UPSC PSC Prelims

Geography

Question Bank

UPSC Civil Services Preliminary Exam 2020 – 60 Days Revision

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60 Days Online Revision Test Programme

- 45 Days Concept cum Revision Daily Test
- 17 Days Prelims Current Affairs Tests
- Special Test on Economic Survey & Budget
- Special Test on India Year Book & Mapping
- Prelims Mock Test Series
- Prelims Study Material

Programme Approach

1. UPSC Prelims is all about managing micro detailing of subjects & handling negative marking. As aspirants tend to get confused about what to study and how to study (i.e. up to what level/extent) for Civil Services Prelims, this programme has been designed to help students to cover whole syllabus effectively within a stipulated time and also have an assessment through test series.
2. This programme covers the complete syllabus including – History, Geography, Polity, Economy, Science, Environment and Current Affairs with the correct mix of Fundamental and Advance level of study to cover micro detailing of sub-topics & current developments.
3. 44 Days Concept cum Revision tests for covering basic concepts. In each Test there will be a test of 100 questions (based on the topics given in schedule) followed by Class to cover basic aspects of each topic and approach to handle questions.
4. 17 days Current Affairs Test covering last 2 years current topics/issues supplemented by notes.
5. Current Affairs Test will also include updates on Indian Year Book (IYB), PIB, Budget and Economic Survey.
6. Special Test on Mapping (World & Indian Geography).
7. Complete Prelims Study Material & Prelims Current Affairs Material will also be provided (It will cover Current Affairs of past 2 years). UPSC Prelims 2020 Revision

Geography

Question Bank

Expected MCQs for UPSC PSC Exams

Q.1) Consider the following statements with reference to the structure of the atmosphere:

1. The air temperature increases with height in the mesosphere.
2. Radio waves get reflected back to the earth in the mesosphere.

Which of the above statements is/are correct?

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

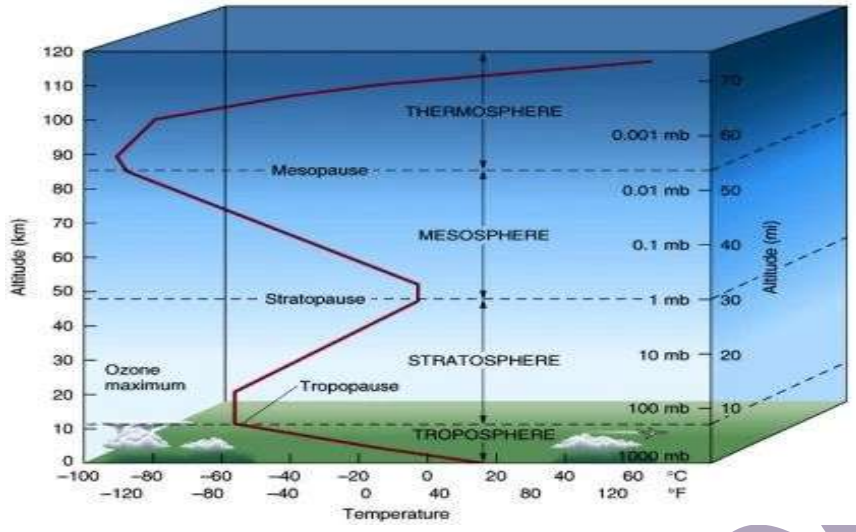
Q.1) Solution (d)

Basic Information:

Structure of the Atmosphere:

The atmosphere can be divided into five layers according to the diversity of temperature and density.

1. Troposphere
2. Stratosphere
3. Mesosphere
4. Thermosphere (Ionosphere)
5. Exosphere.



Troposphere:

- It is the lowermost layer of the atmosphere.
- The height of this layer is about 18 km on the equator and 8 km on the poles.
- The thickness of the troposphere is greatest at the equator because heat is transported to great heights by strong convection currents.
- Troposphere contains dust particles and water vapour.
- All kinds of weather changes take place only in this layer.
- The environmental temperature decreases with increasing height of the atmosphere. It decreases at the rate of 1 degree Celsius for every 165 m of height. This is called Normal Lapse Rate.
- The zone separating the troposphere from the stratosphere is known as tropopause.
- The air temperature at the tropopause is about – 80 degree Celsius over the equator and about – 45 degree Celsius over the poles. The temperature here is nearly constant, and hence, it is called tropopause.

Stratosphere:

- It extends up to a height of 50 km.
- The temperature remains almost the same in the lower part of this layer up to the height of 20 km. After this, the temperature increases slowly with the increase in the height. The temperature increases due to the presence of ozone gas in the upper part of this layer.

- The air blows horizontally here. Therefore this layer is considered ideal for flying aircraft.
- The upper limit of the stratosphere is known as Stratopause

Mesosphere:

- It extends up to a height of 80 km.
- In this layer, the temperature starts decreasing with increasing altitude and reaches up to – 100 degree Celsius at the height of 80 km
- Meteors or falling stars occur in this layer.
- The upper limit of the mesosphere is known as mesopause.

Thermosphere:

- This layer is located between 80 and 400 km above the mesopause.
- It contains electrically charged particles known as ions, and hence, it is known as the ionosphere.
- Radio waves transmitted from the earth are reflected back to the earth by this layer and due to this, radio broadcasting has become possible.
- The temperature here starts increasing with heights.

Exosphere:

- The exosphere is the uppermost layer of the atmosphere.
- Gases are very sparse in this sphere due to the lack of gravitational force. Therefore, the density of air is very less here.

Statement Analysis:

Statement 1	Statement 2
Incorrect	**Incorrect**
In the mesosphere, temperature decreases with increasing height.	Radio waves are reflected back to earth in the Ionosphere which is a part of Thermosphere.

Q.2) Which of the following is the reason for jets to fly in the stratosphere?

a) Ozone present in the stratosphere can be used as fuel in jets.

b) Stability of the stratosphere.

c) The minus degree temperature in the troposphere makes it impossible for jets to fly.

d) In stratosphere jets go undetected due to density variations.

