) Consider the following statements:

1. Parallels of latitudes are equal in length.
2. In January, the isotherms deviate to the north over the ocean and to the south over the continent.

Which of the above statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.66) Solution (b)

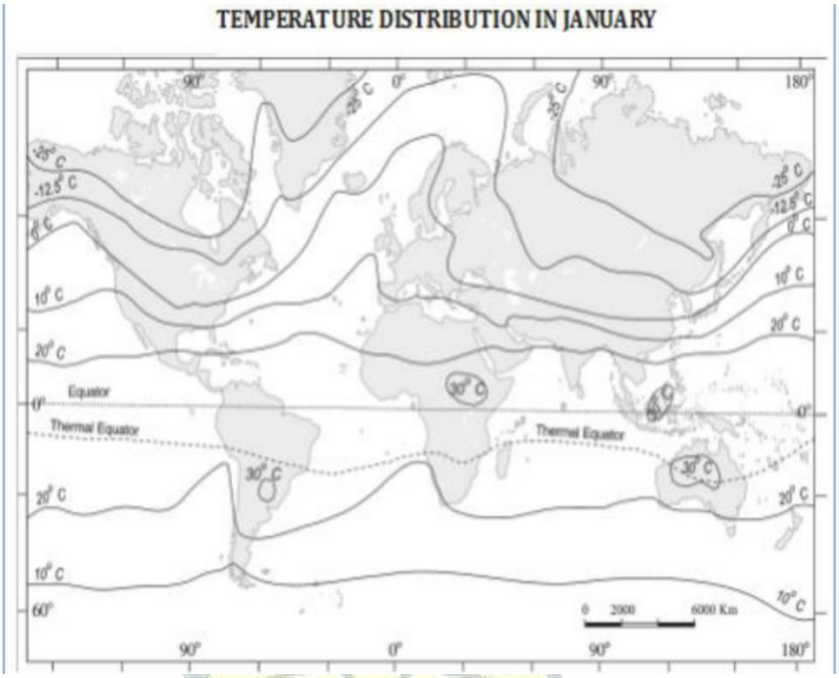
Basic Information:

Parallel of latitude:

- Path traced by complete one rotation of the earth.
- The circle is known as parallel of latitude.
- Earth's longest parallel of latitude lies midway between the two poles and called as equator.
- East-West lines.

Isotherms during January:

- In January, the isotherms deviate to the **north over the ocean** and to the **south over the continent**. This can be seen on the North Atlantic Ocean.
- The presence of warm ocean currents like Gulf Stream and North Atlantic drift, make the Northern Atlantic Ocean warmer and the isotherms bend towards the north.
- Over the land the temperature decreases sharply and the **isotherms bend towards south** in Europe. It is much pronounced in the Siberian plain.
- As the air over the ocean is warmer than that over the landmasses in the northern hemisphere, the isotherms bend equator ward while crossing the landmasses and poleward while crossing the oceans.
- Therefore, the isotherms bend equator ward while crossing the oceans and pole ward while crossing the landmasses.



Statement Analysis:

Statement 1	Statement 2
Incorrect	**Correct**
Parallels of latitudes **are not equal in length**. As we move away from the equator the length of parallel of latitudes decreases.	Refer the diagram.

Q.67) With reference to corals, consider the following statements:

1. Coral reefs cannot be formed on submergent coast.
2. Snowflake coral is an invasive species reported from Gulf of Mannar and Gulf of Kutch.
3. Raja Ampat archipelago of Indonesia is considered as world's coral diversity bull's eye.

Which of the above statements is/are correct?

a) 1 and 2 only
b) 2 only

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

Q.67) Solution (c)

Basic Information:

Snowflake coral:

- The snowflake coral is an invasive species from Hawaii and native of the tropical Western Atlantic and Caribbean. Since 1972 when it was first described as an invasive species, it has speed to Australia, Thailand, Indonesia and the Philippines. It is considered an invasive species because it has capacity to dominate space and crowd out other marine organisms.
- It is known to inhabit reefs and underwater structures such as piers and shipwreck. It can also attach itself to metal, concrete and even plastic. In India, it has been reported from Andaman and Nicobar Islands, Gulf of Mannar (Tamil Nadu), Gulf of Kutch (Gujarat) and Goa.

Coral Triangle:

- The Coral Triangle is a marine region that spans those parts of Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands and Timor-Leste with at least 500 species of reef-building corals. The Coral Triangle encompasses portions of 2 biogeographic regions: the Indonesian-Philippines Region, and the Far Southwestern Pacific Region.

- 76% (605) of the world's coral species (798) are found in the Coral Triangle, the highest coral diversity in the world.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Incorrect	**Correct**	**Correct**
Coral reefs are found on western coast of India which is a submergent coast.	Snowflake coral (Carijoa riisei), an invasive species. In India, it has been reported from the Gulf of Mannar, the Andaman and Nicobar Islands, Gulf of Kutch and Goa.	The epicenter of that coral diversity is found in the **Bird's Head Peninsula** of Indonesian Papua, which hosts 574 species (95% of the Coral Triangle, and 72% of the world's total). Within the Bird's Head Peninsula, the **Raja Ampat archipelago** is the world's coral diversity bull's eye with 553 species.

Q.68) Which of the following are periglacial landforms?

1. Pingo
2. Involution
3. Hummock
4. Thermokarst
5. Palsa

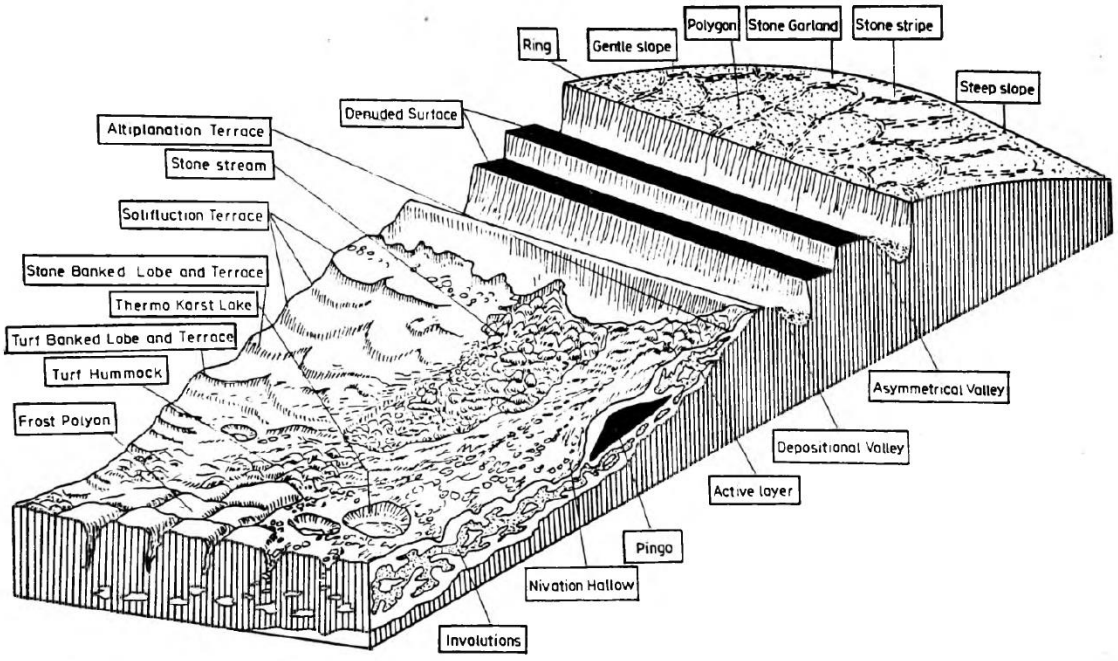
Choose the correct option:

e) 1, 2 and 3 only
f) 1, 2 and 4 only
g) 2 and 5 only
h) 1, 2, 3, 4 and 5

Q.68) Solution (d)

Basic Information:

- Periglacial areas are those which are in permanently (perennially) frozen condition but without permanent ice cover on the ground surface.
- A periglacial landform is a feature resulting from the action of intense frost, often combined with the presence of permafrost.
- Periglacial landforms are restricted to areas that experience cold but essentially nonglacial climates.
- Processes unique to periglacial environments include the formation of permafrost, the development of thermal-contraction cracks, the thawing of permafrost (the formation of thermokarst), the formation of wedge and injection ice, and certain mass movement processes that are enhanced by the presence of permafrost (eg, active-layer detachment failures).



Q.69) With reference to "tsunami", consider the following statements:

1. Tsunamis are giant tidal waves.

2. Earthquakes of magnitude below 6.5 are very unlikely to trigger a tsunami.
3. The speed of tsunami waves depends on ocean depth rather than the distance from the source of the wave.

