CLASS X GEOGRAPHY QUESTION BANK

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1. DEFINITIONS FROM TOPO MAPS

1. REPRESENTATIVE FRACTION (RF): It is the ratio between the distances on the map to its corresponding distance on actual ground. The RF on this map is 1:50,000.

2. SCALE: Scale is the ratio between the distance of any two points on the map and the actual distance of the same points on the ground.
The scale of the given map extract is 2 cm: 1 km or 1:50,000.

3. CONTOUR: Contours are imaginary lines drawn on maps, joining all places with the same height above sea level.

4. CONTOUR INTERVAL: The interval between two consecutive contours is called contour interval (*it is a constant 20 mts in your toposheets.)

5. INDEX CONTOUR: Contour lines are thickened at regular intervals to make it easier to read contours. For example at every 100 mts the contour line is made darker. The darker lines are called Index Contours.

6. TRIANGULATED HEIGHT: It is the height of a place which has been calculated using trigonometry, represented by a small triangle e.g. - 540π

7. SPOT HEIGHT: The height of random places between contours shown with a dot. Eg - .425

8. BENCH MARK - Height of a place actually marked on a stone pillar, rock or shown on a building as a permanent reference. It is written as BM 200 m.

9. RELATIVE HEIGHT: Relative height is the height of a feature with reference to the height of the surrounding land and NOT to sea level.
It is represented by the height with a small 'r' eg –12r.

10. ROCK OUTCROP: It is a portion of rock jutting above the surface of the earth.

11. SHEET ROCK: Large areas of rock where the overlying soil layers have been eroded and removed due to mechanical weathering.

9 STONY WASTE: A large area usually in arid/semi arid regions where the finer sand/soil has blown away leaving a surface covered with boulders, stones and pebbles.

10. BROKEN GROUND: A relief feature found mostly in dry regions around rivers and streams. It is land around river, which is totally weathered (exfoliated) due to alternate cooling and heating.

11. FIRELINE: A cleared pathway in a forest to prevent the spread of forest fires.

12. MIXED FOREST: A forest with more than two varieties of trees growing in close proximity to each other.

13. OPEN JUNGLE: A forest where trees are widely scattered.

14. DENSE JUNGLE. : A forest where trees grow very close to each other.

15. OPEN SCRUB: Scrub is vegetation found in regions with less than100 cms of rainfall. Therefore it indicates a dry region.

16. BRACKISH: It is a well, which has water with very high salt content – generally unfit for drinking purposes.

17. CAUSEWAY: It is a raised road over a small water body. (Usually a road used only in the non rainy months.}

18. CUTTING: A portion of land, which has been cut in order to make land available for transport routes. (it is indicative of a rocky region)

19. EMBANKMENT: They are raised rock or soil filled constructions on which roads/railway tracks are built. Also made near tanks and rivers to prevent flooding.

20. FORM LINES: Form lines are contour lines, but show only approximate heights above sea level as they are used to indicate the elevations of the area which are not accessible for proper survey. Hence they are drawn as broken lines and are called 'form lines'.

21. Q.C. Q.D., OC, OD,PQ, ETC : These are alphabetical codes used to represent the biggest grid sq. of 10,000 square kms. The Govt of India has adopted metric system for all measurements. All the ordnance survey maps issued by the Survey of India were drawn to the scale 2 cm = 1 km. In this system, the surveyed territory is divided into 100km X 100 km squares, and each square is denoted by English alphabets. For example, OC, OD, PQ, PG, etc. This system of map drawing is known as National Grid Reference.

22. LAYER TINTING: (colouring)
While spot heights show the height of the land, they only do so at certain points. To provide an overall image which conveyed height, a technique called layer tinting was developed. Layer tinting uses different colours (or shades) to represent different heights. It is a mapping convention for darker colours to signify greater height. When using layer tinting, green is often used for low land, yellow for higher land and brown for the highest land. Layer tinting is most commonly found on physical maps. While layer tinting is useful, it does not show the detailed shape of the land.

23. DEP: It is a depression often found in sandy areas where the wind, having blown away the sand, leaves a hollow or a depression.

24. HACHURING: Early cartographers attempted to show surface features on maps by using the technique of hachuring. Hachures use short lines of varying thickness to show the shape and slope of the land. In accordance with this technique, the steeper the slope is, the thicker the lines are which represent it. While hachuring was initially innovative for its time, it gradually began to be replaced since the actual height of the land was not depicted.

25. LIME KILN OR BRICK KILN: These are open furnaces where limestone is purified or bricks are baked for construction purpose.

26. HILL SHADING: Hill shading resembles a light and shadow effect. Valleys and the sides of mountains appear as though they are cast in shadow. This is a visually striking method, which is ideal for providing an overall view of the relief of an area. Hill shading, however, does not show height which means that it is no more accurate than hachuring.

1. Climate of South Asia

1. Name
a. One region which gets rainfall due to the western disturbances.
North-west India (Punjab)
b. A hot local wind that blows in summer in the northern plains.
Loo
c. A region in India which gets most of its rainfall during winter.
Tamil Nadu
d. A place in India which receives the heaviest rainfall in the world.
Mawsynram
e. A region which receives very little or no rainfall due to the south west monsoon season.
Tamil Nadu /Coromandal coast
f. Winds that bring rain to the coast of Tamil Nadu.
North-east monsoon
g. Devastating storm occurring in West Bengal in summer.
Kalbaisakhi
h. State in India which receives 'mango showers'.
Kerala
i. Area from where the 'Western disturbances' originate.
Mediterranean Sea
j. Two branches of the south west monsoon.
Arabian Sea Branch, Bay of Bengal Branch
k. State where the monsoon arrives first
Kerala
l. Place where monsoon arrives first
Kanyakumari
m. Area of intense low pressure in the northern plains in summer
Low Pressure Trough
n. Two states in India frequently struck by tropical cyclones
West Bengal and Orissa
o. Months in which cyclones originate in the Andaman Sea.
October and November

2. What do you understand by the following?
a. Climatic divide
A bold relief feature which has two different types of climates on its either side is called a climatic divide.
b. Annual range of temperature
The difference between highest monthly mean temperature and the lowest monthly mean temperature is called annual range of temperature. In other words, it is the difference in mean temperature of the hottest month subtracted by the mean temperature of the coldest month. Annual Range of temperature = Mean temperature of hottest month – mean temperature of the coldest month
c. Moderating influence of the sea
In coastal areas, land is in contact with the sea. Hence, the heat absorbed by the land in the day is

transferred to the sea. Vice-versa, the heat absorbed by the sea is transferred back to the land in the night. As a result, places in coastal areas do not become very hot in the day or very cold in the night. This phenomenon is called moderating influence of the sea.

d. Equable climate

If the annual range of temperature is very less (<5° C), a place is said to have equable climate mostly found in the coastal areas.

e. Extreme climate

If the annual range of temperature is quite high (>20° C), a place is said to have extreme climate normally found in interior areas. Also known as continental climate.

f. Loo

Loo is a local name given to hot and dry winds which blow into the low pressure trough created in the northern plains in summer.

g. Kal Baisakhi

Kalbaisakhi (Calamity in the month of harvest or Baisakh) is the name given to violent storms hitting the coast of West Bengal in April and May. These cause widespread destruction.

h. Mango Showers

Pre-monsoon showers in Kerala that help in ripening of mangoes are known as mango showers.

i. Western disturbances

Western Disturbance is the term used in India, Pakistan, Afghanistan and Nepal to describe cyclones which bring sudden winter rain and snow to the north western parts of the Indian subcontinent. This precipitation pattern is driven by the meeting of the warm Westerlies with the cool dry NE monsoons. The moisture in these storms usually originates over the Mediterranean Sea.

j. Retreating monsoon

After September 23, the sun moves south of the equator due to which India becomes cooler. The low pressure existing over the Indian sub-continent is gradually replaced by high pressure. As a result, the monsoon decreases in intensity. The methodical withdrawal of the south west monsoon from the Indian sub-continent is called retreating monsoon or retreating south-west monsoon.

k. Orographic Rainfall

When a cloud is encountered by a mountain, it rises on the windward side. The temperature towards the top is less on account of altitude. At a lesser temperature, air loses its moisture carrying capacity and the excess moisture is given off as rainfall. This phenomenon is called orographic or relief rainfall.

l. North East Monsoon

In winter, winds blow from land to sea. In the Indian sub-continent, winds blow from India into the Indian Ocean from north-east to south-west in accordance with Ferrell's Law. This seems to be the return of the south-west monsoon as is therefore named as north east monsoon. The phenomenon is also sometimes stated as reversal of monsoons.

m. October Heat

In the month of October due to high temperature and humidity the weather becomes oppressive and called October heat. The retreat of the monsoon is marked by clear skies and rise in temperature but the land is still moist, so it becomes very oppressive - hot and moist.

3. State three characteristics of the monsoon kind of climate.

Following are the three characteristics of the monsoon kind of climate.

a. There is a distinct rainy season from June to September

b. Rainfall occurs due to seasonal winds called monsoons.

c. Rainfall is sudden, unpredictable and uncertain.

4. Why is India sometimes said to have a 'sub-tropical' kind of climate?

The Tropic of Cancer divides India into two equal halves. The southern half is completely in the Torrid Zone while the northern Half is completely in the Temperate Zone. Yet, the climate of places in both the northern and southern region is not very different from each other on account of the

Himalayas and the monsoons. It is for this reason that India is sometimes said to have a 'sub-tropical' kind of climate which means that the typical tropical kind of climate has been modified by the monsoons.

5. List three reasons for the extremes prevalent in the climate of India.

Three reasons for the extremes of climate prevalent in India are

a. Physical Features (rainfall)

b. Distance from the Sea (annual range of temperature)

c. Altitude (annual mean temperature)

6. List the factors affecting the climate of India.

Factors affecting climate of India are

Major factors

1. Latitude
2. Physical features like Himalayas, Arakan Yoma Range, Aravallis, Western Ghats etc.
3. Distance from the sea
4. Altitude

Minor Factors

1. Western Disturbances
2. Conditions surrounding India
3. Jet Streams

7. What is the influence of the following on the climate of India?

a. The Himalayas

b. The Arakan Yoma Range

c. The Aravallis

The Himalayas affect the climate of India in the following ways.

a. They prevent cold winds coming from the north.

b. They force the monsoons to shed their moisture over India.

c. They also cause the western disturbances to cause rainfall in north-west India and deflect them into the Bay of Bengal making the north-east monsoon stronger.