Q.2) Solution (b)

Commercial jet aircraft fly in the lower stratosphere to avoid the turbulence which is common in the troposphere below. The stratosphere is very dry. Air here contains little water vapour. Because of this, few clouds are found in this layer. Almost all clouds occur in the lower, more humid troposphere. Hence, the stratosphere is relatively stable.

Q.3) With respect to the dust particles found in the atmosphere, consider the following statements.

1. Higher concentration of dust particles are found in subtropical and temperate regions.
2. Dust particles are found only in the lower stratosphere.

Which of the above statements is/are correct?

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

Q.3) Solution (a)

Basic Information:

- Small solid particles like sea salts, fine soil, smoke-soot, ash, pollen etc constitute the dust particles in the atmosphere.
- Dust particles act as hygroscopic nuclei around which water vapour condenses to produce clouds.

Statement Analysis:

Statement 1	Statement 2

Correct	Incorrect

The higher concentration of dust particles is found in the sub-tropical and temperate regions due to the dry winds in comparison to the equatorial and polar regions.	Usually, dust particles are found in the lower atmosphere. But sometimes the conventional currents carry them to higher levels.

Q.4) Consider the following statements.

1. The insolation received by the earth is in long wave forms and the earth radiates energy to the atmosphere in the short-wave form.
2. 'Loo' in northern India is the result of an advection process.

Which of the above statements is/are correct?

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

Q.4) Solution (b)

Basic Information:

Insolation:

1. The energy received by the earth is known as incoming solar radiation or 'Insolation'.
2. Insolation is determined by various factors like

- The rotation of earth on its axis.
- The angle of inclination of the Sun's rays.
- The length of the day.
- The transparency of the atmosphere.
- The configuration of the land in terms of its aspects.

3. The first three factors have a larger influence than the last two.

Advection:

There are different ways of heating and cooling of the atmosphere.

Conduction: It takes place when two bodies of unequal temperature are in contact with one

another. Heat transfer takes place from warmer body to cooler body.

Convection: The process of vertical heating of the atmosphere is known as convection. The air in contact with the earth rises vertically on heating in the form of currents and further transmits the heat to the atmosphere by convection.

Advection: The transfer of heat through horizontal movement of the air is called advection. In middle latitudes most of the diurnal (day and night) variation in daily weather are caused by advection alone.

Statement Analysis:

Statement 1	Statement 2
Incorrect	**Correct**
Earth receives heat from the Sun in the form of short-wave radiations. It emits the terrestrial radiations in the form of long wave radiations.	In Tropical regions particularly in Northern India during summer, local winds called 'loo' are the result of an advection process.

Q.5) 'Albedo' refers to the overall reflectivity of an object or surface. Arrange the following in descending order in terms of their "ALBEDO" value

1. Clouds
2. Snow
3. Forest
4. Charcoal
5. Deserts

Choose the correct code:

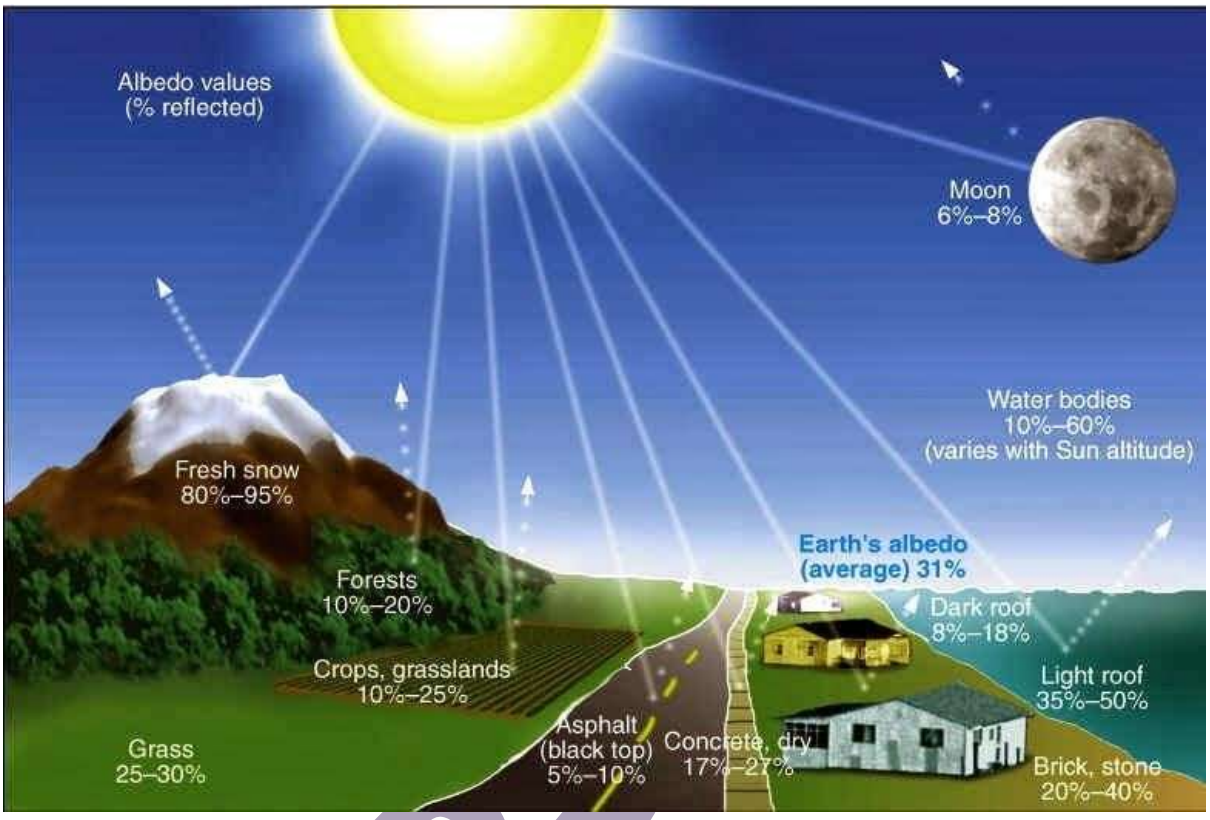
a) 4-3-5-1-2
b) 4-3-5-2-1
c) 2-1-5-3-4
d) 2-1-5-4-3

Q.5) Solution (c)

Basic Information:

The term albedo refers to the overall reflectivity of an object or surface, usually described as a

percentage the higher the albedo, the greater the amount of radiation reflected. Snow, for example, has a very high albedo (as much as 95 percent), whereas a dark surface, such as dense forest cover, can have an albedo as low as 14 percent.