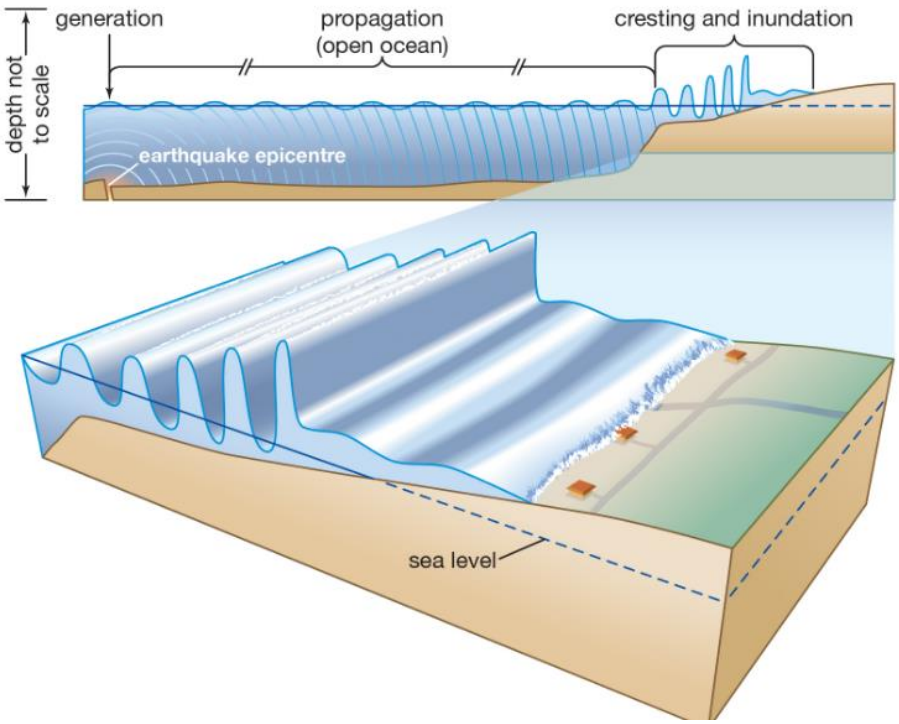
Which of the above statements is/are not correct?

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

Q.69) Solution (a)

Basic Information:

Tsunamis are giant waves caused by earthquakes or volcanic eruptions under the sea. Out in the depths of the ocean, tsunami waves do not dramatically increase in height. But as the waves travel inland, they build up to higher and higher heights as the depth of the ocean decreases.



Statement Analysis:

Statement 1	Statement 2	Statement 3
Incorrect	**Correct**	**Correct**
The term tidal wave is frequently used for such a wave, but it is a misnomer, for the wave has no connection with the tides. Although both are sea waves, a tsunami and a tidal wave are two different and unrelated phenomena. A tidal wave is a shallow water wave caused by the gravitational interactions between the Sun, Moon, and Earth ("tidal wave" was used in earlier times to describe what we now call a tsunami.) A tsunami is an ocean wave triggered by large earthquakes that occur near or under the ocean, volcanic eruptions, submarine landslides, or by onshore landslides in which large volumes of debris fall into the water.	Magnitudes below 6.5: Earthquakes of this magnitude are very unlikely to trigger a tsunami. Magnitudes between 6.5 and 7.5: Earthquakes of this size do not usually produce destructive tsunamis. However, small sea level changes might be observed in the vicinity of the epicenter. Magnitudes between 7.6 and 7.8: Earthquakes of this size might produce destructive tsunamis, especially near the epicenter. Magnitude 7.9 and greater: Destructive local tsunamis are possible near the epicenter, and significant sea level changes and damage might occur in a broader region.	The speed of tsunami waves depends on ocean depth rather than the distance from the source of the wave.

Q.70) Consider the following statements:

1. Lithification is a process of porosity destruction.
2. Chert and Dolomite are clastic sedimentary rocks.

Which of the above statements is/are correct?

a) 1 only

b) 2 only
c) Both
d) None

Q.70) Solution (a)

Statement Analysis:

- Sediments are a result of denudation as well as lithification.
- Lithifi cation is the process that turns loose, unconsolidated sediment into solid sedimentary rock through compaction, cementation, and recrystallization.

There are three subclasses of sedimentary rocks:

- Clastic: composed of rock and mineral fragments. Example: sandstone, siltstone, conglomerate etc.
- Chemically precipitated: formed by chemical precipitation from sea water or salty inland lakes. Example: limestone, dolomite, chert, evaporate etc.
- Organic: formed from organic minerals. Example: Coal, petroleum, natural gas

Statement Analysis:

Statement 1	Statement 2
Correct	**Incorrect**
Essentially, lithification is a process of porosity destruction through compaction and cementation.	Chert and Dolomite are chemically precipitated sedimentary rocks.

Q.71) Consider the following statements about diastrophic forces:

1. Process of orogeny may cause the crust to severely deform into folds, while during epeirogeny, there may be simple deformation.
2. Both orogenic processes and epeirogenic processes can cause metamorphism of rocks.

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.71) Solution (c)

Basic Information:

- All processes that move, elevate or build up portions of the earth's crust come under diastrophism. They include:
  I. orogenic processes involving mountain building through severe folding and affecting long and narrow belts of the earth's crust;
  II. epeirogenic processes involving uplift or warping of large parts of the earth's crust;
  III. earthquakes involving local relatively minor movements;
  IV. plate tectonics involving horizontal movements of crustal plates. In the process of orogeny, the crust is severely deformed into folds.
- Due to epeirogeny, there may be simple deformation. Orogeny is a mountain building process whereas epeirogeny is continental building process. Through the processes of orogeny, epeirogeny, earthquakes and plate tectonics, there can be faulting and fracturing of the crust.
- All these processes cause pressure, volume and temperature (PVT) changes which in turn induce metamorphism of rocks.

Statement Analysis:

Statement 1	Statement 2
Correct	**Correct**
Orogenic process leads to mountain building, while epeirogenic process leads to formation of batholiths and cratons.	These processes cause pressure, volume and temperature (PVT) changes which in turn induce metamorphism of rocks.

Q.72) Consider the following statements about chemical processes:

1. *Solution* process involves removal of solids in solution in water or weak acids.
2. Sodium chloride is a rock forming mineral, but is not susceptible to this process of *solution*.

3. Through the process of *hydration*, minerals get disintegrated to form water molecules.

Which of the following statements is/are correct?

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

Q.72) Solution (a)

Basic Information:

- A group of weathering processes viz; solution, carbonation, hydration, oxidation and reduction act on the rocks to decompose, dissolve or reduce them to a fine clastic state through chemical reactions by oxygen, surface and/or soil water and other acids. Water and air (oxygen and carbon dioxide) along with heat must be present to speed up all chemical reactions. Over and above the carbon dioxide present in the air, decomposition of plants and animals increases the quantity of carbon dioxide underground.
    - **Solution**
      When something is dissolved in water or acids, the water or acid with dissolved contents is called solution. This process involves removal of solids in solution and depends upon solubility of a mineral in water or weak acids.
      Common salt (sodium chloride) is also a rock forming mineral and is susceptible to this process of solution.
    - **Hydration**
      Hydration is the chemical addition of water. Minerals take up water and expand; this expansion causes an increase in the volume of the material itself or rock. Calcium sulphate takes in water and turns to gypsum, which is more unstable than calcium sulphate. This process is reversible and long, continued repetition of this process causes fatigue in the rocks and may lead to their disintegration.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	**Incorrect**	**Incorrect**
This process involves removal of solids in solution and depends upon solubility of a	Sodium Chloride is common salt which is soluble in water.	In hydration, minerals take up water and expand.

mineral in water or weak acids.		

Q.73) Consider the following statements about sunspots:

1. Sunspots are areas of weak magnetic activity.
2. Sunspots can cause a sudden explosion of energy called a solar flare.

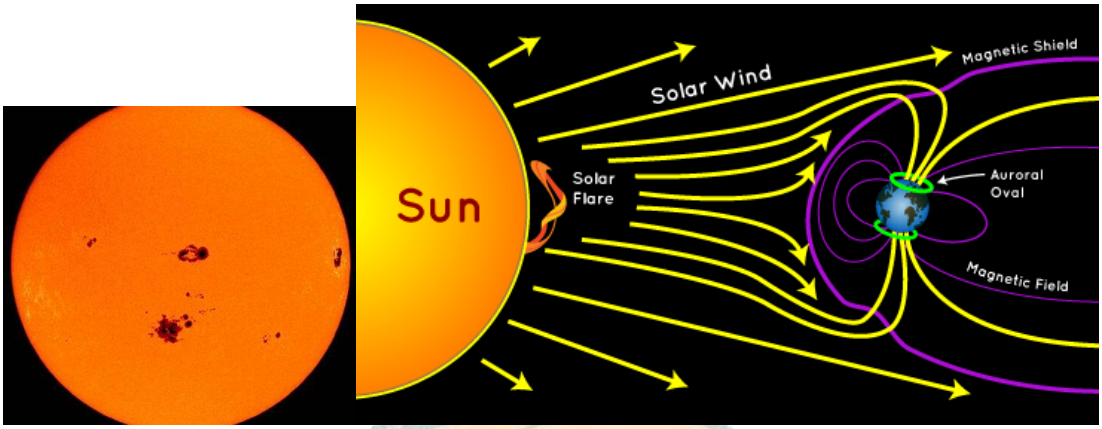
Which of the following statements is/are correct?