8. Name the months of the following.

a. Cold weather season – December, January and February

b. Hot weather season – March, April and May

c. South West Monsoon season – June, July, August and September

d. Retreating monsoon season – October and November

9. Give reasons for the following.

a. Thiruvananthapuram is warmer than Agra in December.

Thiruvananthapuram is closer to the equator than Agra. For this reason, it is warmer than Agra in December, when the sun rays are directly overhead in the southern hemisphere.

b. Deccan plateau is cooler than the northern plains in summer.

The Deccan plateau is higher than the northern plains. As altitude increases, temperature decreases. Hence, it is cooler than the northern plains in summer.

c. The south west monsoon approaches Uttar Pradesh from the east.

The winds which bring rainfall to Uttar Pradesh are the Bay of Bengal Branch of the south-west monsoons which upon deflection by the Arakan Yoma Range, travels north-westward into India. So, these winds would approach Uttar Pradesh from the east.

d. Delhi has a higher annual range of temperature than Mumbai.

Delhi is in the interior of India where the moderating influence of the sea is absent. Mumbai on the other hand lies closer to the sea. Hence, the annual range of temperature in Delhi is more than the annual range of temperature in Mumbai.

e. Shillong experiences lesser rainfall than Mawsynram.

Mawsynram lies in the funnel shaped depression caused by the Khasi range in Meghalaya. The Bay of Bengal branch of monsoons is trapped in it, causing heavy rainfall. Shillong, on the other hand, lies on the leeward side of the Khasi hills and gets lesser rainfall.

f. Punjab gets winter rainfall

Punjab lies on the foothills of the Himalayas. The western disturbances originating over the Mediterranean Sea in winter travel eastward towards India where are forced to shed their moisture in Punjab. Therefore, Punjab receives rainfall in the winter.

g. Bikaner has a high diurnal range of temperature.

Bikaner lies on the edge of the Thar Desert. The land has little vegetation cover so it absorbs heat quickly in the day and loses it quickly in the night. For this reason, it is very hot during the day and quite cold during the night. Hence, Bikaner is said to have a high diurnal range of temperature.

h. Thar desert gets little or no rainfall

The Aravallis are parallel to the direction of the Arabia Sea branch of the South West Monsoon. Hence there is no rainfall in Rajasthan due to this branch. On the other hand, the Aravallis block the Bay of Bengal branch towards their east which is why there is little or no rainfall in the western part of Rajasthan where the Thar Desert lies.

i. Western Rajasthan is the region where the pressure is lowest in May.

Rajasthan is away from the moderating influence of the sea. As a result, the monthly mean temperature is very high in May and June. The hot air rises and creates a regime of extremely low pressure.

j. In spite of extremely low pressure over the northern plains in summer, monsoon winds are not drawn into the Indian sub-continent.

As the peninsular plateau is at an altitude, the summer temperatures are lower than in the northern plains. This creates an area of slightly higher pressure over the peninsular plateau which does not allow the monsoons to come over India.

k. The monsoon winds in India are divided into two components.

Due to the triangular shape of the Indian peninsula and the fact that the western part of the peninsular tip is higher, the south-west monsoon winds are divided into two components – the Arabian Sea branch and the Bay of Bengal branch.

l. South East Trade winds are attracted into India.

In June, India becomes extremely hot which is why the entire Indian subcontinent becomes a region of extremely low pressure. This causes the South East Trade Winds (which usually blow only till the equator) to cross the equator, be deflected due to Coriolis force and enter India.

m. Tamil Nadu gets winter rainfall.

Tamil Nadu lies on the leeward side of the Western Ghats because of which it does not receive any rainfall in summer due to the south-west monsoon. However, in winter, the north-east monsoon picks up moisture from the Bay of Bengal and sheds rainfall in Tamil Nadu.

n. Mumbai receives more rainfall than Chennai.

Mumbai lies on the windward side of the Western Ghats where the south-west monsoons strike first and are forced to shed their moisture. Chennai lie on the east which does not receive any rainfall due to the south-west monsoon. The rainfall in winter is substantially less than Mumbai.

o. Mangalore and Chennai are on the same latitude yet both these cities receive rainfall in different months.

Mangalore gets rainfall between June to September because it is on the windward side of the Western Ghats. It receives rainfall from the south-west monsoon winds. Chennai which lies in the rain-shadow area of the Western Ghats gets a little rainfall from the south-west monsoon winds. It gets rainfall from the north-east winds in winter because Chennai faces the north-east monsoon. It is situated on the windward side of the Eastern Ghats.

p. North Eastern Part of Kashmir receives practically no rainfall.

North Eastern Kashmir lies on the other side of the mighty Himalayas. None of the branches of the south-west monsoon are able to cross them and as a result, north-east Kashmir receives practically no rainfall.

q. Patna gets heavier rainfall than Agra.

Patna is in the middle Ganga valley while Agra is in the upper Ganga Valley. By the time the Bay of Bengal branch of the south-west monsoon reaches Agra, it has lost much of its moisture and therefore, Agra receives lesser rainfall than Patna.

r. Mawsynram receives the highest rainfall in the world.

Mawsynram lies in the funnel shaped depression caused by the Khasi range in Meghalaya. The Bay of Bengal branch of monsoons is trapped in it and causes heavy rainfall.

s. The monsoon rain is unevenly distributed over India.

Because of the uneven relief of India due to the presence of a number of hill ranges, the monsoon is not able to shed its moisture evenly over India. Windward sides receive more rainfall and leeward sides receive less rainfall.

t. Most of the rainfall of the Indian sub-continent is received only in four months of the year.

In spite of being in the Trade Wind belt, India is unaffected by the Trade Winds due to the presence of the Himalayas. Instead, India receives rainfall due to the monsoon winds which are seasonal in nature and are on-shore winds only in four months – June to September. For the remaining part of the year, they are off-shore winds and do not bring rainfall.

u. The Indo-Gangetic plain gets some rain during December and January.

The western part of the Indo-Gangetic Plains receives rainfall due to the western disturbances originating over the Mediterranean Sea in December and January.

v. Nainital is cooler than Agra.

Nainital is cooler than Agra because Nainital is at a higher altitude (2700 m) than Agra

w. The Coromandel Coast gets most of its rain in the winter season.

Coromandel Coast lies on the leeward side of the Western Ghats because of which it does not receive any rainfall in summer due to the south-west monsoon. However, in winter, the north-east monsoon picks up moisture from the Bay of Bengal and sheds rainfall on the Coromandel Coast.

10. Why do the monsoons retreat?

After the monsoons have shed their moisture over India, the land becomes cool. In addition, the sun now moves from the equator towards the Tropic of Capricorn. India becomes cooler and the initial low pressure which existed over the Indian sub-continent now changes to high pressure. As a result, the intensity of the south-west monsoons decreases and they follow a systematic withdrawal from India. The south-west monsoon then called 'Retreating South West Monsoon'.

11. Explain the mechanism of the westerly depressions.

In winter, the sub-tropical high pressure belt moves over the Mediterranean Sea, *which* is why the Westerlies blow in the form of shallow cyclonic depressions from the Mediterranean Sea north-eastward into Europe. The north-western part of the Indian sub-continent lies in the Westerlies wind belt. These western disturbances arrive in this region and cause winter rainfall.

12. State the characteristics of the following.

a. The advancing south west monsoon season.

Following are the characteristics of the advancing south-west monsoon season.

1. They occur from June to September.
2. They give rainfall to almost entire India.
3. They are very strong and moisture laden.

b. The retreating south west monsoon season.

Following are the characteristics of the retreating south-west monsoon season.

1. They occur in October and November.
2. They give rainfall only to peninsular India.
3. They are not strong and contain little moisture.

13. List three differences between

a. The Retreating south west monsoons and the North East monsoons.

	Retreating south west monsoon	North East monsoon
Months	October and November	December, January and February
Direction	From South West to North East (sea to land)	From north-east to south-west (land to sea)
Rainfall	West Coast	East Coast

b. The Arabian Sean branch and the Bay of Bengal Branch

	Arabian Sea branch	Bay of Bengal Branch
Source of moisture	Arabian Sea	Bay of Bengal
Direction	South west to north east	South-east to north-west
Rainfall	Southern &Western India	Eastern and Central India

c. Equable and Extreme climate

	Equable Climate	Extreme climate
1	Moderating influence of sea present	Moderating influence of sea absent
2	Characteristic of coastal areas	Characteristic of interior regions
3	Annual Range of Temperature is low	Annual Range of temperature is high

d. Precipitation and Rainfall

	Precipitation	Rainfall
1	May occur in many forms such as snow, hail, sleet, etc.	Occurs as descending droplets of water
2	Occurs in specific areas only	Occurs almost everywhere
3	Cloud formation not necessary in some cases	Cloud formation essential

14. State the economic importance of the following.

a. Relief rain in Tamil Nadu

Relief rainfall in Tamil Nadu (Palni and Shevaroy hills) is beneficial for the millets and rice crops.

b. Cyclonic Rainfall in Punjab

Cyclonic rainfall in Punjab during winter is highly useful for rabi crops in Punjab, Haryana and Western Uttar Pradesh.

c. Mango Showers in Kerala

Mango showers on the Kerala coast are early Pre-monsoon showers before the south-west monsoons which are good for the mango trees.

15. State the salient features of the monsoon rainfall in India.

Following are the salient features of the monsoon rainfall in India.

a. It occurs in mostly in summer

b. It is erratic and unpredictable.

c. It is very unevenly distributed

d. The rainfall is mainly orographic (relief) in nature.

e. Rainfall also occurs due to cyclones and convection currents.