Q.6) With respect to the Coriolis Force, consider the following statements.

1. Coriolis force is maximum at the equator and minimum at the poles.
2. The speed of an object increases due to the coriolis force effect.

Which of the above statements is/are correct?

a) 1 only

b) 2 only

c) 1 and 2

d) Neither 1 nor 2

Q.6) Solution (d)

Basic Information:

Coriolis effect: It is a deflecting force experienced due to rotation of earth. Because of coriolis the air appears to turn towards its right in the northern hemisphere and towards its left in the

southern hemisphere. The coriolis always acts in the perpendicular direction of the motion of air. It is zero at the equator and increases towards the poles.

The following are four basic points to remember about the Coriolis Effect:

1. Regardless of the initial direction of motion, any freely moving object appears to deflect to the right in the Northern Hemisphere and to the left in the Southern Hemisphere.
2. The apparent deflection is strongest at the poles and decreases progressively toward the equator, where the deflection is zero.
3. The Coriolis effect is proportional to the speed of the object, and so a fast-moving object is deflected more than a slower one.
4. The Coriolis effect influences direction of movement only; it does not change the speed of an object.

Statement Analysis:

Statement 1	Statement 2
Incorrect	**Incorrect**
Coriolis force effect is minimum at equator and increases towards the pole	Coriolis affects only the direction of movement of an object but not its speed.

Q.7) What does the term 'Geostrophic Wind" refers to?

a) It is the wind blowing parallel to the isobar due to the balance between the pressure gradient force and the Coriolis force.

b) It is the wind blowing perpendicular to the isobars due to the balance between the pressure gradient force and the Coriolis force.

c) It is the wind blowing in higher altitudes of the equator.

d) It is the wind blowing in the higher altitudes of the sub-tropical regions.

Q.7) Solution (a)

Basic Information:

- The Geostrophic wind is the theoretical wind that would result from an exact balance between the Coriolis force and the pressure gradient force.
- The winds in the upper atmosphere, 2 - 3 km above the surface, are free from the frictional effect of the surface and are controlled mainly by the pressure gradient and the Coriolis force. When isobars are straight and when there is no friction, the pressure gradient force is balanced by the Coriolis force and the resultant wind blows parallel to

the isobar. This wind is known as the Geostrophic wind.

Q.8) With respect to the local winds which among the following are correctly matched?

	Local Winds	**Country/region**
1.	Chinook	America
2.	Khamsin	Libya
3.	Foehn	Spain
4.	Loo	India

Choose the correct option.

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

8. Solution (c)

Basic Information:

List of local winds:

Local Wind	**Country/Region**
Chinook	America
Foehn	Switzerland
Loo	India
Harmattan	Sahara desert
Shamal	Mesopotamia
Norwester	New-Zealand

Khamsin	Egypt
Gibli	Libya
Chilli	Tunisia
Mistral	Spain and France
Bora	Adriatic sea
Blizzard	Canada

Q.9) Which of the following clouds are considered as high-altitude clouds?

1. Cirrostratus
2. Altostratus
3. Cirrocumulus.
4. Stratocumulus
5. Cirrus.

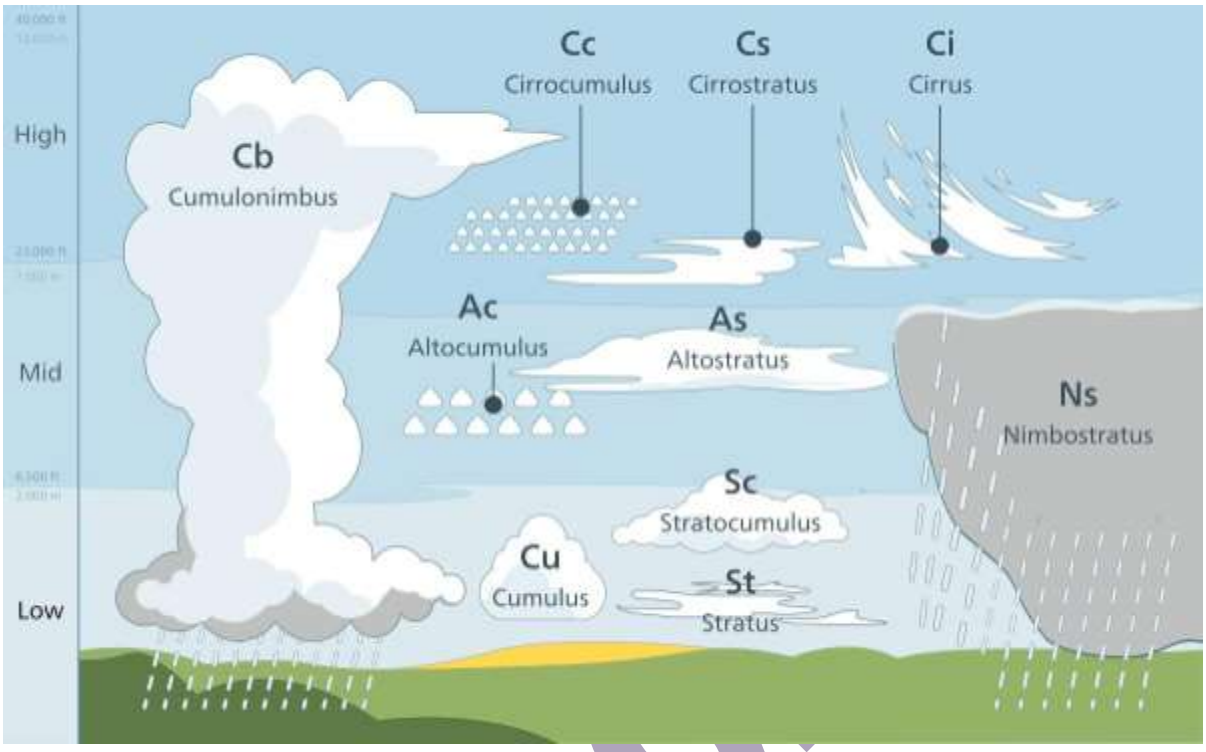
Choose the correct option:

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

Q.9) Solution (c)

Basic Information:

Type of Clouds	Height	Examples
High Altitude	Above 20,000ft from land surface	Cirrus, Cirrostratus, Cirrocumulus
Middle Altitude	6500-20000 ft	Altostratus, Altocumulus
Low Altitude	Upto 6500 ft	Stratus, Stratocumulus, Nimbostratus



Q.10) With respect to the extra-tropical cyclones and tropical cyclones, consider the following statements.