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

Q.73) Solution (b)

Basic Information:

- Sunspots (some as large as 50,000 km in diameter) are areas that appear dark on the surface of the Sun (photosphere). They appear dark because they are cooler than other parts of the Sun's surface.
- They are relatively cool because they form at areas where magnetic fields are particularly strong. These magnetic fields are so strong that they keep some of the heat within the Sun from reaching the surface.
- In every solar cycle, the number of Sunspots increases and decreases.
- The current solar cycle, which began in 2008, is in its 'solar minimum' phase, when the number of Sunspots and solar flares is at a routine low.
- The magnetic field lines near sunspots often tangle, cross, and reorganize. This can cause a sudden explosion of energy called a solar flare.



Statement Analysis:

Statement 1	Statement 2
Incorrect	**Correct**
Sunspots are areas of high magnetic activity.	They cause solar flares.

Q.74) Which one of the following is not a minor relief feature in the oceans?

a) Seamount
b) Oceanic Deep
c) Atoll
d) Mid oceanic ridge

Q.74) Solution (b)

Basic Information:

- **Minor Relief Features**

  Apart from the above mentioned major relief features of the ocean floor, some minor but significant features predominate in different parts of the oceans.
  - Mid oceanic ridges
  - Seamount
  - Submarine Canyons
  - Guyots
  - Atolls

Q.75) Consider the following statements about soils:

1. Urvaran soils are sterile soils, while usara soils are fertile.
2. Ideal ratio of N, P and K in soil should be 4:3:1.
3. Residual soils are generally found in areas where transportation of weathered material has not taken place.

Which of the following statements is/are correct?

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

Q.75) Solution (c)

Basic information:

- Ideal ratio of N, P and K should be 4:2:1 but India its 8:4:1. Urea is out of Nutrient based subsidy and so is misused. Due to the high misuse of urea there is nitrate pollution in ground and water.
- Soil Classification – Urvara vs Usara
  In India, soil had been classified from the ancient period itself even though it was not as detail as the modern classifications.
  In the ancient period, the classification was based on only two things; whether the soil is fertile or sterile. Thus the classifications were:
  Urvara [fertile]
  Usara [sterile]
- Residual soil is the material resulting from the in situ weathering of the parent rock.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Incorrect	**Incorrect**	**Correct**
The definition is reversed. Uravara is fertile and usara is	Ideal ratio of N, P and K should be 4:2:1.	Black soil is a residual soil in India, alluvial soil is not.

sterile.		

Q.76) Consider the following statements:

1. Polar vortex in northern hemisphere rotates in anti-clockwise direction.
2. Polar Easterlies in northern hemisphere rotate in clockwise direction.

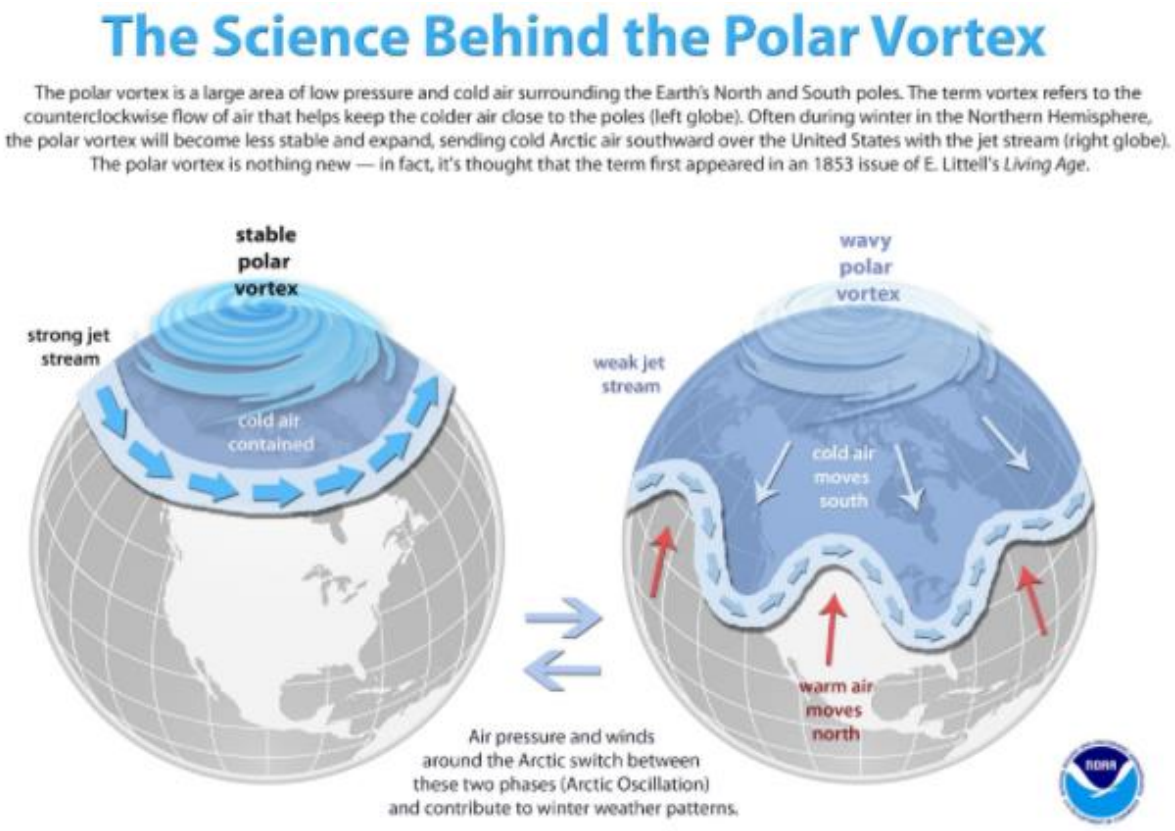
Which of the following statements is/are correct?

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

Q.76) Solution (c)

Basic information:

- The polar vortex is a large area of low pressure and cold air surrounding both of the Earth's poles. It was also known as the Polar Pig.
- The term "vortex" refers to the counterclockwise flow of air that helps keep the colder air near the Poles. It always exists near the poles, but weakens in summer and strengthens in winter.
- However, many times during winter in the northern hemisphere, the polar vortex will expand, sending cold air southward. This occurs fairly regularly during wintertime and is often associated with large outbreaks of Arctic air in the United States and portions of Europe and Asia.
- It is also not a feature that exists at the Earth's surface, rather it exists tens of thousands of feet up in the atmosphere.
- By itself, the only danger to humans is the magnitude of how cold temperatures will get when the polar vortex expands, sending Arctic air southward into areas that are not typically that cold.



Statement Analysis:

Statement 1	Statement 2
Correct	**Correct**
Aloft pressure condition above poles is low. When winds converge at this low pressure they move counter-clockwise in the northern hemisphere.	Polar Easterlies rotate in clockwise direction as winds diverge from polar surficial high pressure area.

Q.77) Consider the following statements about dense fog conditions in northern plains during late February in India:

1. This fog has occurred due to anticyclone build up.
2. Lack of western disturbances has amplified the occurrence of fog.

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.77) Solution (c)

Basic Information:

- Fog during time of the year for long 5 days is not common in northern plains.
- According to IMD officials, lack of western disturbances and build-up of an anti-cyclonic type of condition in the northern plains are the reasons.
- Anti-cyclone causes air to calm down, such calm air conditions lead to formation of advection fogs.
- The easterly winds blowing in this part of India provided the moisture which condensed to form dense fogs.

Mercury rising but city continues to see dense fog

EXPRESS NEWS SERVICE
NEW DELHI, FEBRUARY 19

DENSE FOG has hit Delhi several times over the past 10 days, in what meteorologists are calling a "unique" event. Dense fog events are not common in the second and third week of February, as temperatures start rising.

IMD officials said moist easterly winds, low wind speed, lack of western disturbances, and an easterly system over central India are responsible for the weather event, which has affected Delhi, Punjab and Haryana.

On Friday, flight departures were stopped between 7.15 am and 8.30 am and around 70 flights were delayed. As airlines have many pilots trained to land in very low visibility conditions, only departures were affected, not arrivals, airport officials said.

In the last 10 days, at least 15 flights have been affected each day due to low visibility levels, the official said. "Unusual and very dense fog coverage over the Delhi-Haryana-Punjab and Lahore-Amritsar-Hisar-Delhi belts has been seen persistently at the airport as well as in satellite data. It is an unusual spell in terms of its duration. It lasted over Punjab, especially at Amritsar, airport from 7-8 pm till around 10.30 am the next morning. In Delhi, it has caused

February has seen 5 hours of very dense fog. *Praveen Khanna*

very dense fog on 3-4 mornings. Never has there been such dense fog over large areas simultaneously for long durations daily for so many days, after February 10 in any winter. Dense fog in February is normal, but only in the first week. This year, this spell has occurred when night temperatures were 2 to 3 degrees Celsius above normal. This is unique," said RK Jenamani, DGM, National Weather Forecasting Centre.