16. Study the climate data given below and answer the questions that follow.

Station	Months	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
A	Temp(°C)	14.4	16.7	23.3	30.0	33.3	33.3	30.0	29.4	28.9	25.6	19.4	15.6
	Rainfall (cm)	2.5	1.5	1.3	1.3	1.8	7.4	19.3	17.8	11.9	1.3	0.2	1.6
B	Temp(°C)	24.4	24.4	26.7	26.7	30.0	28.9	27.2	27.2	27.2	27.8	27.2	25.0
	Rainfall (cm)	0.2	0.2	----	----	1.8	50.6	61.0	36.9	24.8	4.8	1.0	----

1. Calculate the annual rainfall for Station A.
The annual rainfall for Station A is 67.6 cm. it is calculated by adding the rainfall received in a year.
2. What is the annual range of temperature at Station B?
The annual range of temperature at Station B is 5.6 ˚C. it is the difference between the highest and the lowest temperatures in a year.
3. In which hemisphere do you think Station A lies?
Station A lies in the Northern Hemisphere. This is because it has summers in June and winter in December.
4. Which of these Stations has an equable climate?
Station B has an equable climate because the annual range of temperature is small (5.6° C). Summers are not very hot and winters are not very cold.

2.Soils of India

1. State or name
a. *Soil which is formed by decomposition of metamorphic rocks*
Red Soil
b. *Soil which is agriculturally most significant*
Alluvial Soil
c. *Soil which forms 'in situ' due to weathering of basalt*
Black Soil
d. *Soil which forms as a result of leaching*
Laterite Soil
e. *Older alluvial soil*
Bhangar
f. *Younger alluvial soil*
Khadar
g. *Soil which is also called 'regur'*
Black Soil
h. *Soil which lies at its place of origin*
Sedentary Soil
i. *Soil which has more than 60% clay and less than 10% sand*
Clayey Soil
j. *Soil which has more than 60% sand and less than 10% clay*
Sandy Soil
k. *Soil which has sand and clay in an even proportion*
Loamy Soil
2. Name the soil which is

a. *Rich in iron but poor in silica*
Laterite Soil
b. *Rich in humus*
Deltaic Alluvial Soil
c. *Rich in potash but poor in phosphorous*
Alluvial Soil
d. *Rich in lime, iron, magnesium, calcium carbonate, alumina and potash but poor in nitrogen and phosphorus*
Black Soil
e. *Suitable for dry farming*
Red Soil
f. *Difficult to cultivate as it becomes sticky during the rains*
Black Soil
3. Name the Soil which is found in
a. *Coastal strip of Deccan Plateau*
Coastal Alluvial Soil
b. *Windward side of the Western Ghats*
Laterite Soil
c. *Chhota Nagpur Plateau*
Laterite Soil, Red Soil
d. *Delta of Krishna*
Deltaic Alluvial Soil
4. Define Soil.
Soil is the thin (5-8 metres) uppermost layer of the earth's crust, which is capable of supporting life on earth.
5. List the steps through which soil formation occurs.
Soil formation is called pedogenesis. It involves the following steps. Step 1: Rocks are weathered either physically or chemically Step 2: Dead organic matter present on the earth is decayed and disintegrated by bacteria forming humus. This process may happen simultaneously with weathering Step 3: Weathered rock material and humus are mixed together due to the action of percolating water, which distributes minerals through the soil.
6. List the four main components of soil and their significance.

Component	**Significance**
Minerals	Give colour and texture to the soil
Humus	Gives fertility to the soil
Air	Used by plant roots for respiration
Moisture	Plants can absorb minerals if dissolved in water; also safeguards against erosion

7. Briefly describe the factors affecting soil formation.
a. **Parent rock**: It determines its mineral composition, texture, and colour.
b. **Climate**: Climate is responsible for the weathering processes, moisture content and humus content of the soil.
c. **Topography**: Areas of high relief, i.e. mountains will have a thin soil cover. On the other hand, areas of low relief, i.e. plains and valleys will have a thick soil cover.
d. **Time**: A layer of soil 1 metre thick would usually take between 3000 to 12000 years to form. The maturity of the soil would therefore depend upon the time taken for its formation.
8. State the two most important factors that determine the types of soils found in India.
Climate and parent rock are the two major factors determining the types of soils found in India.
9. What do you understand by humus?

It is the organic matter which is formed by the decomposition of plant remains, dead animals and manure. Humus contains nitrogen and phosphorus, which determines the fertility of the soil.

10. How is soil important to man?

Most of our food items like cereals, pulses, fruits, vegetables, meat, eggs, milk, clothing, etc., are obtained directly or indirectly from the soil. A large number of human and economic activities depend on the soil. Fertile soil attracts a large number of people and human settlements.

11. What are the major types of soils found in the Indian Subcontinent?

a. Alluvial soil
b. Regur or Black soil
c. Red Soil
d. Laterite soil
e. Desert soil
f. Mountain soil
g. Marshy soil
h. Saline and Alkaline soil

12. Place in two broad categories the soils of India on the basis of their formation.

a. **Residual or Sedentary soils:** These are found where they are formed; hence they are called 'in situ'. Black soil, Red soil, and Laterite soil are the examples of residual soils.

b. **Transported soil**: These are carried down by agents of gradation such as rivers and wind. Alluvial soil, Desert Soil and Loess are the examples of transported soils.

Alluvial Soil

13. How are alluvial soils formed?

Alluvial soils are formed from materials like silt, gravel and sand, brought down and deposited by rivers. In the coastal plains, the sea also leaves deposits of silt which results because of sea wave erosion. The silt, in turn, mixes up with humus and forms alluvial soil.

14. Why are the alluvial soils important agriculturally?

Agriculturally, the alluvial soils are the most important as they are rich in minerals, especially potash and lime. In addition, they have a loamy texture which facilitates the retention of water as well as respiration by plant roots.

15. What are three different types of alluvium found in India?

a. Deltaic alluvium in West Bengal and Orissa.
b. Coastal alluvium in Peninsular India.
c. Inland alluvium in Punjab, Haryana, Delhi, Uttar Pradesh, Bihar, West Bengal, Assam and Orissa.

16. What are the two types of alluvial soils? Where are they found in India?

a. Khaddar (Newer alluvium): It is found in the lower lands in the plains. It is loamy, porous and more fertile than Bhangar as new layers are deposited year after year during floods.
b. Bhangar (Older alluvium): It is found in the higher parts of the plains on river terraces away from rivers. It contains lumps, is clayey, non-porous and less fertile than Khaddar.

17. Mention the main characteristics of alluvial soils.

a. Alluvial soils are transported soils as they have come into existence because of the silt deposition brought by the rivers and wind.
b. They are fertile as they are rich in minerals like potash and lime.
c. They have a loamy texture.
d. Deltaic alluvial soil is rich in humus content. Other alluvium is poor in nitrogen and phosphorus.
e. Alluvium of the Ganga valley is faint yellow and consists of a mixture of sand, clay and organic matter.
f. Alluvium of the Godavari and Krishna valleys is clayey, non-porous and brown in colour as these rivers flow over black soil.
g. Alluvial soils cover an extensive area.

Black Soil

18. How are Black soils or Black Cotton soils or Regur soils formed?
Black soils are formed by *in situ* weathering of lava (basalt) rocks. Hence, they are also known as volcanic or lava soils. These are sedentary soils.
19. What is the advantage of 'clay' contents in Black soils?
Clay contents increase the capacity of black soils to retain moisture.
20. State the salient features of Black soils.
a. Black soils are widely spread over the Deccan Plateau, comprising large areas of Maharashtra, Gujarat, and Madhya Pradesh.
b. They vary in colour from deep black to chestnut brown.
c. They are rich in iron contents and, hence, are black in colour.
d. During rains, they become sticky and during dry days, they develop cracks. Hence they are difficult to cultivate.
e. They hold moisture which is released to the plants during the dry period.
f. These soils are best-suited for cotton and sugarcane cultivation.
g. They are rich in lime, iron, magnesium, calcium carbonate, alumina and potash (LIMCAP), but deficient in phosphorus, nitrogen and organic matter.
h. They are also known as Regur soils in Maharashtra and Black Cotton soils in Peninsular India.

Red Soil

21. Mention some properties of Red soils.
a. Red soils are formed *in situ* by weathering of the ancient crystalline and metamorphic rocks.
b. Red soils are rich in iron; hence, they are red in colour.
c. They are less fertile as they lack nitrogenous, phosphorous and organic matter.
d. The productivity of the red soils increases with regular use of fertilizers.
e. They have a good moisture retention capacity.
f. They are suited for dry farming as it does not require much moisture.
22. Where are Red soils found in India?
Red soils are found in the states of Kerala, Tamil Nadu, Karnataka, Goa, eastern part of Andhra Pradesh, Orissa and in the Chhota Nagpur Plateau of Jharkhand.

Laterite Soil

23. How are Laterite soils formed?
Laterite soils are formed *in situ* as a result of leaching of essential silicates under typical monsoonal conditions in hilly areas where there are high temperatures and heavy rainfall with alternating wet and dry seasons.
24. Where are Laterite soils found in India?
In India, laterite soils are found on the highland areas (windward side) of the Western Ghats, Kerala, Chhota Nagpur Plateau and the hills of Assam and Meghalaya.
25. What are the salient characteristics of Laterite soils?
a. Laterite soils are leached soils because alternating dry and wet spells cause the soluble silica to be removed.
b. They are acidic in nature and coarse and crumbly in texture.
c. In the upper layers, the compounds of iron and aluminium become higher giving a reddish colour to the soil.
d. Lack of nitrogen, potassium and organic matter make these soils unsuitable for cultivation.
e. These soils support pastures and scrub forests.
f. With the use of manures, coffee, rubber, cashew, etc., can be grown on these soils.