1. The extra tropical cyclones move from west to east but the tropical cyclones move from east to west.
2. The extra tropical cyclones form over both land and sea whereas tropical cyclones form only over sea.

Which of the above statements is/are correct?

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

Q.10) Solution (c)

Basic Information:

- The systems developing in the mid and high latitudes beyond tropics are called the extra tropical cyclones.
- Tropical cyclones are violent storms that originate over oceans in tropical areas and move over to the coastal areas.

- Major differences between the extra tropical cyclone and the tropical cyclone include
    1. The extra tropical cyclones have a clear frontal system which is not present in the tropical cyclones.
    2. The extra tropical cyclones cover a large area and can originate over the land and sea. Whereas the tropical cyclones originate only over the seas and on reaching the land they dissipate.
    3. The extra tropical cyclones move from west to east but tropical cyclones move from east to west.

Statement Analysis:

Statement 1	Statement 2
Correct	**Correct**
Extra tropical cyclones move from west to east and tropical cyclones from east to west.	Tropical cyclones form overseas only while extra tropical cyclones can originate both over land and sea.

Q.11) Consider the following conditions.

1. Their climate has a concentration of rainfall in winter with onshore westerlies.
2. They have bright sunny weather with hot dry summers and wet mild winters.
3. Their climate assists orchard farming.

Which type of climate is described above?

a) Steppe climate.
b) Sudan climate.
c) Laurentian climate
d) Mediterranean climate.

Q.11) Solution (d)

Basic Information:

- Mediterranean climate is a very pleasant climate with warm, dry summers and cool, mild winters.
- Mediterranean climate is found between the 30 degrees and 45-degree latitudes. This climate is often found on the western sides of continents.
- The majority of the regions with Mediterranean climates have relatively mild winters and very warm summers. However, winter and summer temperatures can vary greatly

between different regions with a Mediterranean climate.

- During summer, regions of Mediterranean climate are strongly influenced by the subtropical ridge which keeps atmospheric conditions very dry with minimal cloud coverage.
- In winter, the subtropical ridge migrates towards the equator, making rainfall much more likely. As a result, areas with this climate receive almost all of their precipitation during their winter and spring seasons, and may go anywhere from 3 to 6 months during the summer and early fall without having any significant precipitation.
- The region is famous for wine orchards.

Q.12) With respect to the cyclones and anticyclones, consider the following statements.

1. Cyclones have high pressure at the centre while anticyclones have low pressure at the centre.
2. Winds blow anticlockwise in the northern hemisphere in cyclones and clockwise in anticyclones.

Which of the above statements is/are correct?

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

12. Solution (b)

Basic Information:

Cyclones:

- Cyclones are violent storms that originate over oceans in tropical areas and move over to the coastal areas. Cyclones are areas of low pressure.
- In Cyclones, air moves from areas of high pressure to low pressure that produce a convergence at the surface. This converging air is forced upwards into the atmosphere, creating a divergence aloft. As warm, moist air is sucked into the low and forced aloft, it produces an unstable atmosphere. This warm, moist air cools, condenses and forms storm clouds.

Anti-cyclones:

- Anticyclones are areas of high pressure. In anticyclones, the sinking air spreads out when it reaches the ground producing a divergence at the surface. Aloft, air rushes in to fill the void, creating a convergence aloft.

- Anticyclones produce a stable atmosphere.
- Anticyclones, or highs, are also referred to as blocking highs because they tend to force areas of low pressure to travel around them.

Statement Analysis:

Statement 1	Statement 2
Incorrect	**Correct**
The major difference between the cyclones and anticyclones is that the cyclones are low pressure systems. Winds blow from outside towards inside i.e, from high pressure	Winds blow anti-clockwise in the Northern hemisphere and clockwise in the southern hemisphere in cyclones due to coriolis force. While in anticyclones winds blow clockwise

Outside to low pressure at the centre. While this is opposite in the anticyclones.	In the northern hemisphere and anti-clockwise in southern hemisphere.

Q.13) With respect to the westerlies, consider the following statements.

1. They are much stronger in the Northern hemisphere than in the southern hemisphere.
2. They bring much precipitation to the western coasts of the continents.

Which of the above statements is/are correct?

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

Q.13) Solution (b)

Basic Information:

Westerlies:

- The westerlies are the winds blowing from the sub-tropical high pressure belts towards the sub polar low pressure belts.
- They blow from south-west to north-east in the northern hemisphere and north-west to

south-east in the southern hemisphere.

- The westerlies are best developed between 40 degree South and 60 degree South latitudes. These latitudes are often called Roaring Forties, Furious Fifties, and Shrieking or stormy Sixties.
- The pole ward boundary of the westerlies is highly fluctuating. There are many seasonal and short-term fluctuations. These winds produce wet spells and variability in weather.

Statement Analysis:

Statement 1	Statement 2
Incorrect	**Correct**

The westerlies of the southern hemisphere are stronger and persistent due to the vast expanse of water, while those of the northern hemisphere are irregular because of uneven relief of vast land-masses.	Since they blow from southwest to North-east in the Northern hemisphere and north-west to south east in the southern hemisphere, they bring much precipitation to the western coasts. The eastern coasts remain dry since winds are offshore.

Q.14) Consider the following statements with respect to tornados

1. Tornadoes are the manifestations of the atmosphere's adjustment to varying energy Distribution
2. Tornadoes only occur in the equatorial regions due to convectional rains.