According to officials, while very dense fog (visibility dropping to zero) was seen in December for only 1.5 to 2 hours, in February, there have already been 5 hours with very dense fog.

Among the main reasons for this trend, Jenamani said, was the absence of an active western disturbance affecting the plains: "This caused an anti-cyclone high pressure belt. Anti-cyclone causes stable boundary layer and inversion and calm winds at lower levels — the number one criteria for dense fog to persist."

High pollution levels — Delhi's air quality on Friday was very poor with the AQI at 311 — also contribute to fog formation.

Easterly wind patterns over central India have also contributed to bringing more moisture in Delhi's air. Usually at this time of the year, dry wind blows in from the west or northwest region. Moisture is a prerequisite for fog. On Thursday and Friday, the highest humidity recorded was 100% (during morning hours).

IMD has forecast moderate to dense fog on Saturday, and moderate fog on Sunday and Monday.

Statement Analysis:

Statement 1	Statement 2
Correct	Correct

Stable conditions will result in more radiation loss of heat, leading to formation of fogs.	Western disturbances can also cause fogs, but not during this time of the year.

Q.78) Consider the following statements about ozone holes:

1. It refers to a region in the stratosphere where the ozone layer becomes non-existent in certain months.
2. Arctic ozone hole is larger than the Antarctic ozone hole.
3. Ozone hole deteriorates in summer season to more profound effect of global warming.

Which of the following statements is/are incorrect?

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

Q.78) Solution (d)

Basic Information:

Ozone Hole:

- Ozone hole refers to a region in the stratosphere where the concentration of ozone becomes extremely low in certain months.
- Ozone (chemically, a molecule of three oxygen atoms) is found mainly in the upper atmosphere, an area called the stratosphere, between 10 and 50 km from the earth's surface.
- Ozone absorbs the harmful UltraViolet (UV) radiations from the sun eliminating a big threat to life forms on earth.
- The ozone holes most commonly refer to the depletions over Antarctica, forming each year in the months of September, October and November.
- In spring, temperatures begin to rise, the ice evaporates, and the ozone layer starts to recover.
- Arctic temperatures do not usually fall as low as in Antarctica, but sometimes, powerful winds flowing around the North Pole trap cold air within what is known as the polar

vortex— a circling whirlpool of stratospheric winds. This led to formation of ozone hole in the Arctic region.

- However, the size of hole was still small compared to that usually observed in the southern hemisphere.

Statement Analysis:

Note: Incorrect statements are asked.

Statement 1	Statement 2	Statement 3
Incorrect	**Incorrect**	**Incorrect**
Ozone layer thins considerably, but doesn't become non-existent.	Antarctic ozone hole is larger and permanent. Arctic is smaller and temporary.	Global warming has an effect on ozone layer, but ozone hole is more profound during polar winters.

Q.79) Consider the following statements:

1. Denmark Strait is the widest strait in the world.
2. Strait of Malacca lies in between Singapore and Borneo.
3. English Channel lies between England and Belgium.

Which of the following statements is/are correct?

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

Q.79) Solution (a)

Basic Information:

- Widest strait of world – Denmark strait (or Greenland strait) which separates Greenland from Iceland. It is 290 km wide at the narrowest point. Narrowest strait of world – Bosphorus strait, at the narrowest point the width is 800 m.

- The Strait of Malacca or Straits of Malacca is a narrow stretch of water, 580 mi in length, between the Malay Peninsula and the Indonesian island of Sumatra. As the main shipping channel between the Indian Ocean and the Pacific Ocean, it is one of the most important shipping lanes in the world.

- The English Channel, also called simply the Channel, is an arm of the Atlantic Ocean that separates Southern England from northern France and links to the southern part of the North Sea by the Strait of Dover at its northeastern end. It is the busiest shipping area in the world.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	**Incorrect**	**Incorrect**
It is a fact.	It lies between Malaysia and Singapore on one side and Sumatra on the other side.	Dover strait lies between UK and France.

Q.80) Consider the following statements:

1. Geosynclines are narrow oceanic tracts that can be associated with orogeny.
2. Ancient Tethys Sea can be understood as a geosyncline.

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.80) Solution (c)

Basic Information:

- Rigid masses representing the ancient nuclei of the present continents have remained stable for considerably longer periods of time.
- These rigid masses are supposed to have been surrounded by mobile zones of water characterized by extensive sedimentation. These mobile zones of water have been termed 'geosynclines' which have now been converted by compressive forces into folded mountain ranges.
- On an average, a geosyncline means a water depression characterized by sedimentation. It has now been accepted by majority of the geologists and geographers that all the mountains have come out of the geosynclines and the rocks of the mountains originated as sediments were deposited and later on consolidated in sinking seas, now known as geosynclines.

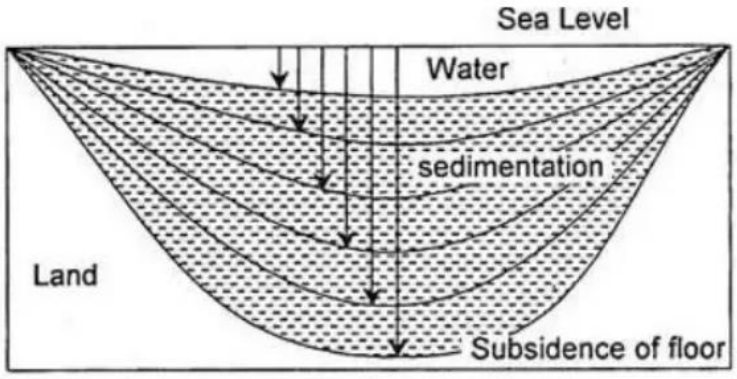


Fig. 11.2 : Sinking beds of geosynclines due to sedimentation and subsidence.

- Himalayan mountains have come out of a great geosyncline called the Tethys Sea and that the uplift has taken place in different phases.

Statement Analysis:

Statement 1	Statement 2
Correct	**Correct**
Orogeny can be explained on the basis of geosynclines.	Himalayas have originated from Tethys Sea, a geosyncline.

Q.81) With reference to "breaks in monsoon", consider the following statements:

1. There is sharp decline in rainfall in all parts of the country.
2. In northern India rains are likely to fail if the rain-bearing storms are not very frequent along the monsoon trough or the ITCZ over this region.
3. Over the west coast the dry spells are associated with days when winds blow parallel to the coast.

Which of the above statements is/are correct?

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

Q.81) Solution (c)

Basic Information:

- During the Monsoon season, there are periods when the Monsoon trough shifts closer to the foothills of Himalayas, which leads to sharp decrease in rainfall over most parts of the country.
- Normally the Monsoon trough runs from Sri Ganganagar in Rajasthan to Kolkata. During break Monsoon, the trough shifts closer to the foothills of Himalayas or sometimes not visible at all.
- Middle of August is most prone to 'breaks' and that too longer break. Consequently, Northeast and parts of South India receive good showers while rest of the country remains mainly dry.
- Rainfall ceases over most parts of India. Heavy Monsoon showers are witnessed over/near the foothills Himalayas, but not over the entire length simultaneously.
- The Himalayan region to the east of 85°E receives heavy Monsoon showers. Accordingly, Sub Himalayan West Bengal, Sikkim, Assam and Arunachal Pradesh are more susceptible to heavier rainfall. Bihar, Jharkhand and West Bengal also receive above normal rainfall during this period.
- In the Peninsular India, Rayalseema and Tamil Nadu receive good thundershowers.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Incorrect	**Correct**	**Correct**
There is sharp decline in rainfall in most parts of the country. Northeast and parts of South India receive good showers.	During Monsoon break, the trough shifts closer to the foothills of Himalayas or sometimes not visible at all.	One of the reasons for dry spell.

Q.82) Consider the following statements:

1. Over the years the share of Kharif crop has reduced in total crop production which is beneficial.
2. Jammu and Kashmir is the largest wool producer in India.
3. Mahila Kisan Sashaktikaran Pariyojana of Ministry of Women and Child Development seeks to improve the present status of women in Agriculture, and to enhance the opportunities available to empower her.

Which of the above statements is/are not correct?