Soil Erosion and Conservation

26. What do you understand by the following terms?
a. *Sheet Erosion*
b. *Rill Erosion.*
c. *Gully Erosion*
d. *Stream Bank Erosion*
e. *Slip Erosion*
i. **Sheet Erosion:** When a surface layer of the top soil is removed over a large area by running water, it is called sheet erosion.
ii. **Rill Erosion:** In the second stage of sheet erosion, small finger-like rills begin to appear on the surface. With the passage of time, these rills become deeper and wider. They reduce area under cultivation.
iii. **Gully Erosion:** When soil is eroded by water flowing along definite paths along the slope or in channels, it is called gully erosion.
iv. **Stream Bank Erosion:** In times of floods, the continuously flowing water erodes the banks of streams and rivers. Gradually the bed of the river widens.
v. **Slip erosion:** During heavy rains, water percolates into the soil until it is unable to penetrate further by the underlying impervious rock. On steep land, the heavy, moisture laden soil often comes down badly, resulting in a landslide.

27. Briefly explain the following terms.
a. *Deforestation*
b. *Deccan Traps*
c. *Leaching*
d. *Soil Erosion*
e. *Contour Ploughing*
f. *Strip Cropping*
g. *Crop Rotation*
a. **Deforestation:** The removal of trees of an area of land by felling or burning is called deforestation. The process of deforestation is deliberate in order to make the land available for other uses.
b. **Deccan Traps:** The word 'trap' is Swedish which means steps. The term describes the step-like rock formation that covers the north-western part of the Deccan Plateau.
c. **Leaching:** It is the downward movement of material in solution or colloidal suspension within the soil profile due to heavy rainfall. This phenomenon is responsible for the removal of essential silicates from the top soil resulting in laterite soil.
d. **Soil Erosion:** It is the process of removal of soil, either mechanically or chemically. Wind, water and human activities are the main agents of soil erosion.
e. **Contour Ploughing:** It is the cultivation of soil according to contour lines, i.e., at the right angles to the hill slopes.
f. **Strip Cropping:** It is the cultivation of crops in strips to check the fast-blowing winds.
g. **Crop Rotation:** It is the cultivation of crops in a year in such a sequence that the fertility of the soil is not reduced.
28. What are the main causes of soil erosion?
The main causes of soil erosion are
a. Natural Causes
i. Topography such as steep slopes
ii. Torrential Rainfall
iii. Strong Winds
iv. Nature of soil such as dry and loose soil

b. Human Causes
i. Deforestation
ii. Overgrazing
iii. Improper farming techniques

29. State the causes of soil erosion in

a. *Shiwaliks or the Outer Himalayas*
b. *North-eastern parts of India*
c. *Arid regions of India*
d. *Hilly areas of the south*
e. *Northern Madhya Pradesh*

Following are the causes of soil erosion in the above mentioned areas.

a. **Shiwaliks or the Outer Himalayas:** Destruction of vegetation cover has resulted into large scale soil erosion. A large amount of debris comes down the slopes of Siwaliks and chokes up the rivers and causes floods. Here, landslides and land slips are very frequent.

b. **North-eastern parts of India:** Frequent floods due to heavy rains and stream bank cutting are very common. These are the main causes of soil erosion in Assam, West Bengal and hilly regions of North-east.

c. **Arid regions of India:** Rajasthan, southern Punjab and south-western areas of Haryana are subjected to soil erosion by wind action.

d. **Hilly areas of the south:** Here steep slopes, heavy rainfall and unscientific methods of cultivation are responsible for the soil erosion.

e. **Northern Madhya Pradesh:** In northern M. P. (Chambal River Valley) very long dry spells followed by sudden rainfall causes excessive gully erosion along the ravines of the Chambal River giving rise to a characteristic landscape of badlands called 'beehad'.

30. What is soil conservation?

It is an effort made by man to prevent soil erosion, or at least to reduce the rate of soil erosion, to retain the fertility of the soil.

31. Why should we take steps to conserve soil?

Soil is the mother of all plants without which no human being can survive, so we must take necessary steps for its conservation. 2.5 cm thick layer of soil takes thousands of years to form.

32. What are the different methods of soil conservation?

a. **Afforestation** or planting of trees in deforested areas saves the soil from erosion caused both by water and wind.

b. **Construction of check-dams** is an important method of checking soil erosion in the upper course of the rivers.

c. **Overgrazing** should be checked. Grazing should be limited according to the size of the pasture.

d. **Gullies should be plugged** by stone dams, wire netting or by raising trees across gullies to check the flood water.

e. **Shelter belts of trees and shrubs** should be planted to check wind velocity in arid regions.

f. **Proper farming techniques**, i.e., strip cropping, contour ploughing and terracing of hills should be adopted for soil conservation.

33. Briefly describe some soil conservation schemes implemented in India.

They are as follows

a. **Integrated Watershed Management –** The objective of this scheme is to divert large quantities of rain water into artificial reservoirs, which will in turn reduce the silt load in the rivers, help control floods and prevent soil erosion.

b. **Reclamation and development of Ravine areas –** This is joint initiative undertaken by the governments of M.P., Rajasthan and Gujarat which aims at reducing soil erosion in the Chambal Valley through

i. Afforestation in ravine areas
ii. Reclamation of shallow ravines by filling mud and rocks
iii. Building bunds across hill slopes to prevent further development of ravines.
c. **Control of Shifting Agriculture –** Jointly undertaken by the governments of the seven north-eastern states, this programme aims at reducing shifting agriculture and subsequent waste of agricultural land by afforestation and helping tribal people
i. To practice terraced farming
ii. To raise horticultural plantations

Questions asked in ICSE papers

1. Name one area where laterite soil is found on a large scale. **[1991]**
Laterite soil is found on the summits of the Western Ghats, particularly the windward side which receives heavy rainfall.
2. Why is laterite soil unsuitable for agriculture? **[1992, 1999]**
This soil is not fertile as many of the essential components like lime and silica are washed away by the process of leaching. In addition, this soil has a crumbly texture and is acidic in nature.
3. What is the type of soil which is widely distributed over the Ganga plain? **[1994]**
Alluvial soil.
4. Answer the following
i. Name one soil of volcanic origin commonly found in India.
Black soil or *Regur* soil.
ii. *Name one crop widely grown on this soil.* **[1995]**
Cotton is grown widely on this soil.
5. What is the leached soil? Name one Indian soil that has been formed by leaching. **[1995]**
After harvesting, farmers leave the soil bare for some time. During rainfall, some of the nutrients of the soil are leached or washed away. Such soil is called leached soil. Laterite soil is formed by leaching.
6. What is the most widespread transported soil of India? **[1995]**
Alluvial soil is most widespread transported soil in India.
7. Name the soil known for its self-ploughing quality and the capacity to hold moisture. Name two cash crops for which it is specially suited. **[1996, 2000]**
Black soil. The two crops for which it is specially suited are cotton and sugarcane.
8. Name the transported soil most widely found in India. State two sub-categories into which it is generally divided. What are their local names and which one of them is superior to the other? **[1996]**
Alluvial soil. The two sub-categories in which it is divided are newer alluvium and older alluvium. The local name of newer alluvium is Khadar and that of older alluvium is Bhangar. Khadar is superior to Bhangar.
9. Give a single word for each of the following:
i. 'The loose rock material, together with humus, forming the uppermost layer of the earth's crust and serving as a source of food and moisture for plants.
Soil
ii. *'The process of percolation by which valuable mineral nutrients are washed down from the top layer of the soil only to deposit them in the lower layers, making thereby the topsoil infertile''.* **[1996]**
Leaching
10. How are laterite soils formed and where are they found in India? **[1996]**
Laterite soils are formed under typical monsoon conditions of high temperature and heavy rainfall with alternate wet and dry periods. They are mainly found in the highland areas of the Peninsular Plateau.

11. Name four major soil types found in India, leaving out desert and mountain soils. **[1996]**
The soil types found in India are
i. Alluvial soil
ii. Red soil
iii. Black soil and
iv. Laterite soil.
12. Give two characteristics features of the soil found most suitable for growing cotton and sugarcane in Maharashtra. **[1997]**
13. The most suitable soil for growing cotton and sugarcane in Maharashtra is black soil.
i. It is rich in iron, potash, lime, calcium carbonate, aluminium and magnetism.
ii. Its self-ploughing characteristic helps in aeration due to deep and wide cracks during dry season.
14. Which soil is found suitable for growing coffee in Karnataka? **[1997, 2000]**
In Karnataka, laterite soil is suitable for growing coffee.
15. State how destruction of vegetation cover increases the soil erosion. **[1998]**
Vegetation cover protects the soil from erosion as the roots of the trees and plants hold the soil particles together and strengthen the soil. Therefore, the destruction of vegetation cover increases the chances of soil erosion.
16. Name the soil which is found due to high temperature and heavy rainfall with alternating wet and dry periods. Name two states where this type of soil is found. **[1998]**
Laterite soil. The two states where this soil is found are Karnataka and Kerala.
17. Name one state where laterite soil is found. **[1999]**
Karnataka.
18. Answer the following questions.
i. Which soil do you associate with the Deccan Trap?
ii. State one of the advantages of this soil.
i. Lava or Black soil.
ii. This soil can hold water.
19. State two methods of soil conservation. **[1999]**
Afforestation and Controlled grazing
20. How does the soil of Ganga-Yamuna plain differ from that of central Maharashtra? **[2000]**
The soil of the Ganga-Yamuna has been deposited by the sediments brought by rivers. This soil is rich in potash but poor in nitrogen, whereas the soil of central Maharashtra is black soil which contains lime, iron, magnesium, calcium carbonate, alumina and potash. The soil of the Ganga-Yamuna plain is loamy while the soil of central Maharashtra is clayey.
21. Name the type of soil found on the summit of the Eastern Ghats. **[2000]**
On the summit of Eastern Ghats, the main soil is laterite soil.
22. With reference to the red soil in India.
i. Name two states where it is found.
ii. In India, the two states where red soil is found are Andhra Pradesh and Tamil Nadu.
iii. *State two disadvantages of the above named soil.* **[2000, 2001]**
1. Red soil is less fertile as it is deficient in phosphorous, nitrogen, lime and humus.
2. It is coarse and crumbly in texture.
iv. *Mention two advantages of black soil.* **[2002]**
1. Clay contents in black soil have increased its capacity to retain moisture.
2. During dry period, it develops deep cracks which help in aeration or air circulation.
23. Define 'leaching'. In which region, south of the Tropic of Cancer can one find soil formed by leaching? **[2003]**
Leaching is the movement of the organic matter and mineral salts from the upper region of the soil into the lower region of the soil due to heavy rainfall. On the highland areas of Western Ghats on can find the laterite soil formed by leaching.