Which of the above statements is/are correct?

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

Q.14) Solution (a)

Basic Information:

- Tornadoes are vertical funnels of rapidly spinning air.
- Their winds may top 250 miles an hour and can clear a pathway a mile wide and 50 miles long.

- Tornadoes are born in thunderstorms and are often accompanied by hail.
- Thunderstorms are caused by intense convection on moist hot days. A thunderstorm is a well-grown cumulonimbus cloud producing thunder and lightning.

Statement Analysis:

Statement 1	Statement 2

Correct	Incorrect
The severe storms like thunderstorms and tornadoes are manifestations of the nature's adjustment to energy distributions.	Tornadoes can occur anywhere in the world. But they are usually found in the middle latitudes.

Q.15) Consider the following statements with respect to Climates of the world.

1. In the tropical climates, the mean monthly temperature throughout the year is over 18 degree centigrade.
2. In the warm temperate climates, the mean temperature of the coldest month is between 18 degree centigrade to minus 3 degree centigrade

Choose the correct option:

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

Q.15) Solution (c)

Basic Information:

The Various features of the climate of the world include.

- Tropical climates, where the mean monthly temperature throughout the year is over 18°C.
- Dry climates, where precipitation is very low in comparison to temperature, and hence, dry. If dryness is less, it is semi- arid (S); if it is more, the climate is arid (W).
- Warm temperate climates, where the mean temperature of the coldest month is between

18°C and minus 3°C.

- Cool temperate climates, where the mean temperature of the warmest month is over 10°C, and the mean temperature of the coldest month is under minus 3°C.
- Ice climates/Cold Climates, where the mean temperature of the warmest month is less than 10°C.

Statement Analysis:

Statement 1	Statement 2
Correct	**Correct**
Mean Monthly temperature in tropical areas is above 18 degree centigrade throughout the year.	The coldest month in the warm temperate climate have temperatures between 18 degree and minus 3 degree centigrade.

Q.16) What does the term 'Water Spouts' in meteorology refer to?

a) Tornadoes over the land surfaces.

b) Tornadoes over the sea surfaces.

c) Tornadoes over the tropical regions.

d) Tornadoes over the temperate regions.

Q.16) Solution (b)

Explanation:

- Tornadoes are vertical funnels of rapidly spinning air.
- Their winds may top 250 miles an hour and can clear a pathway a mile wide and 50 miles long.
- Tornadoes are born in thunderstorms and are often accompanied by hail.
- Tornadoes over the sea surfaces are called "Water Spouts".

Q.17) Higher temperature is experienced in the sub-tropical areas than the equatorial areas due to which of the following reasons?

a) Sub-tropics have high pressure.
b) Sub-tropics experience more influence of warm ocean currents than the equatorial regions.
c) Sub-tropical areas have less cloud cover than the equatorial regions.
d) Sub-tropics have more off-shore winds than the equatorial regions.

Q.17) Solution (c)

Explanation:

Equatorial areas have rainfall almost every day. The cloud cover is more in these regions. But the subtropical areas have lesser cloud cover and lesser rainfall than the equatorial areas. Hence the temperature is higher in subtropics than the equatorial regions.

Q. 18) Stratocumulus clouds are responsible for many meteorological events. Consider the following statements with respect to the stratocumulus clouds.

1. Stratocumulus clouds keep the oceans warm during the night time.
2. Stratocumulus clouds are usually formed due to the evaporation of the sea water.

Which of the above statements is/are correct?

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

Q.18) Solution (c)

Basic Information:

- Stratocumulus clouds are low-level clumps or patches of cloud varying in colour from bright white to dark grey.
- They are the most common clouds on earth recognised by their well-defined bases, with some parts often darker than others.
- Marine stratocumulus clouds cover about 20 percent of the earth's surface and reflect About 30 percent of the sun's radiation

Statement 1	Statement 2

Correct	Correct
Clouds deflect the radiation of the earth back into the earth. Hence, the oceans below the vast expanse of stratocumulus clouds remain warm during night time.	They are usually found above the sea surfaces and formed due to the evaporation of the sea water.

Q.19) Consider the following statements with respect to the location of the hot deserts.

1. Hot deserts are the results of the offshore trade winds in the western margin of the continents.
2. Majority of the hot deserts are formed between 15 and 30 degree latitudes in both the hemispheres.

Which of the above statements is/are correct?

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

Q.19) Solution (c)

Basic Information:

- Hot deserts are hot arid areas with little rainfall, extreme temperature and sparse vegetation.
- Generally, the deserts that are found in the tropical and subtropical regions between the 15 degrees and 30 degrees north and south of the equator are hot deserts.
- The annual rainfall in a hot desert is less than 250 mm that makes them very dry.
- Most of the hot deserts tend to lose water continuously as they are located on the path of trade winds. Their aridity is mainly due to the off-shore trade winds, so they are also known as Trade Wind Deserts.
- They are also devoid of cover of clouds due to the strong winds.
- The maximum temperature in a hot desert generally remains over 40 degree centigrade.

Statement Analysis:

Statement 1	Statement 2
Correct	**Correct**
Most of the hot deserts are located below the subtropical high pressure belts between 15 degree and 30 degree latitudes in both the hemispheres.	Hot deserts are created in the western margins of the continents where the trade winds are offshore. Hence they receive little rainfall.

Q.20) Which of the following conditions are favourable for formation of temperature inversion?

1. Short nights
2. Clear skies
3. Calm and stable air

Choose the correct option:

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

Q.20) Solution (b)

Basic Information:

Temperature Inversion:

- Temperature inversion is a condition in the atmosphere in which a layer of cool air at the surface is overlain by a layer of warmer air.
- Normally, temperature decreases with increase in elevation. It is called normal lapse rate. At times, the situation is reversed and the normal lapse rate is inverted resulting in the Inversion of temperature
- Inversion is usually of short duration.
- A long winter night with clear skies and still air is an ideal situation for inversion.

Q.21) Arrange the following in ascending order based on the annual yield of water in theriver system.