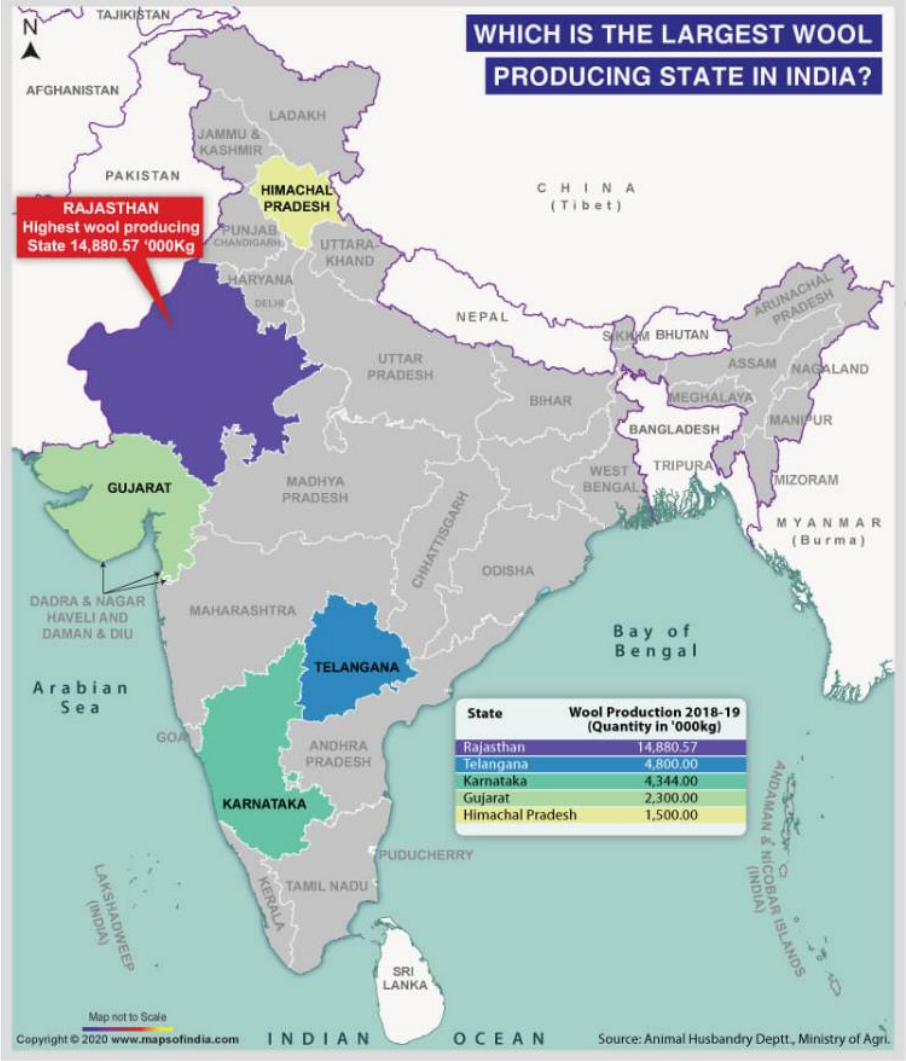
a) 1 only
b) 2 only
c) 2 and 3 only
d) 1, 2 and 3

Q.82) Solution (c)

Basic Information:

India is the 9th largest producer of wool in the world contributing, around 2 percent to the world's total wool production. Though the wool-producing industry is relatively a smaller sector as compared to cotton or man-made fibre industries, it still plays a significant role in the economic development and textile exports of the country.

There are many states in India engaged in the production of wool such as Karnataka, Jammu & Kashmir, Telangana, Gujarat, Himachal Pradesh, Uttar Pradesh, Haryana, Maharashtra, and Andhra Pradesh. But the state which produces the highest amount of wool is Rajasthan.



Statement Analysis:

Note: Incorrect statements have been asked.

Statement 1	Statement 2	Statement 3
Correct	**Incorrect**	**Incorrect**
Presently the share in crop production of Kharif crops is	Rajasthan represents 30% of the wool production in	The "Mahila Kisan Sashaktikaran Pariyojana"

49%, earlier it was 71%. The declining trend is beneficial since Rabi crops are more reliable since they are less rainfall dependent.	India.	(MKSP), a sub component of the Deendayal Antodaya Yojana-NRLM (DAY-NRLM) seeks to improve the present status of women in Agriculture, and to enhance the opportunities available to empower her. Department of Rural Development, Ministry of Rural Development is implementing agency.

Q.83) Which of the following is/are correctly matched?

Crater Lakes	Characteristic
1. Lonar	World's youngest and largest basaltic impact crater
2. Ramgarh	Largest impact crater lake in India
3. Dhala	Madhya Pradesh

Select the correct option using the codes given below:

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

Q.83) Solution (a)

Basic Information:

Lonar Lake:

- Impact basaltic crater in Maharashtra
- World's youngest and largest basaltic impact crater
- National Geo-Heritage Monument
- Diameter-1.2km

Ramgarh Crater Lake:

- It is a meteor impact crater of 3.5 kilometres diameter in Kota plateau of Vindhya Range located adjacent to Ramgarh village in Rajasthan.
- It is designated as a National Geological Monument.

Dhala Crater Lake:

- Madhya Pradesh
- It is the largest impact crater lake in India not basaltic though.

Q.84) Malayagiri peak is situated in which among the following states?

a) Karntaka
b) Odisha
c) Tamil Nadu
d) Andhra Pradesh

Q.84) Solution (b)

Basic Information:

Malayagiri, is a mountain peak in the Malayagiri hills subrange of the **Garhjat Range**. It is located near Pal Lahara town near Anugul in the district of Anugul of **Odisha**.

At 1,187 metres, it is not the highest mountain in Orissa; Deomali is taller at 1672 meters, followed by 1501 m high Mahendragiri.

Q.85) Consider the following statements:

1. Concordant drainage pattern, the path of the river is highly dependent on the slope of the river and topography.
2. Discordant drainage pattern, the river follows its initial path irrespective of the changes in topography.
3. The Narmada, Son and Mahanadi originating from Amarkantak Hills show annular pattern of drainage.

Which of the above statements is/are correct?

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

Q.85) Solution (a)

Basic Information:

Concordant drainage patterns:

- A drainage pattern is described as concordant if it correlates to the topology and geology of the area.
- In simple words, in a concordant drainage pattern, the path of the river is highly dependent on the slope of the river and topography.
- Concordant drainage patterns are the most commonly found drainage patterns and are classified into many consequent, subsequent, obsequent and resequent.

Discordant or Insequent drainage patterns:

- A drainage pattern is described as discordant if it does not correlate to the topology (surface relief features) and geology of the area.
- In simple words, in a discordant drainage pattern, the river follows its initial path irrespective of the changes in topography.
- Discordant drainage patterns are classified into two main types: antecedent and superimposed.
- Usually, rivers in both these drainage types flow through a highly sloping surface.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	**Correct**	**Incorrect**
The pattern of drainage which arises from and closely follows the trends of the underlying strata is called concordant drainage.	A pattern of drainage that bears no relation to the structure of the underlying rock.	The Narmada, Son and Mahanadi originating from Amarkantak Hills show **radial pattern of drainage**.

Q.86) Which of the following is/are correctly matched?

	Tribes	State
1.	Koraga	Karnataka
2.	Kurichchan	Tamil Nadu
3.	Rengma	Sikkim

Select the correct option using the codes given below:

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

Q.86) Solution (a)

Basic Information:

- The total population of Scheduled Tribes is 10.43 crore as per the Census 2011 which accounts for 8.6% of the total population of the country. The share of the Scheduled Tribe population in urban areas is a meagre 2.8%.
- Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Gujarat, Jharkhand, Chhattisgarh, Andhra Pradesh, West Bengal, and Karnataka are the State having a larger number of Scheduled Tribes. These states account for 83.2% of the total Scheduled Tribe population of the country. Assam, Meghalaya, Nagaland, Jammu & Kashmir, Tripura, Mizoram, Bihar, Manipur, Arunachal Pradesh, and Tamil Nadu, accounting for another 15.3% of the total Scheduled Tribe population. The share of the remaining states / UTs is negligible.
- The Scheduled Tribes in India form the largest proportion of the total population in Lakshadweep and Mizoram followed by Nagaland and Meghalaya.
- Madhya Pradesh has the largest number of scheduled Tribes followed by Orissa.
- Bastar district of Chattisgarh consists of the largest number of Scheduled Tribes.
- There are no Scheduled Tribes in Punjab, Delhi, Chandigarh, Pondicherry, and Haryana.

	Tribes	State
1.	Koraga	Karnataka
2.	Kurichchan	Kerala
3.	Rengma	Nagaland

Q.87) Consider the following statements:

1. India is the largest producer, consumer and importer of pulses.
2. Currently there are 5 pulses under MSP (Minimum Support Price).
3. India is the largest importer of palm oil.

Which of the above statements is/are correct?

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

Q.87) Solution (d)

Basic Information:

- Pulses are annual leguminous crops yielding between one and 12 grains or seeds of variable size, shape and colour within a pod, used for both food and feed. The term "pulses" is limited to crops harvested solely for dry grain, thereby excluding crops harvested green for food, which are classified as vegetable crops, as well as those crops used mainly for oil extraction and leguminous crops that are used exclusively for sowing purposes.
- Pulses account for around 20 per cent of the area under foodgrains and contribute around 7-10 per cent of the total foodgrains production in the country. Though pulses are grown in both Kharif and Rabi seasons, Rabi pulses contribute more than 60 per cent of the total production.
- Gram is the most dominant pulse having a share of around 40 per cent in the total production.

- Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and Karnataka are the top five pulses producing States.