24. State two main differences between alluvial soil and red soil. **[2005]**
Two main differences between alluvial and red soils are as follows:
i. Alluvial soil is a transported soil while red soil is residual.
ii. Alluvial soil is very fertile while red soil is not.
25. State two differences between Khadar and Bhangar soils. **[2004]**

Khaddar soil	**Bhangar soil**
1. It is newly deposited alluvial soil.	1. It is old deposition of alluvial soil.
2. It is more fertile and found in upper layer.	2. It is less fertile and found in lower layer.

26. Why is laterite soil unsuitable for the cultivation of crops? Name an area in India where this soil is found. **[2005]**
Laterite soil is unsuitable for cultivation due to leaching which renders the topsoil infertile. An area in India where laterite soil is found is the summits of Western Ghats and Meghalaya.
27. How is Regur soil formed? Mention four important properties of Regur soil. **[2005]**
Regur soil is formed due to denudation of lava rocks. Its four important properties are as follows.
i. It is self-irrigatory
ii. It is a deep fine grained soil
iii. It is dark in colour
iv. It is rich in lime, iron and potash.
28. Differentiate between sheet erosion and gully erosion. **[2005]**
When topsoil gets eroded from very large areas due to fast flowing rivers it is called sheet erosion. Gully erosion occurs when running water etches out deep rivers creating badland topography in an otherwise normal landscape.
29. State two differences between black soil and alluvial soil. **[2006]**
Black soil is formed by weathering of volcanic rocks and alluvial soil is a transported soil is a transported soil.
30. Mention three ways by which soil can be provided nitrogen artificially. **[2006]**
i. By growing leguminous plants.
ii. By providing manure or fertilisers like urea, NPK.
iii. By providing the soil with manure.
31. Explain the need for soil conservation in India. State two methods of soil conservation. **[2006]**
Soil conservation is important in India because of large repletion and increase in population. Two methods of soil conservation are
i. Proper farming techniques
ii. Afforestation
32. How is red soil formed? State two reasons for the low productivity of red soil. **[2006]**
Red soil is formed by the decomposition of old crystalline or metamorphic rocks. Two reasons for the low productivity of red soil are
i. Leaching takes place frequently
ii. It is deficient in nitrogen, phosphorus and lime.
33. Mention two important characteristics of laterite soil. **[2007]**
i. Laterite soils are caused by leaching of silicates in hilly regions which receive heavy rainfall.
ii. As a result of leaching, laterite soils become deficient in lime and silicates and enriched in iron and alumina.
34. Name an area of black soil in India. Mention two crops which can be grown in this soil. **[2007]**
An area where black soil is found in India is the Deccan Plataeu (Maharashtra, Karnataka, M.P.). Two crops which can be grown on this soil are cotton and groundnut.

35. How is alluvial soil formed? Why is this soil agriculturally important? **[2007]**
Alluvial soil is formed when transported sediments brought by rivers mix up with humus. This soil is agriculturally important as it responds well to irrigation and manuring and is good for the growth of both *kharif* and *rabi* crops.
36. Name two important agents of soil erosion. For each stat one method of controlling the erosion caused. **[2007]**
Two important agents of soil erosion are running water and wind. To prevent erosion by running water, dams and barrages can be built which can check the speed of water down the slope. To prevent erosion by wind, indiscriminate felling of trees must be stopped. Also, strip cropping can control soil erosion by wind.

3. Minerals

1. Define the term 'mineral'.
Commercially, a mineral may be defined as a substance obtained from the earth's crust which can be used for industrial and economic purposes.
2. What role do minerals play in the economic development of a country?
Modern machines are made up of steel which is in turn processed from iron ore. The energy required in running industries and transport comes from coal or petroleum. Minerals are therefore, the basis of industrialisation. Industrialisation results in the economic development of the country. In other words, minerals play a key role in the economic development of a country by effecting industrialisation.
3. State the need for conserving minerals.
Minerals obtained from the earth's crust are exhaustible. Therefore mankind cannot afford the relentless extraction of minerals. Therefore there is a need to use them in the most economic manner. This can be achieved by
a. Efficiency in mining technology
b. Government control over a country's mineral resources
c. Re use and recycling of minerals
4. What do you mean by the term 'ore'?
An ore is a substance from which metals can be extracted in a profitable manner.
5. Name two important ores of iron.
Haematite and Magnetite
6. Appreciate the use and importance of iron.
Iron is alloyed with manganese to produce steel. Steel is in turn used for making machines, buildings, vehicles, farming and mining equipment, etc, which results in industrial development.
7. Name the iron ore which is most abundant in India.
Haematite
8. What is the status of India with regard to the extraction of iron ore?
India is the fourth largest producer of iron ore in the world. It is estimated that 20% of the world's iron ore reserves are in India. India also exports large quantities of iron ore.
9. Which state produces the largest amount of iron ore in India? Name two important places in this state where iron ore is found.
Orissa produces the largest amount of iron ore in India. Keonjhar and Mayurbhanj are the two important places in Orissa where iron ore is found.
10. Which place has the largest deposit of iron ore in India? In which state is it located? Name one more place from this state which produces iron ore.
Chirla in Singhbhum district, Jharkhand has the largest deposit of iron ore in India. Iron ore is also found in Palamau in Jharkhand.
11. Name two places each in the following states where iron ore is extracted.

a. *Chhattisgarh*
b. *Karnataka*
a. Chhatisgarh – Durg and Bastar Districts
b. Karnataka – Kundremukh, Bellary, Shimoga and Bababudan Hills
12. Name two ports in India from where iron ore is exported. Which country is the largest buyer of Indian iron ore?
Iron ore is exported from the Vishakhapatnam and Paradeep ports. Japan is the largest buyer of Indian iron ore.
13. Name two ores of manganese.
Pyrolusite and Psilomelane
14. What is the principal use of manganese? List two other uses to which manganese can be put to.
Manganese is alloyed along with iron to produce steel because it makes the steel tough and does not rust easily. It can also be used for making paints and glass.
15. What is India's position with regard to the production of manganese?
India stands seventh in the world production of manganese. It is self sufficient and also exports some quantities of manganese.
16. Which state produces the largest amount of manganese in India? Name two places in this state where there are extensive deposits of manganese.
Madhya Pradesh is the largest producer of manganese in India. There are extensive deposits of manganese in the Chhhindwara and Balaghat districts of Madhya Pradesh.
17. Name two places each in the following states where there are deposits of manganese.
a. *Orissa*
b. *Maharashtra*
c. *Karnataka*
a. Orissa – Keonjhar and Mayurbhanj
b. Maharashtra – Nagpur and Bhandara
c. Karnataka – Shimoga and Bellary
18. What is bauxite? What is India's position with regard to the production of bauxite?
Bauxite, or hydrated aluminium oxide, is the principal ore of aluminium. India is the second largest exporter of bauxite in the world.
19. Which properties of aluminium make it such an important metal?
The following properties of aluminium make it an important metal.
a. It is a good conductor of electricity and heat.
b. It is non-corrosive.
c. It is light weight.
d. It is strong and durable.
e. It has a high melting point.
f. It is highly malleable and ductile
g. It has a good aesthetic appeal.
20. Name two places each in the following states which produce bauxite.
a. *Madhya Pradesh*
b. *Jharkhand*
c. *Gujarat*
d. *Tamil Nadu*
e. *Orissa*
a. Madhya Pradesh – Amarkantak Plateau and Balaghat districts
b. Jharkhand – Ranchi and Palamau
c. Gujarat – Jamnagar and Surat
d. Tamil Nadu – Salem and Coimbatore
e. Orissa – Kalahandi and Sambalpur

21. Explain the formation of coal.
Coal is formed when dead remains of plants are decayed by bacteria under fresh water conditions and subsequently buried and subjected to pressure.
22. List the four varieties of coal based on the extent of carbonisation.
i. Peat – 50% carbon
ii. Lignite – 65% carbon
iii. Bituminous – 75% carbon
iv. Anthracite – 90% carbon
23. What do you mean by the following?
a. *Gondwana Coal*
Coal formed about 350 million years ago in the Carboniferous age is called Gondwana Coal. The Gondwana coal is a laminated bituminous coal within which dull and bright layers alternate. Gondwana coal is almost free from moisture, but it contains variable quantities of sulphur and phosphorus. In general, Gondwana coal is good steam or gas coal.
b. *Tertiary Coal*
Coal formed about 50 million years ago in the Tertiary period is called Tertiary coal. This coal consists mostly of lignite and peat.
24. Name the states where Gondwana coal and Tertiary coal is found.
Gondwana coal is found in West Bengal, Jhakhand and Orissa. Tertiary coal is found in Tamil Nadu, Gujarat and Assam.
25. What is the status of India with regard to the production of coal?
India is at present the third largest producer of coal with 7% of the world's reserves.
26. What is anthracite? What are its uses? Where in India is it found?
Anthracite is the purest form of coal with 90 to 95 % carbon. Since it is smokeless, it is ideal for domestic fuel. In addition, it is used in the iron and steel industry and railways. In India, it is found only in Jammu and Kashmir.
27. What are the uses of bituminous coal? Name three states in India where it is found along with two major coal fields in each state.
Bituminous coal is used for producing coke, coal gas and steam coal. Coke is used for the smelting of iron ore. In India, bituminous is found in the following states.
1. Bihar – Ramgarh and Karanpura
2. Jharkhand – Jharia and Bokaro
3. West Bengal – Raniganj and Durgapur
4. Orissa – Sonhat and Talcher
28. Where is lignite used? Name two state along with specific location where there are lignite reserves.
Lignite is used in the production of thermal electricity. It is found in the following states.
1. Tamil Nadu – Neyveli and Veeranam
2. Gujarat - Umarsar and Panandhro
3. Rajasthan - Palna
21. Which is the largest coal field in India?
Jharia Coal Field
29. How is petroleum formed in nature? Why is petroleum prospecting so difficult?
Petroleum is formed when dead remains of animals are decayed in shallow marine conditions. Since it migrates through porous rocks after formation, it is extremely difficult to prospect for petroleum.
30. What is the status of India with regard to petroleum production?
India is not able to meet its requirements of petroleum and has to import 70% of its requirement.
31. Write short notes on ONGC, GAIL, LPG and CNG
a. **ONGC –** ONGC stands for Oil and Natural Gas Corporation (earlier Commission) Ltd. It was set up in 1956. It is the apex body which undertakes prospecting and refining crude oil in India.