1. Ganga
2. Mahanadi
3. Godavari
4. Brahmaputra

Choose the correct option:

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

Q.21) Solution (b)

Basic Information:

According to an estimate made by S.P.Dasgupta the annual yield of water in the rivers of the country is 1,858,100 million cubic metres (calculated for basin area in Indian Territory only).

The percentage contribution of each river system is as follows.

River	Percentage contribution
Brahmaputra	33.8
Ganga	25.2
Godavari	6.4
Indus	4.3
Mahanadi	3.6
Krishna	3.4

Narmada.	2.9

Q.22) Consider the following statements.

1. The Himalayan Rivers are examples of the antecedent drainage.
2. Over 90 percent of the water carried by the Indian rivers is housed into the Arabian Sea.

Which of the above statements is/are correct?

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

Q.22) Solution (a)

Antecedent rivers:

The Rivers that existed before the upheaval of the Himalayas and cut their courses southward by making gorges in the mountains are known as the antecedent rivers.

Drainage pattern:

- The Indian Drainage is divided into two major drainage systems based on the orientation of the sea. These include 1. The Bay of Bengal drainage and 2. Arabian Sea drainage.
- About 77 percent of the drainage area of the country is oriented towards the Bay of Bengal. And over 23 percent of the country's drainage area is oriented towards the Arabian Sea.

Statement 1	**Statement 2**
Correct	**Incorrect**
The gorges of the Indus, the Satluj, the Alaknanda, the Gandak, the Kosi, and Brahmaputra clearly indicate that these rivers are older than the mountains themselves. Hence they are called antecedent rivers.	Over 90 percent of the water carried by the Indian rivers is housed into the Bay of Bengal not the Arabian sea.

Q.23) "Singge Khabab" is the name of the following river?

a) Jhelum
b) Beas.
c) Indus
d) Ravi

Q.23) Solution (c)

Indus River:

The Indus River rises near the Mansarovar Lake from the glaciers of the Kailash range in western Tibet at an elevation of 5,182 mts. It flows for a distance of 257 kms in North west direction in the trans-Himalaya region under the name of Singge Khabab. Further it enters India and continues its flow in the same direction between the Ladakh and Zanskar ranges. The major tributaries include the Jhelum, Ravi, Beas, Sutlej and Chenab.

Q.24) Arrange the following in ascending order based on their catchment areas.

1. Mahanadi
2. Krishna
3. Cauvery
4. Godavari

Choose the correct option:

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

Q.24) Solution (a)

Name of river	Catchment areas (Sq kms)
Ganga	861452
Indus (In India)	321289

Brahmaputra	194413
Mahanadi	141589
Godavari	312812
Cauvery	81155
Krishna	258948
Narmada	98795
Tapi	65145

Penneru	55213
Mahi	34481
Subarnarekha	19296
Sabarmati	21895

Q.25) Consider following statements with respect to the peninsular rivers.

1. The Narmada and Tapi flow in the valleys created by themselves.
2. The peninsular rivers which fall into the Arabian Sea do not form deltas but only estuaries.
3. The peninsular drainage system is older than the Himalayan drainage.

Which of the above statements is/are correct?

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

Q.25) Solution (b)

- Peninsula Rivers are much older than the Himalayan Rivers.
- They are non-perennial/seasonal rivers with a maximum discharge in the rainy season.
- The main water divide in peninsular rivers is formed by the Western Ghats.
- The peninsular rivers have reached mature stage and have almost reached their base level.
- The rivers are characterized by broad and shallow valleys.
- The river banks have gentle slopes except for a limited tract where faulting forms steep sides.
- The east flowing rivers like the Mahanadi, the Godavari, the Krishna and the Cauvery draining into the Bay of Bengal make deltas at their mouths. But the west flowing rivers of Narmada and Tapi as well as those originating from the Western Ghats and falling in the Arabian Sea form estuaries in place of deltas.

Statement Analysis:

Statement 1	Statement 2	Statement 3
Incorrect	**Correct**	**Correct**
Narmada and Tapi do not flow in the valleys created by themselves but instead flow in the two fault planes running parallel to the Vindhyas.	The peninsular rivers like Narmada and Tapi flow through the hard rocks in the fault planes are not able to form distributaries before they enter the sea. Hence they cannot form deltas but only estuaries are formed.	Peninsular drainage is older than the Himalayan drainage system which is evident by the broad and shallow valleys.

Q.26) Which among the following are the major features of Monsoon Winds in India?

1. Shifting of prevailing wind direction by 120 degree.
2. Frequency of prevailing winds exceeding 40 percent.
3. The wind velocity in one of the months exceeding 3 miles per second.

Choose the correct option:

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

d) 1, 2 and 3

Q.26) Solution (d)

Basic Information:

- Monsoons are large scale seasonal wind systems flowing over vast areas of the globe, persistently in the same direction, only to be reversed with the change of season.
- Reversal of the wind system is the key note of the monsoonal climate.
- C S Ramage has suggested the following four features of monsoon winds in India.
    1. The prevailing wind direction should shift by at least 120 degrees between January and July.
    2. The average frequency of prevailing wind direction in January and July should exceed 40 percent.
    3. The mean resultant wind velocity in at least one of the months should exceed 3 miles per second.
    4. There should be fewer than one cyclone - anticyclone alternation every two years, in either month, over a five degree latitude/longitude grid.

Q.27) Consider the following statements.

1. Monsoonal rainfall in India is largely Orographic.
2. Indian rainfall is basically torrential in nature.

Which of the above statements is/are correct?

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

Q.27) Solution (c) Monsoonal rainfall is largely orographic in its mode of occurrence and is governed by relief. The Himalayan and the Western Ghats are the main rainfall controlling relief features. The Himalayas obstruct the moisture laden monsoon winds from the Indian Ocean and cause rainfall in the North eastern states and in the Indus-Ganga-Brahmaputra plain. Also, the Western Ghats obstruct the rain bearing clouds from the Arabian Sea causing heavy rainfall on its windward side and rain shadow area on its leeward side.

Hence statement 1 is correct.

- Indian rainfall is torrential in nature. Much of the rainfall is received in 3-4 months of the rainy season. The actual rainy days are even less.

Hence, statement 2 is correct.