Disposal of pulses under open market sale scheme by NAFED

	Year	MSP (₹/quintal)	Avg rate of disposal (₹/quintal)	Volume of OMSS disposal (lakh tonne)	Loss % over MSP
Tur (Arhar)	2018-19	5,675	3583.23	4.14	36.9
Gram	2018-19	4,620	4235.51	9.56	8.3
	2019-20	4,875	4014.45	3.87	17.7
	2020-21	5,100	4,862.08	7.25	4.7
Moong	2018-19	6,975	4,544.86	2.97	34.8
	2019-20	7,050	5,948.92	2.06	15.6
	2020-21	7,196	6,752.09	0.6	6.2
Masur	2018-19	4,475	3,565.55	0.92	20.3
	2019-20	4,800	4,428.13	0.3	7.7
Urad	2018-19	5,600	3,349.84	1.98	40.2
	2019-20	5,700	4,875.30	1.53	14.5
	2020-21	6,000	5,359.90	1.31	10.7

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	**Correct**	**Correct**
India is the largest producer (25% of global production), consumer (27% of world consumption) and importer (14%) of pulses in the world.	Government announces minimum support prices (MSPs) for 22 mandated crops and fair and remunerative price (FRP) for sugarcane. The mandated crops are 14 crops of the kharif season, 6 rabi crops and two other commercial	India is the world's largest importer of palm oil, driving **23 per cent** of total global demand from plantations in Indonesia and Malaysia.

	crops. Pulses (5) - gram, arhar/tur, moong, urad and lentil.	

Q.88) Gersoppa Falls is formed by which one of the following rivers?

a) Lohit
b) Tungabhadra
c) Sharavati
d) Krishna

Q.88) Solution (c)

Basic Information:

Gersoppa Falls is famously known as Jog Fall. It is created by the Sharavati River falling from a height of 253 meters. It is located in Sagara Taluk in Karnataka. It is one of the highest plunge waterfalls in India. It is a segmented waterfall which, depending on rain and season, becomes a plunge waterfall.

Q.89) Arrange the following from North to South

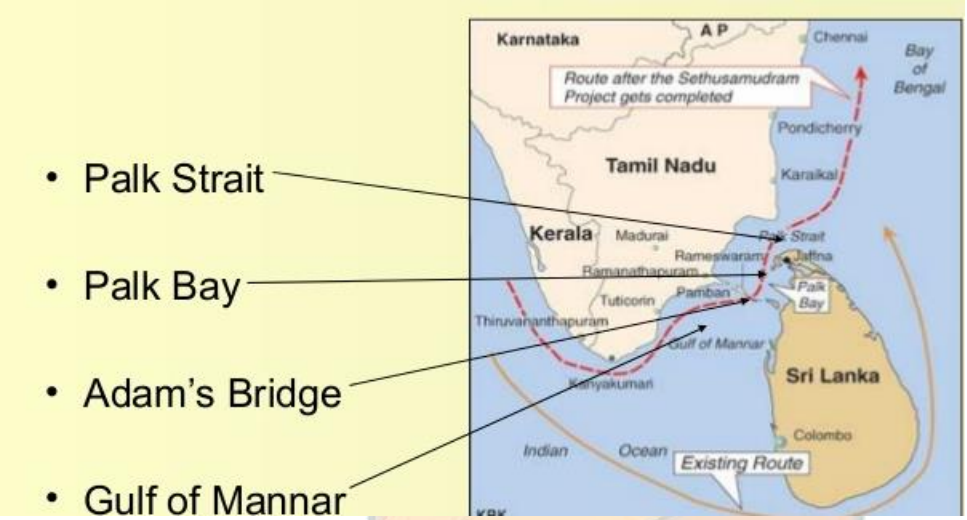
1. Gulf of Mannar
2. Palk Strait
3. Palk Bay
4. Adam's Bridge

Select the correct code:

a) 3-2-4-1
b) 3-4-1-2
c) 2-4-3-1
d) 2-3-4-1

Q.89) Solution (d)

Basic Information:



Q.90) Consider the following statements:

1. As per the 10th Agriculture Census (2015-16), the average size of operational holdings has decreased over the years.
2. The fragmentation of land holdings has resulted in adverse impact on agricultural yield.

Which of the above statements is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 and 2

Q.90) Solution (a)

Basic Information:

- The Census conducted at an interval of every five years by the Department of Agriculture, Cooperation and Farmers Welfare.
- Government of India has been conducting comprehensive Agriculture Census as a part of the World Agriculture Census Programme.
- The first comprehensive Census was carried out with Agriculture year 1970-71 as the reference.
- The Census is carried out by the States/Union Territories.

- The overall technical and administrative support is provided by the Ministry of Agriculture.
- It is a Central Sector Scheme being financed completely by the Government of India.
- The average size of operational holdings is highest in Nagaland (5 hectares) and lowest in Kerala (0.18 hectares).

Statement Analysis:

Statement 1	Statement 2
Correct	**Incorrect**
As per the latest information available from Agriculture Census, the average size of operational holdings has decreased from 2.28 hectares in 1970-71 to 1.84 hectares in 1980-81, to 1.41 hectares in 1995-96 and to 1.08 hectares in 2015-16.	Except in the years of adverse weather, rainfall, temperature conditions, natural calamities etc., the production and productivity (per hectare production) of agriculture crops in the country has been **generally increasing**, as observed in the table given below:

All-India production of Food grains

Sl. No.	Year	Production (Million Tonnes)
1	2000-01	196.81
2	2005-06	208.60
3	2010-11	244.49
4	2015-16	251.54
5	2016-17	275.11
6	2017-18	285.01
7	2018-19	285.21
8	2019-20	291.95*

** Second advance estimate*

Thus, there is no conclusive evidence to suggest that fragmentation of land holdings has resulted in adverse impact on agricultural production/yield.

Q.91) Arrange the following passes in east-to west direction:

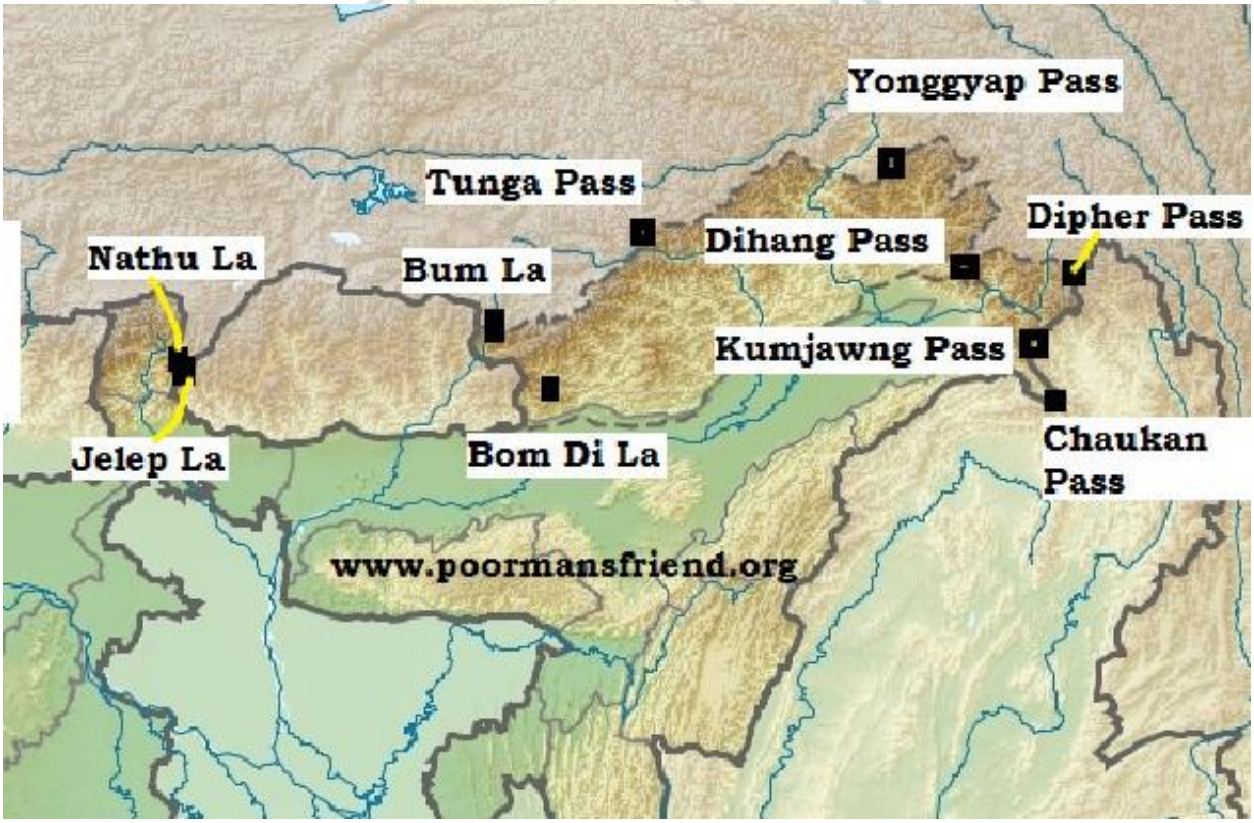
1. Tunga Pass
2. Yongvapp pass
3. Bum La
4. Chaukan Pass

Select the correct code from the given options:

a) 4-2-1-3
b) 4-2-3-1
c) 2-1-3-4
d) 2-4-1-3

Q.91) Solution (a)

Basic Information:



Q.92) Consider the following statements:

1. Dhuandhar fall lies on the Narmada River.
2. Doodh Dhara fall lies on the Godavari River.
3. Someshwar water fall lies on the Godavari River.