b. **GAIL –** GAIL stands for Gas Authority of India Ltd. It was set up in 1984 and is the largest organisation in India handling post exploration activities
relating to transmission, processing and marketing of natural gas and its by-products. It owns and operates about 5000 km of gas pipeline.
c. **LPG –** LPG or Liquefied Petroleum Gas is a clean fuel which does cause pollution. It has a high calorific value (50 kJ). In addition, it does not produce any poisonous gases while burning and is easy to store and transport.
d. **CNG –** CNG or Compressed Natural Gas is used for running vehicles and produces negligible amounts of nitrogen and sulphur when burnt. CNG can be easily transported. It is fast replacing petrol and diesel as a fuel for vehicles.
32. Name two important oil fields in each of the following regions. Also state the approximate contribution of each region in India's petroleum production
a. *North East India*
b. *Western India*
c. *Off Shore*
d. **North East India –** Digboi and Naharkatiya; 16%
e. **Western India –** Cambay and Ankleshwar; 18%
f. **Off Shore –** Bombay High; 63%
33. Mention a few recent discoveries of crude oil and natural gas in India.
a. Oil has been found near Ankleshwar in Gujarat.
b. Natural gas has been found in the Krishna Godavari basin 200 km offshore from Vishakhapatnam.
c. Natural gas has also been discovered in Barmer in Rajasthan and Mehsana in Gujarat.
34. What is the function of oil refineries? How many major oil refineries are there in India? Mention five major oil refineries India.
Oil refineries produce petroleum products like kerosene, diesel, petrol, etc through a process called fractional distillation. At present there are 18 oil refineries in India, chief among them are
a. Mathura in Uttar Pradesh
b. Koyali near Baroda in Gujarat
c. Kochi in Kerala
d. Haldia near Kolkata in West Bengal
e. Bongaigaon and Nunamati near Guwahati in Assam
f. Mumbai in Maharashtra – 2 refineries
35. What is the rationale behind setting up oil refineries near the coast?
Oil refineries are set up near the coast for two reasons namely
a. Imported crude oil can be refined.
b. Transport becomes easier between ports.
36. Name two refineries in India which process crude from
a. *Naharkatiya oil fields* - Nunamati and Digboi refineries
b. *Ankleshwar oil fields* - Mumbai and Koyali refineries

Mineral	**State**	**Location**
Iron Ore	Orissa	*Mayurbhanj and Keonjhar*
	Jharkhand	*Singhbhum and Palamau*
	Chhattisgarh	*Durg and Bastar districts*
Manganese	Maharashtra	*Nagpur and Bhandara*
	Orissa	*Mayurbhanj and Keonjhar*

	Madhya Pradesh	*Jabalpur and Chhindwara*
Limestone	Madhya Pradesh	*Jabalpur and Satna*
	Chhattisgarh	*Bilaspur and Raipur*
	Andhra Pradesh	*Vijayawada and Cuddapah*
Bauxite	Orissa	*Kalahandi and Sambalur*
	Jharkhand	*Ranchi and Palamau*
	Gujarat	*Jamnagar and Surat*
Coal	Jharkhand	*Jharia and Bokaro*
	Orissa	*Sambalpur and Talcher*
	West Bengal	*Raniganj and Durgapur*
Petroleum	Assam	*Digboi and NaharKatia*
	Bombay High	*Bombay High*
	Gujarat	*Ankleshwar and Kalol*

4.Natural Vegetation of India

1. What do you mean by natural vegetation?
Vegetation that grows without the interference of man and adapts itself to the limitations of the natural environment
2. 'Today natural vegetation is found only in remote areas'. Why?
Natural vegetation has been cleared from accessible areas due to the growth of population; to make space for settlement, agricultural land, industries and infrastructural development
3. What are the geographical factors affecting the natural vegetation of a place?
Geographical factors affecting the natural vegetation of a place are climate, soil and topography.
4. Give three characteristics feature of the trees that are found in the evergreen forests?
The three characteristics of trees in the evergreen forests are
1. Dense growth of vegetation
2. Broad leaves
3. Dense canopy
4. Trees not found in pure strands (massive variety)
5. Provides valuable hardwood
5. Name two varieties of trees that are found in evergreen forests.
Rosewood and Shisham
6. Mention any two places where this forest is found in India.
Evergreen forests are found in western slopes of Western Ghats, West Bengal and Andaman & Nicobar Islands
7. Why is the floor of evergreen forest dark?
The floor of evergreen forest is dark as sunlight cannot penetrate through the broad, dense and interlocking canopy
8. Mention three characteristic features of tropical deciduous forest.
1. Trees shed their leaves in spring season.
2. Wood is found in pure strands.
3. Trees are economically very important.
9. Name five trees of the Monsoon forest.
Teak, Sal, Semul, Sandalwood, Myrobalan

10. Name any three states where this forest is found.
MP, Chattisgarh, Assam, Orissa, Karnataka
11. Why are the deciduous forests economically more important than the evergreen forests?
1. Trees are not densely spaced so they are easy to cut.
2. Wood is of good quality
3. Wood is cheap and readily available
4. There are many uses of the forest products
12. Mention one use of the following: Sal, Teak, Sandalwood, Semul, Myrobalan
Sal: Used to make railway sleepers
Teak: Used for making furniture & ship
Sandalwood: Oil used for perfumery
Semul: Match boxes & packing cases
Myrobalan: Dyeing of cotton, silk and wool
13. Mention any three adaptations made by the trees of desert along with justification.
1. Long roots to tap ground water from greater depth
2. Small leaves and spines to reduce water loss through transpiration
3. Spines to protect themselves from predators
14. Name two trees found in the tropical deserts of India.
Babul & Date Palm
15. Which states of India has this type of vegetation?
Gujarat & Rajasthan.
16. What is the function of the stilted roots in the Tidal forest?
Stilted roots help in respiration of the trees since soil is waterlogged all the time.
17. Name one place in India which is famous for this type of forest.
Ganga Brahmaputra delta
18. Name any two trees that are found here.
Sundari , screw pine, agar, keora
19. Why does the vegetation change with elevation?
This is because climate, soil and topography change with elevation.
20. Name any three trees that belong to Mountain forest.
Pine,deodar and fir.
21. Mention the uses of these trees.
Pine: Making of turpentine and tea chest
Fir: Making of matchbox, paper and pulp.
Deodar: Making of railway sleepers.
22. What is forest conservation?
Proper and sustainable use of forest resources without causing any adverse effect on our economy or environment
23. Name any two forest conservation programmes.
Vanamahotsava and Chipko Movement.
24. Mention the objectives of forest conservation
1. Check indiscriminate deforestation
2. Prevent overgrazing
3. Control shifting cultivation
4. Carry out deforestation and reforestation in quick succession
5. Efficient utilization of forest products
25. Name the four major natural vegetation belts of India
1. Tropical Evergreen forests: Windward Part of Western Ghats
2. Tropical Dry forests: Rajasthan, Gujarat and Punjab
3. Delta or Tidal forests: Sunderbans

4. Mountain Vegetation: Himachal Pradesh, Kashmir
5. Tropical Deciduous or Monsoon Forests: Rest of India

26. What is the rainfall range of (i) Tropical evergreen rain forests and (ii) Thorn and scrub forests?

Tropical evergreen rain forests: 200cm Thorn and scrub forests: less than 25cm.

27. Name the type of forests found in the Sundarbans of West Bengal and Bangladesh.

Tidal Mangrove Forest.

28. What is the difference between afforestation and reforestation?

Aforestation - Planting trees in any place. Reforestation - Planting trees in deforested areas.

29. Explain, why Deciduous Monsoon Forest are found on the eastern part of South India?

Being on the leeward side of the Western Ghats, the region receives rainfall of 100-200 cm which supports the growth of deciduous forest.

30. Where are dry thorn forests found in India? Name two important trees that grow in these forests.

Dry thorn forests are found in Gujarat and Rajasthan. The two important trees are Babul, neem and Ber.

5.Water Resources of India

1. Mention six major uses of water.

Water is used for
1. Domestic purposes
2. Agriculture
3. Industries
4. Generating hydro electricity
5. Navigation
6. Recreation

2. Mention four ways in which water is important for a country like India.

1. The population of India is growing at a rapid rate. People need water for domestic use.
2. With growing population, the demand for food increases. To grow more food crops, we require more water.
3. Agriculture alone cannot support the needs of the growing population. For economic growth, more industries are required and industries require water.
4. Industries require power. Flowing water can provide cheap hydro electricity.

3. What do you mean by irrigation?

Irrigation is the artificial means of availing water for various purposes

4. Emphasize the need for irrigation in India.

1. Rainfall in India is seasonal, uncertain, uneven and sporadic.
2. Different crops have different water requirements.
3. It is indispensible in semi arid regions of Gujarat, Andhra Pradesh, Rajasthan etc.
4. It is necessary to extend the frontiers of cultivation in order to fulfil the food requirements of a growing population.

5. Mention 3 primitive and 3 modern modes of irrigation.

Primitive – Wells, Tanks and Inundation Canals Modern – Perennial Canals, Tube wells and Dams

6. What is a well?

A well is a hole or shaft in the earth dug or drilled to tap an underground supply of water.