Q.28) The drainage of south Koel and Subarnarekha are examples of which drainage pattern?

a) Dendritic
b) Trellised
c) Centripetal
d) Radial

Q.28) Solution (d)

Basic Information:

- The flow of water through a particular channel is called drainage.
- Drainage pattern means spatial arrangement and form of drainage system in terms of geometrical shapes in the areas of different rock types, geologic structure, climatic conditions and denudational history.
- Various drainage patterns include.
    1. **Trellised Drainage pattern**: In this form the primary tributaries flow in parallel and secondary tributaries join them at right angles. Majorly found in higher altitudes of Himalayas.
    2. **Dendritic Drainage pattern**: In this form, the network of tributaries of various orders and magnitudes of the trunk or the master stream resembles the branches and roots of a tree. Best examples include the basins of river Cauvery, Mahanadi etc.
    3. **Radial Drainage pattern**: In this form, the streams diverge from the central higher point. Examples include the drainage pattern formed by South Koel, Subarnarekha in the Ranchi Plateau.
    4. **Centripetal Drainage pattern**: In this form, the streams converge at a point which is generally a depression or a basin. Best example is the Kathmandu Valley of Nepal.
    5. **Annular Drainage pattern**: In this form, the tributaries of the master stream are developed in the form of a circle. The sonapet dome of Uttaranchal presents the best example of this type of pattern.

Q.29) Hiran, Banjar, Tawa are tributaries of which of the following rivers?

a) Krishna.
b) Mahanadi.
c) Narmada.
d) Chambal.

Q.29) Solution (c)

Name of the river	Tributary
Ganga	Alaknanda, Pindar, Mandakini, Dhauliganga, Ramganga, Ghagra, Gandak, Kosi.
Yamuna	Chambal, Ken, Sind, Betwa.
Indus	Ravi, Chenab, Beas, Jhelum, Satluj.
Mahanadi	Ib, Mand, Hasdo, Sheonath, Ong, Jonk, Tel
Godavari	Manjra, Penganga, Wainganga, Wardha, Indravati, Sabari
Krishna	Koyna, Ghataprabha, Malaprabha, Bhima, Tungabhadra, Musi
Cauvery	Harangi, Hemavati, Shimsha, Arkavati, Lakshmana thirtha, Kabani
Narmada	Hiran, Barna, Kolar, Burher, Banjar, Shar, Tawa, Kundi
Tapi	Purna, Betul, Patki, Ganjal, Dathranj, Bokad.

Q.30) Consider the following statements with respect to winter weather in India.

1. The peninsular India has distinct winter weather.
2. The intense cold conditions in the north during the months of December and January is the result of western disturbances originating in Mediterranean Sea.

Which of the above statements is/are correct?

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

Q.30) Solution (b)

Basic Information:

Seasons in India:

The Indian Meteorological department (IMD) has recognised four distinct seasons in India.

1. Cold Weather season or the winter season.
2. The hot weather season of the summer season.
3. The south-west monsoon season or the rainy season.
4. The season of retreating monsoons or the cool season.

The cold weather season commences in November and continues till March. Clear sky, pleasant weather, low temperature and humidity, cool and slow northern winds are the chief characteristics of this season.

Statement Analysis:

Statement 1	Statement 2
Incorrect	**Correct**
The isotherm of 20 degree centigrade runs in east west direction, roughly parallel to the tropic of cancer and divides India climatically in northern and southern parts. To the south of this isotherm the temperatures are sometimes above 20 degree centigrade's during the winter season. In the extreme south the temperatures may well be above 25 degree centigrade. Hence, the peninsular india doesn't have distinct winter weather.	During the winter season the weather is often broken due to the inflow of depressions called western depressions. They originate in the Mediterranean sea and enter India after crossing over Iraq, Iran and Afghanistan. They sometimes lower the temperature below 5 degree centigrade in Northern India.

Q.31) Which among the following factors are related to the origin and onset of Monsoons in India?

1. Intense heating of Tibetan plateau.
2. Movement of westerly jet stream to south of Himalayas.
3. Presence of a high pressure area to the south of Madagascar.
4. Cyclonic formations in temperate zones.

Choose the correct option:

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

Q. 31) Solution (a)

The origin and onset of Monsoons in India is the combination of several factors. Prominent among them include.

- The differential heating and cooling of land and water leading to creating of low pressure on the landmass and high pressure on the seas.
- Intense heating of Tibetan plateau causes vertical air movements and creation of low pressure areas.
- The movement of westerly jet stream to the north of Himalayas and appearance of easterly jet stream over the peninsular plateau (15 degree north latitude).
- The shift of Inter-tropical convergence zone over the Ganga plain during the summer and to the south of the peninsular during winter.
- The presence of a high pressure area, east of Madagascar, approximately at 20 degree south latitude has greater influence over the onset of monsoons over Indian subcontinent.

Q.32) Which of the following are correctly matched?

	River	**Origin**
1.	Jhelum	Verinag
2.	Chenab	near Rohtang pass
3.	Ravi	Near Bara lacha la.
4.	Satluj	Manasarovar-Rakas lakes.

Choose the correct option:

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

Q.32) Solution (c)

Q.33) Consider the following statements.

1. Brahmaputra has braided channels for most of its passage in Assam.
2. Brahmaputra has a steep slope while passing eastwards at the high altitudes in the Tibet region.

Which of the above statements is/are correct?

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

Q.33) Solution (a)

Brahmaputra river

- The Brahmaputra, called Yarlung Tsangpo in Tibet, Siang/Dihang River in Arunachal Pradesh and Luit or Dilao in Assam, is a trans-boundary river which flows through Tibet, India and Bangladesh.
- With its origin in the chemayungdung glacier near the Manasarovar Lake region, located on the northern side of the Himalayas in Burang County of Tibet, it flows along southern Tibet to break through the Himalayas in great gorges (including the Yarlung Tsangpo Grand Canyon) and into Arunachal Pradesh (India). It flows southwest through the Assam Valley as Brahmaputra and south through Bangladesh as the Jamuna. In the vast Ganges Delta, it merges with the Padma, the popular name of the river Ganges in Bangladesh, and finally, after merging with Padma, it becomes the Meghna.