Which of the following statements is/are correct?

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

Q.92) Solution (d)

Basic Information:

- Someshwar Waterfalls, is one of the most favorite hangout places of Nasik. This small and beautiful waterfall is formed over the holy River Godavari.
- The Narmada River flows in a rift valley between the Vindhyas in the north and the Satpura in the south. The river forms a picturesque gorge in marble rocks. The Narmada forms the Dhaundhar waterfalls, southwest of Jabalpur.
- Dudh Dhara and Kapil Dhara waterfalls are located on the Narmada river inn the Amarkantak region.

Statement Analysis:

All the statements are fact based.

Q.93) The climate of India is mainly tropical because:

a) of the location of the Himalayas in its North.
b) major part of India lies within the tropics.
c) of the overpowering influence of India Ocean.
d) of the seasonal influence of jet streams.

Q.93) Solution (a)

Basic Information:

- India's geography and geology are climatically pivotal: the Thar Desert in the northwest and the Himalayas in the north work in tandem to create a culturally and economically important monsoonal regime.
- As Earth's highest and most massive mountain range, the Himalayas bar the influx of frigid katabatic winds from the icy Tibetan Plateau and northerly Central Asia. Most of North India is thus kept warm or is only mildly chilly or cold during winter; the same thermal dam keeps most regions in India hot in summer.
- Though the Tropic of Cancer—the boundary that is between the tropics and subtropics—passes through the middle of India, the bulk of the country can be regarded as climatically tropical.

Q.94) Consider the following statements:

1. At the east-most extreme of Arunachal Pradesh sun will rise approximately 3 hours ahead of that at the western-most edge of Gujarat.
2. 'Indian Standard Meridian' does not pass through the state of Odisha.

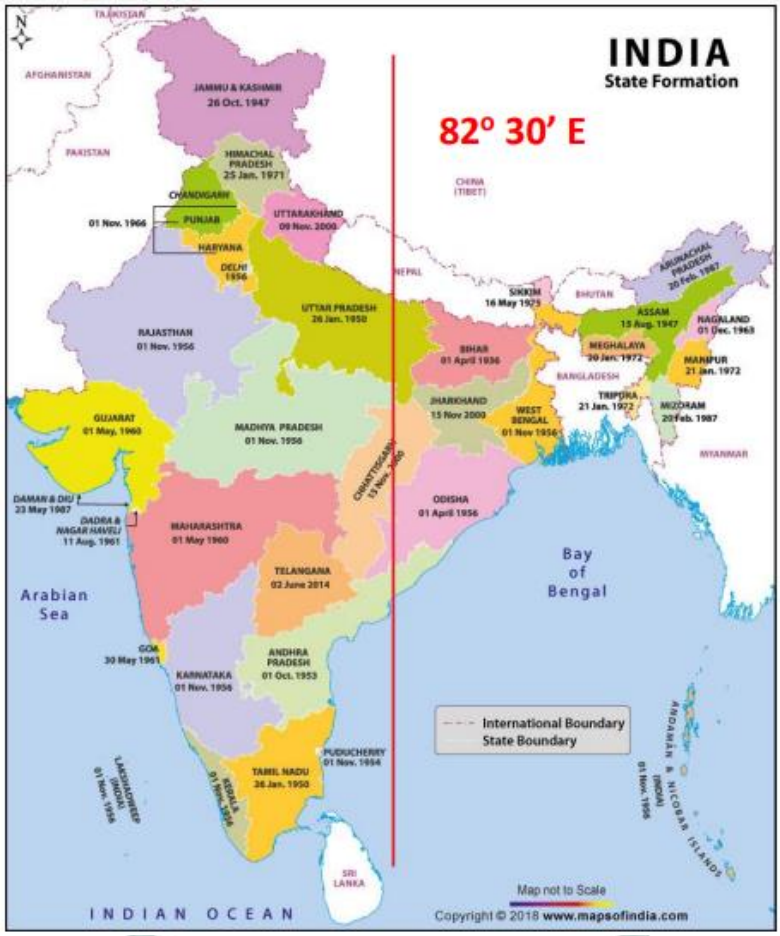
Which of the following statement is/are *incorrect*?

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

Q.94) Solution (c)

Basic Information:

- India is situated north of the equator between 8°4' north to 37°6' north latitude and 68°7' east to 97°25' east longitude. Each degree corresponds to 4 minutes; therefore sun will rise in Gujarat approximately 2 hours after that in Arunachal Pradesh.



Statement Analysis:

Note: Incorrect statements are asked.

Statement 1	Statement 2
Incorrect	**Incorrect**
Time difference is 2 hours and not 3 hours.	IST passes through 5 states; UP, MP, Chattisgarh, Odisha and Andhra Pradesh.

Q.95) Consider the following statements:

1. Myanmar is closest foreign country to the Andaman Islands.

2. Madhya Pradesh shares its boundary with maximum number of states.
3. China shares longest land boundary among all the neighboring states with India.

Which of the following statement is/are correct?

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

Q.95) Solution (d)

Basic Information:

Assam shares 2,743 km inter-state boundaries with Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya and West Bengal. This is the maximum for any state in India.

Land Border Country	Length (m) and (mi)
Bangladesh	4,096 kilometres (2,545 mi)
Bhutan	578 kilometres (359 mi)
China	3,488 kilometres (2,167 mi)
Myanmar	1,458 kilometres (906 mi)

Statement Analysis:

Statement 1	Statement 2	Statement 3
Correct	**Incorrect**	**Incorrect**
The distance is only 45km.	MP shares boundary with only 6 states.	China comes at second.

Q.96) Consider the following statements about wastelands in India:

1. Wastelands are areas of limited soil fertility and require a lot of investment to bring them under cultivation.
2. Rajasthan has the largest area under "wastelands" in India.

Which of the following statement is/are correct?

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

Q.96) Solution (b)

Basic Information:

Wasteland is that land which is presently lying unused or which is not being used to its optimum potential due to some constraints.

Classification National wastelands development board classifies wastelands into two categories:

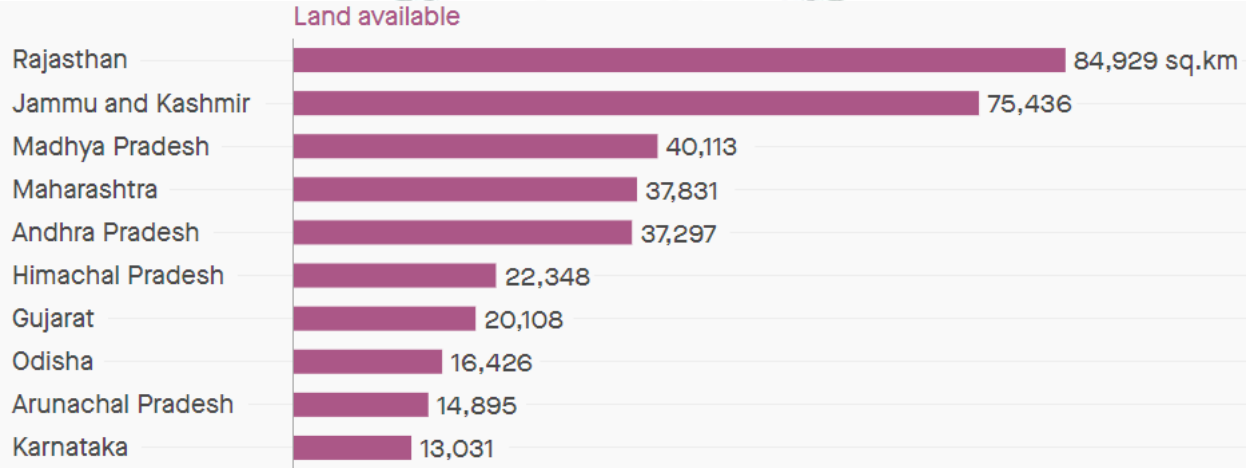
1. Cultivable wastelands
2. Uncultivable wastelands

The cultivable wastelands have been classified into

a) Gullied and/or ravenous lands
b) Undulating land without shrubs
c) Surface waterlogging land and marsh
d) Salt affected land
e) Shifting cultivation area
f) Degraded forestland
g) Degraded pasture / grazing land
h) Degraded forest plantations
i) Strip lands
j) Sand dunes k. Mining / industrial wastelands

Uncultivable wastelands which cannot be used for vegetation are classified as

a) Brown rocky / stony / shut of rocks
b) Steep sloppy areas
c) Snow covered and / or glacier lands



Statement Analysis:

Statement 1	Statement 2

Incorrect	Correct
Wastelands can be both fertile and less fertile.	It is a fact.