7. State two conditions required for a well.

1. The ground water table must be high.
2. The underlying rocks must be soft, porous and permeable.

8. Mention 2 ways of drawing water from a well.

Persian Wheel, inclined plane method, power driven pumps, Lever method
9. Mention 3 states in India where well irrigation is prominent. Why are wells common in these states?
Uttar Pradesh, Bihar, Haryana & Punjab. This is because the water table is high and country rock is soft, porous and permeable.
10. Mention 3 advantages of well irrigation.
1. It is the cheapest source of irrigation.
2. It can be dug at any convenient place, regardless of topography.
3. It is an independent source of irrigation.
11. Mention 3 disadvantages of well irrigation.
1. It may fail to provide water during the dry summer months
2. A well can provide water only to 1 to 2 hectares of land.
3. Drawing water out is time consuming.
4. Water in a well is stagnant and therefore prone to contamination.
12. What is a tank?
A tank is a natural or artificial pool or pond used for water storage.
13. State two conditions required for a tank.
1. There should be a natural depression.
2. The underlying rock should be non-porous
14. Mention 3 states in India where tank irrigation is prominent.
Andhra Pradesh, Karnataka & Tamil Nadu
15. Why are tanks common in the Deccan Plateau?
1. Due to uneven topography, the Deccan Plateau has many natural depressions.
2. The plateau is made up of hard, non-porous igneous and metamorphic rocks.
16. Mention 3 advantages of tank irrigation.
1. It stores rain water and prevents surface run-off
2. It irrigates a larger area compared to wells
3. It helps in raising the underground water level
17. Mention 3 disadvantages of tank irrigation.
1. It occupies large area which otherwise could have been used for cultivation
2. Many tanks dry up in the dry months
3. Silting of tank is a problem
4. Water is lost by evaporation
18. Mention 2 types of canals.
Inundation canals and Perennial canals
60. What is an inundation canal?
An inundation canal is an artificial spillway for mitigating flood water out of rivers.
61. What is the greatest advantage of inundation canals?
They are useful in controlling floods
19. Mention 3 disadvantages of inundation canals.
1. There is uncertainty of water supply
2. Only low lands areas are irrigated
3. They can be used only during floods
20. Mention 3 ways in which perennial canals may have water.
Perennial canals may have water through perennial rivers, dams and reservoirs.
21. Mention 3 advantages of perennial canals.
1. They are perennial source of irrigation
2. They can irrigate a very large area
3. Irrigation through perennial canals is quite cheap in the long run
22. Mention 3 disadvantages of perennial canals.
1. Cost of construction is high

2. Prone to water pollution
3. Can irrigate only low lying areas

23. What advantages do modern methods of irrigation have over primitive methods?

1. They provide water round the year
2. They can irrigate a much larger area.
3. They are more reliable.
4. They are easy to operate.
5. Large amount of water can be pumped by electric or diesel driven motor.

24. Mention 3 important canal systems each in North India and South India along with the states irrigated.

Canal Systems in North India

1. Ganga Canal - UP & Bihar
2. Nangal Dam Canal - Punjab and Haryana
3. Indira Gandhi Canal - Dry areas of western Rajasthan

Canal Systems in South India

1. Godavari Canal - Maharashtra and Andhra Pradesh
2. Tungabhadra Dam Canal - Karnataka and Andhra Pradesh
3. Hirakud Dam Canal - Orissa
4. Periyar Project Canal - Tamil Nadu
5. Mettur Project Canal - Tamil Nadu

25. Why are canals not found in the Deccan plateau?

Canals are not found in the Deccan Plateau because the topography is uneven.

26. Mention 3 differences between an ordinary well and a tube well.

Parameters	**Well**	**Tube well**
Width	More	Less
Depth	Less	More
Quantity of water drawn	Less	More
Quality of water	Prone to contamination	Generally good

27. What conditions are essential for a tube well?

1. The ground water table must be high.
2. The underlying rocks must be soft, porous and permeable.

28. Mention 3 advantages of tube wells.

1. Quantity and duration of water availability compared to normal wells is greater
2. Private ownership, convenient to use
3. Quality of water is good
4. No loss of water due to evaporation

29. Mention 2 disadvantages of tube wells.

1. The water table depletes ate a fate rate
2. Salt water ingression in coastal areas may happen

30. How does salt water ingression happen in tube wells?

Due to increased pumping of water from tube wells in coastal areas, the water table falls below sea level and pores in the aquifer become empty. If the aquifer is connected to the sea, the pores in the aquifer are then filled with salt water.

31. Mention 3 states in India where tube wells are common.

Uttar Pradesh, Bihar, Haryana, Punjab

32. What purposes are served by a multipurpose project?

1. Irrigation
2. Hydro electricity
3. Flood control
4. Recreation

33. What is the environmental impact of huge dams?

1. Several species of wild animals like the River Dolphin and Hilsa fish have been pushed into threatened status.
2. The downstream part of a dam is often affected by the ingress of salt water from the sea during high tides.
3. The creation of dams has flooded over 5000 sq. km. of forest land in India.

34. What do you mean by conservation of water?

Water conservation refers to

- reducing the wastage of water
- using water available in an efficient manner
- storing it for future use.

35. Emphasize the need for water conservation in India.

In India, water needs to be conserved due to the following reasons.

1. Uncertain rainfall
2. Increasing population leading to reduction in per capita availability of water
3. Rapid industrialisation leading to pollution of water

36. Mention 3 approaches taken to conserve water.

1. Rain Water Harvesting
2. Reducing water pollution
3. Technology for efficient use of water

37. Mention 3 advantages of sprinkler and drip irrigation.

1. Minimum loss of water due to seepage or evaporation
2. Greater yield
3. Reduces the chances of weeds

38. What is a watershed?

A **watershed** is a basin-like landform defined by highpoints and ridgelines that descend into lower elevations and stream valleys.

39. What do you mean by watershed management?

Watershed management is the process of creating means and methods of reducing surface run-off, and conserving water within the watershed for future use.

40. Which irrigation method is an outcome of watershed management?

Tank

41. Mention 3 advantages of watershed management.

1. Reducing surface run-off
2. Recharging groundwater
3. Irrigation

42. What is rooftop rainwater harvesting? What purposes does it serve?

Collecting rainwater from rooftops is known as rooftop rainwater harvesting. The water can be

a. Stored for future use

b. Used to recharge groundwater

43. State the objectives of the National Water Policy.

- Creation of a national water grid
- Conservation of water
- Reducing water pollution
- Reduce surface run off and river bed silting
- Recharging of groundwater
- Provide water to deficit areas

6.Agriculture in India

Types of Agriculture

1. State or name

a. Two plantation crops

Tea and Rubber

b. Crops grown between March and June

Zaid Crops

c. Architect of Green Revolution in India

Prof. M. S. Swaminathan

d. Crops sown in June and harvested in October

Kharif Crops

e. Type of agriculture which heralded the beginning of civilisation

Settled Agriculture

f. Local name for agriculture which involves 'slash-n-burn'

Jhumming

g. Type of agriculture practised by most of the farmers of India

Intensive Subsistence Type

h. Type of agriculture where farmer engages in practices like poultry or raising of livestock

Mixed Farming

i. Crop sown in October and harvested in March

Rabi Crop

j. Method of increasing agricultural yield by bringing more land under cultivation

Extensive Agriculture

k. Technique of growing two or more crops intermingled with each other

Mixed Cropping

l. Method of growing two crops simultaneously in a field in a definite row pattern

Inter Cropping

m. Growing of different crops on a piece of land in a planned sequence

Crop Rotation

n. Agricultural practice where yield is mostly consumed by farmers' families

Subsistence Agriculture

o. India's apex agricultural research institution

ICAR (Indian Council of Agricultural Research)

p. Agricultural practice where yield is maximised from a small piece of land by using better seeds, machines and fertilisers for the produce to be sold to the market

Intensive Commercial Agriculture

q. Practice of growing the same crops year after year on the same land

Monoculture

r. Two crops grown by people practising shifting agriculture

Yam and Tapioca

2. Why is agriculture called the mainstay of the Indian Economy?

Agriculture is called the mainstay of the Indian Economy because of the following reasons.

1. More than 70% of India's population depends directly on agriculture to earn a living.
2. Crops grown by Indian farmers provide food for the entire Indian population.
3. Agriculture provides raw material to many industries like textiles, sugar, etc.
4. Agricultural produce fetches a large amount of foreign exchange.

3. List the salient characteristics of the following

a. Shifting Agriculture

b. Subsistence Agriculture
c. Plantation Agriculture
d. Mixed Farming

a. **Shifting Agriculture**

i. A piece of land is cleared in the forest by felling trees or 'slash-n-burn'.
ii. Seeds are directly planted without ploughing the land.
iii. Root crops like yam and tapioca, which can be preserved for a longer period of time, are grown.
iv. Tribal and nomadic people in the north-eastern states of India practise shifting agriculture.
v. After 2 or 3 years, the soil loses fertility and as a result, is abandoned. The farmers then move elsewhere.

b. **Subsistence Agriculture**

i. The main objective of subsistence agriculture is consumption by the farmer's family.
ii. The farm is entirely managed by farmer's family members.
iii. All the work is done manually and traditional methods are followed.
iv. Farms are small in size.

c. **Plantation Agriculture**

i. Plantation agriculture is carried on in huge estates.
ii. A single crop is grown on the estate.
iii. Requires a lot of investment and labour.
iv. The crop takes a few years to give yield.
v. Scientific methods are used.
vi. Yield is sold directly to the market and even exported.

d. **Mixed Farming**

i. In mixed farming, the farmer uses some part of his land to carry on additional activities like cattle rearing, poultry or fishing.
ii. The farmer earns additional income from the activities.
iii. The farmer reduces the risks associated with agriculture in this manner.