Statement 1	**Statement 2**
Correct	**Incorrect**
Brahmaputra has a braided channel for most of its passage in Assam. There is a constant shifting of the river channels and the sandy shoals. It carries lots of silt and has excessive meandering.	Brahmaputra flows in southern Tibet and for Most part of this journey it passes through the depression formed by the Indus-Tsangpo structure zone between the great Himalayas in the south and the Kailas range in the North. The river has a gentle slope (Not steep slope) despite flowing at high altitude.

Q.34) What does the term "October Heat" refer to in Indian climatic context?

a) Increase in temperature in North India due to stubble burning in Haryana.
b) Increase in temperature in North India due to hot winds from rajasthan.
c) Warm and humid conditions in North India during retreating monsoons.
d) Excessive heat due to Temperature inversion in north India.

Q. 34) Solution (c)

The weather in the month of October in the Indian subcontinent is called 'October heat'. During October and November with the apparent movement of the sun towards the south, the monsoon trough or the low-pressure trough over the northern plains becomes weaker.

This is gradually replaced by a high-pressure system. The south-west monsoon winds weaken and start withdrawing gradually. By the beginning of October, the monsoon withdraws from the northern plains. The months of October and November form the period of transition from hot rainy season to the dry winter conditions. The retreat of the monsoon is marked by clear skies and a rise in temperature. While day temperatures are high, nights are cool and pleasant. The land is still moist and the weather becomes rather oppressive during the day and is commonly known as October heat.

Q.35) Which of the following is the reason for the Breaks in the Indian Monsoons?

a) Southward shift of the Monsoon trough.
b) Northward shift of the Monsoon trough.
c) Disappearance of easterly jet stream from the peninsular plateau.
d) Appearance of a westerly jet stream in the Northern plains.

Q.35) Solution (b)

During the rainy season, in the months of July and August, there are certain periods when the monsoons become weak. The cloud formation decreases and rainfall practically ceases over the country outside the Himalaya belt and southern peninsula. This is known as break in the monsoon. The breaks are believed to be brought about by the collapse of the Tibetan high which results in the Northward shift of the Monsoon trough. The axis of the trough lies at the foothills during the break period.

Q.36) Which of the following best describes the "Southern Oscillation"?

a) Fluctuation in pressure over northern and southern Indian Ocean.
b) Fluctuation in pressure over Northern and Southern Pacific Ocean.
c) Fluctuation in pressure over western and eastern Indian Ocean.
d) Fluctuation in pressure over equatorial Indian and pacific oceans.

Q. 36) Solution (d)

Southern Oscillation refers to the sea-saw pattern of pressure changes observed between the Pacific and Indian oceans. When the pressure is high over the equatorial south pacific, it is low over the equatorial south Indian Ocean and vice versa. The pattern of high and low pressures over the Indian and Pacific Oceans gives rise to vertical circulation along the equator with its rising limb over the low pressure area and descending limb over the high pressure area. This is known as Walker circulation.

The location of low pressure over the Indian Ocean during winter is considered conducive for monsoons development. But its shifting eastwards brings lesser rainfall or weaker monsoons.

Q.37) Which of the following are correctly matched?

Pre-Monsoon showers	**Local names**
1. Kal Baisakhi	Assam
2. Blossom Showers	Karnataka
3. Bordoisila	West-Bengal.

Choose the correct option:

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

Q.37) Solution (b)

- Mango showers are a colloquial term to describe the occurrence of pre-monsoon rainfall.
  Sometimes these rains are referred to generically as 'April rains' or 'summer showers'.
- These rains normally occur from March to April, although their arrival is often difficult to predict. Their intensity can range from light showers to heavy and persistent thunderstorms.

- In India, the mango showers occur as the result of thunderstorm development over the Bay of Bengal.
- They are also known as 'Kaal Baisakhi' in Bengal, as 'Bordoisila' in Assam and as 'Cherry Blossom shower' or 'Coffee Shower' in Karnataka and Kerala.

Q.38) With respect to the Easterly Jet Streams consider the following statements.

1. Easterly jet streams steer the tropical depressions into India.
2. Easterly Jet Streams shift southward during the south west monsoon season.

Choose the correct statement.

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

Q.38) Solution (a)

- The Easterly Jet stream is the meteorological term referring to an upper level easterly wind that starts in late June and continues until early September.
- This strong flow of air that develops in the upper atmosphere during the monsoon is centered on 15 degree north and extends from South-East Asia to Africa.
- Tropical Easterly Jet comes into existence quickly after the tropical westerly Jet has shifted to the north of the Himalayas.
- Easterly jet flows from east to west over peninsular India at 6 – 9 km and over the Northern African region.
- The formation of the Jet stream results in the reversal of upper air circulation patterns and leads to the quick onset of monsoon.

Statement 1	Statement 2
Correct	**Incorrect**
The easterly jet streams tropical depressions into India during the month of August and September.	There is no shift of the easterly jet stream. But the westerly jet stream shifts towards the north before the onset of the monsoons.

Q.39) Which of the following rivers are west flowing in India?

1. Mandovi.
2. Netravati
3. Krishna
4. Bedti.

Choose the correct option.

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

Q.39) Solution (c)

List of West Flowing Rivers in India:

Narmada, Tapi, Sabarmati, Mahi, Luni, Mandovi, Zuari, Rachol, Kalinadi, Netravati, Bedti, Sharavati, Tadri, Pannam, Bharathpuzha, Periyar, Pamba etc.

Q.40) The chambal ravines have acquired geological significance in India. Which of the following kinds of topography is created by the Chambal River?

a) Senile topography.
b) Badland topography.
c) Karst Topography.
d) Riverine topography.

Q.40) Solution (b)

Basic Information:

- Badlands are a type of dry terrain where softer sedimentary rocks and clay-rich soils have been extensively eroded by wind and water.
- They are characterized by steep slopes, minimal vegetation, lack of a substantial regolith, and high drainage density.
- Canyons, ravines, gullies, buttes, mesas, hoodoos and other such geologic forms are common in badlands. They are often difficult to navigate by foot.

- Chambal River has created extensive ravines and badland topography along its course.

Thank You!

Best wishes for your exams!!