Q.97) Select the incorrect statement from the below given options:

a) Madhya Pradesh has the highest percentage of tribal population in India.
b) Largest number of scheduled castes population is located in Punjab.
c) Dravidian group of languages spoken in India does not constitute the largest part of the Indian population.
d) Angami tribe is located in the state of Nagaland.

Q.97) Solution (a)

Basic Information:

- Madhya Pradesh has the highest tribal population in India as per 2011 Census.
- Mizoram has the highest proportion of tribal population in India at 94.5%.
- The Angamis are a major Naga ethnic group native to the state of Nagaland in North-East India. The Angami Nagas are predominantly settled in Kohima District and Dimapur District of Nagaland and are also recognized as one of the ethnic groups in the state of Manipur.
- Indo-Aryan group of languages constitute the largest population share in India.

Q.98) Consider the following statements:

1. Forest cover is denoted by areas having tree density of more than 10% and area of one hectare or more in size.
2. Gujarat has shown maximum increase in the mangrove cover.

Which of the following statement is/are correct?

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

Q.98) Solution (c)

Basic Information:

- According to the 2019 report, the total forest cover of the country is 712,249 square kilometres (21.67 percent of India's total geographical area) slightly up from 708,273 sq. km (21.54 percent) in 2017. The tree cover of the country is 95,027 sq. km (2.89 percent of the total area) again slightly up from 93,815 sq. km. (2.85 percent) in 2017.
- As per the report, "forest cover" includes all tree patches which have canopy density more than 10 percent and area of one hectare or more in size, irrespective of their legal status and species composition. The term "Recorded Forest Area" (RFA) is used for lands which have been notified as "forest" under any government Act or rules or recorded as "forest" in the government records.
- The report spotlights that forest cover within the RFA category has shown a slight decrease of 330 sq. km., whereas forest cover outside the RFA has shown an increase of 4,306 sq. km., as compared to the previous assessment of 2017.
- The Mangrove ecosystems are unique & rich in biodiversity and they provide numerous ecological services. Mangrove cover has been separately reported in the ISFR 2019 and the total mangrove cover in the country is 4,975 sq km. An increase of 54 sq Km in mangrove cover has been observed as compared to the previous assessment of 2017. Top three states showing mangrove cover increase are Gujarat (37 sq km) followed by Maharashtra (16 sq km) and Odisha (8 sq km).

Statement Analysis:

Statement 1	**Statement 2**
Correct	**Correct**
This is the standard definition of "forest area". Forest cover is denoted by areas having tree density of more than 10% and area of one hectare or more in size.	It is a fact. Mangrove cover has been separately reported in the ISFR 2019 and the total mangrove cover in the country is 4,975 sq km. An increase of 54 sq Km in mangrove cover has been observed as compared to the previous assessment of 2017. Top three states showing mangrove cover increase are Gujarat (37 sq km) followed by Maharashtra

	(16 sq km) and Odisha (8 sq km).

Q.99) Which of the following statements regarding literacy in India are correct?

1. A person who can only read but cannot write is not defined literate.
2. Children below 7 years of age are not taken into consideration even if they are able to read and write.
3. For the purpose of census, a person is deemed literate if he or she can read and write with understanding in any of the 22 languages mentioned in the Eighth Schedule of the Constitution.
4. The fact that a district has attained hundred percent literacy does not mean that the entire population in the district is literate.

Which of the following statements is/are correct?

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

Q.99) Solution (d)

Basic Information:

- For the purpose of census 2011, a person aged seven and above, who can both read and write with understanding in any language, is treated as literate. A person, who can only read but cannot write, is not literate. In the censuses prior to 1991, children below five years of age were necessarily treated as illiterates.
- The results of 2011 census reveal that there has been an increase in literacy in the country. The literacy rate in the country is 74.04 per cent, 82.14 for males and 65.46 for females. Kerala retained its position by being on top with a 93.91 per cent literacy rate, closely followed by Lakshadweep (92.28 per cent) and Mizoram (91.58 per cent).
- Bihar with a literacy rate of 63.82 per cent ranks last in the country preceded by Arunachal Pradesh (66.95 per cent) and Rajasthan (67.06 per cent).

Statement Analysis:

Statement 1	Statement 2	Statement 3	Statement 4
Correct	**Correct**	**Incorrect**	**Correct**
Both capabilities of reading and writing are required.	It is one if the criteria.	Any language can be chosen. Language is not confined to the Eighth Schedule.	Even if 100% literacy is reached, it does not mean entire population is literate because of exclusion of below 7 years children.

Q.100) Which of the following statements are true with respect to iron ore?

1. Limestone and coal are important for smelting iron ore.
2. More than 20% of the world iron ore deposits are in India.
3. Odisha is at the top in the production of iron ore.
4. China is the largest buyer of Indian iron ore.

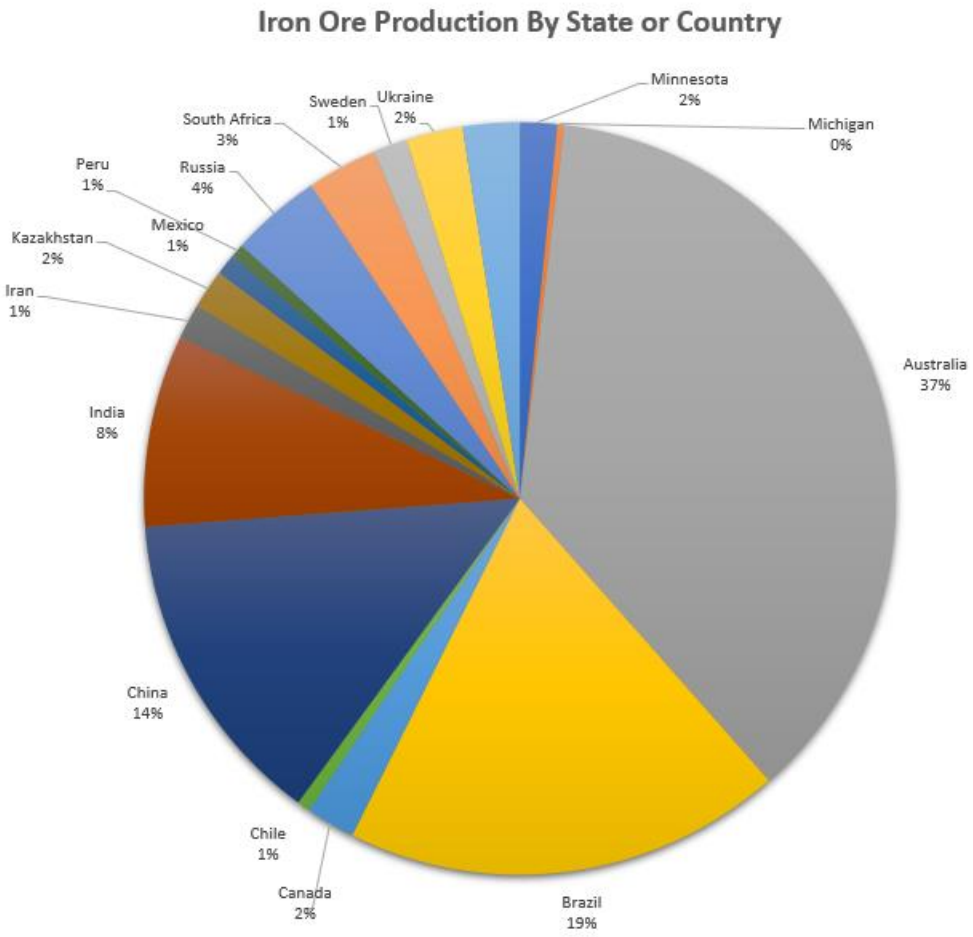
Which of the following statements is/are correct?

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

Q.100) Solution (c)

- Smelting is a process of applying heat to ore in order to extract a base metal. It is a form of extractive metallurgy.
- The reducing agent is commonly a fossil fuel source of carbon, such as coke—or, in earlier times, charcoal. The oxygen in the ore binds to carbon at high temperatures due to the lower potential energy of the bonds in carbon dioxide. Smelting most prominently takes place in a blast furnace to produce pig iron, which is converted into steel.

- As most ores are impure, it is often necessary to use a flux, such as **limestone**, to remove the accompanying rock gangue as slag. This calcination reaction also frequently emits carbon dioxide.



- China was India's largest purchase of iron ore in the fiscal year ended March 31, and the buyer reportedly has plans to import even more ore from the sub-continental Asian nation.
- China bought 30.8 million tons of iron ore from India during the period, two and a half times more than the year-ago period, according to the latest data from the Indian Ministry of Steel, while China Metallurgical News reported yesterday that China intends to buy even more from the country.
- Orissa is the largest producer of Iron ore in India. Orissa accounts for over half of India's iron ore production and produced 120 million tonnes during the 2019/2020 year.

Statement Analysis:

Statement 1	Statement 2	Statement 3	Statement 4
Correct	**Incorrect**	**Correct**	**Correct**
Coal for reduction and energy. Limestone for formation of slag.	India has only 2% of world's iron ore reserves.	Odisha is largest producer of iron ore in India.	India exports its maximum iron ore to China.