4. List three differences between Intensive and Extensive Agriculture.

	Intensive	**Extensive Agriculture**
Farm Size	Small	Large
Investment	Less	More
Labour	More	Less

5. List three differences between Intensive Subsistence Agriculture and Intensive Commercial Agriculture.

	Subsistence	**Commercial**
Objective	Self consumption	Selling to market
Methods used	Traditional	Scientific
Risk taken by farmer	Less	More

6. Explain the term monoculture. Explain its effect of the environment and genetic diversity.

Growing of plants of the same type in the same soil year after year is called monoculture. The effect of monoculture is depletion of soil nutrients, making the crops of the forthcoming season poor in quality and yield. In order to sustain monoculture, costlier inputs like irrigation, fertilisers and pesticides are required.

7. What is 'sustainable' agriculture?

Sustainable agriculture is the successful management of resources for agriculture to satisfy the changing human needs, while maintaining or enhancing the quality of environment and conserving natural resources.

8. Distinguish between mixed cropping and mixed farming.

Mixed cropping is the growing of two or more crops simultaneously intermingled with each other without a definite row pattern with the object of minimising risk of crop failure.

Mixed farming is a method by which the farmer uses some part of his land for additional activities like cattle rearing, poultry or fishing in order to earn additional income and minimise risks associated with agriculture.

9. Distinguish between mixed cropping and inter cropping.

Mixed cropping is the growing of two or more crops simultaneously intermingled with each other without a definite row pattern with the object of minimising risk of crop failure.

Inter cropping is growing of two or more crops simultaneously in the same field in a definite row pattern with the object of increasing the productivity per unit area.

10. Why are leguminous plants an important component of any cropping system?

Nitrogen is an essential element for plant growth. Leguminous plants are instrumental in restoring the nitrogen supply of the soil. Therefore leguminous plants are alternated with other crops, reducing fertiliser needs.

11. Mention three advantages of intercropping over mixed cropping?

The advantages of intercropping over mixed cropping are

1. Soil erosion is checked.
2. Seeds of two crops are not mixed before sowing; hence fertilisers can be added as per the need of the crops.
3. Different crops can be harvested and threshed separately as the maturity periods of the crops vary.
4. The produce of each crop can be harvested and consumed separately.
5. Inter cropping makes better use of natural resources like sunlight, land and water.

12. What is crop rotation? Explain with the help of an example how crop rotation helps in

a. Weed Control

b. Soil Protection

c. Saving of labour

d. Sustained supply of nitrogen

e. Reduction of risk of crop failure

The growing of different crops on a piece of land in a pre planned succession is called crop rotation.

Most pathogens do not infect multiple crops and survive on plant residue. Therefore, by rotating winter and summer crops, the farmer fights summer weeds in winter and vice versa.

Land left fallow or bare may be susceptible to leaching and erosion. Crop rotation prevents this.

Several crops may be grown in succession with only one time ploughing of the soil. For example, maize stubble containing nutrients is left on the land for wheat.

Crop rotation involving leguminous plants ensures a regular supply of nitrogen in the soil.

Risks are distributed among several crops as a guarantee against crop failure.

13. What do you mean by fallow land? State its advantages and disadvantages.

Fallow land is the land left bare without growing any crop for a season.

Fallowing ensures that the decayed vegetative matter helped to increase the plant nutrients in the soil. Also, it helps to increase the sub-soil moisture and improves the general structure of the soil.

However, land left fallow or bare may be susceptible to leaching and erosion.

14. Write a short note on 'Green Revolution'.

Green Revolution has caused the total yield of food crops to increase five fold since 1950.

Green Revolution involves the increased use of fertilisers, irrigation and high-yielding varieties (HYV) of rice, wheat and maize. These varieties produce bumper harvests and in some cases mature faster, enabling the farmer to grow two or more crops in a year.

Prof. M. S. Swaminathan, recipient of the World Food Prize, and the American agronomist Norman Borlaug, are the architects of the Green Revolution in India.

15. Explain the following terms.

a. Dry Farming

b. Irrigated Farming

c. Humid Farming

a. **Dry Farming:** This is done in regions having scanty rainfall and poor irrigation facilities. Soil moisture is conserved by repeatedly ploughing the field. Crops like wheat, pulses, millets, etc, are grown. Red soil is suitable for this purpose.
b. **Irrigated Faming:** In regions with seasonal rainfall, irrigation compensates for the irregular rains. Thus, crops can be grown all round the year. Cash crops like sugarcane, tobacco and cotton are mainly cultivated by this method.
c. **Humid Farming:** Regions with heavy rainfall raise crops without the use of irrigation. Areas with heavy rainfall grow rice, jute, tea etc. while areas with moderate rainfall grow crops like wheat, barley, millets, etc.

16. Explain why the yield of Indian Agriculture is low compared to world standards.

The yield of Indian agriculture is low compared to world standards because of the following reasons.

1. Unreliable rainfall

The Indian farmer depends on rainfall for agriculture. Since this rainfall is uncertain and unreliable, the farmer is hesitant to take risks.

2. Soil Erosion

Long dry periods cause the soil to be exposed to agents like wind and running water, which erode a substantial amount of fertile soil.

3. Unscientific methods of cultivation

Most of the farming in India is of the intensive subsistence type. The farmers use traditional methods which are not very effective. Hence the yield per hectare is very low compared to world standards.

4. Human factors

a. Most of the Indian farmers do not own the land which they plough. Hence, they have little incentive to grow more and better.

b. Most farmers are poor and cannot afford the cost of better seeds, fertilisers and machines.

c. Farmers have no security against the failure of crops.

17. Describe the steps taken by the government to increase the yield of crops.

In recent times, the Government of India has taken the following measures to increase agricultural yield per hectare.

1. The government has made good quality seeds available to the farmer at subsidised costs.
2. The government buys certain crops at fair prices in order to protect the farmer against exploitation.
3. Loans and credit cards are now available to the farmer to buy farming equipment and constructing wells.
4. The government has encouraged consolidation of farms making them economical to cultivate.
5. Commodity exchanges like MCX (Multi Commodity Exchange) and NCDEX (National Commodities and Derivatives exchange) have been set up to appreciate the prices of agricultural produce and also to ensure that the Indian farmer gets a minimum price for his produce.

8. Food Crops

18. State or name

a. Three varieties of rice cultivated in West Bengal

Aus, Aman and Boro

b. Largest rice-producing state in India

West Bengal

c. One area where rice is grown under 'jhumming' method

Assam and Arunachal Pradesh

d. A state in south India where rice is grown extensively

Tamil Nadu

e. Three methods of sowing rice

Broadcasting, dibbling and drilling

f. Method of sowing rice in nurseries and then transferring the seedlings to the field

Transplanting

g. Leading wheat-producing state in India

Uttar Pradesh

h. Type of wheat grown in India

Spring Wheat

i. Disease caused in wheat due to excess water

Mildew

j. Fungus which affects wheat crop in India

Rust

k. One variety of millets grown mostly in South India

Ragi

l. Two states which are the leading producers of millets.

Maharashtra and Gujarat

m. Three most common pulses

Gram, tuver and moong

n. Two kharif food crops

Rice and Millets

o. Two rabi food crops

Wheat and Pulses

19. State the advantages of growing rice in nurseries.

The advantages are that better growing seeds are identified easily and they can in turn, be transplanted.

20. State the conditions of soil and climate suitable for the cultivation of rice.

Rice requires the following conditions of soil and climate

Soil	Alluvial soil with a sub-soil of impervious clay
Temperature	16 °C to 20 °C while sowing; 18 °C to 32°C while harvesting
Rainfall	150 cm to 300 cm
Additional	Fields need to be flooded during first few weeks

21. Up to what altitude can rice be grown?

So long as its temperature requirements are satisfied, rice can be grown on different altitudes. For example, it is grown in Jammu and Kashmir at a height of 2000 m and in Kuttanad regions in Kerala which is below sea level.

22. What do you mean by 'transplantation'? State its advantages.

Transplanting involves growing of rice in nurseries and transferring the seedlings into the fields after about a month when they are 15 to 20 cm high. The advantage of transplantation is that the yield per hectare in increased since only seedlings which grow well in nurseries are transplanted to the field.

23. Explain broadcasting, dibbling and drilling.

Broadcasting: It is simply scattering or throwing seeds over the soil by hand. This method is practiced in areas where labour is scare and soil is not much fertile.

Dibbling: In this method, seeds are dropped at regular intervals in ploughed furrows. This method of rice sowing is used in Northern Plains of India.

Drilling: In this method, seeds are dropped through shafts of bamboo which is attached to the plough. In this way, seeds fall in straight line. Now-a-days, drilling machines are used in place of bamboo.

24. Why is the yield in the Japanese method of rice cultivation higher?

The yield in the Japanese method of rice cultivation is higher because of

1. Use of better quality seeds

2. Transplantation
3. Proper irrigation
4. Treatment of the crop with appropriate fertilisers at the proper stage of growth

25. State the differences between the cultivation of upland rice and lowland rice.

	Upland Rice	**Lowland Rice**
Areas grown	Terraced fields on hill slopes	Flat, low-lying areas
Irrigation	Depends totally on rainfall	Required during sowing and harvesting period
Sown in	March and April	June
Harvested in	September and October	October and November

26. Why is the yield of rice very low in India as compared to other countries of the world?

Currently, the average yield of rice per hectare is 1756 kg. It is the lowest in the world. The yield per hectare of rice in Japan, China and Korea is about three times that of India. This is because:

a. Rainfall in India is uncertain and is concentrated to four months.
b. There is a lack of assured water supply through irrigation in rice growing areas.
c. General fertility of Indian soils is less because these have been cultivated from the last 5000 years.
d. Farmers do not use efficient methods of cultivation.
e. Widespread poverty in the rural areas prohibits the use of adequate amount of fertilizers, pesticides, etc.

27. What are rabi and kharif crops? Is wheat a rabi crop or a kharif crop?

Kharif crops are sown in June and harvested in October while *rabi* crops are sown in October and harvested in March. In other words, *kharif* crops are summer crops while *rabi* crops are winter crops. Wheat is a *rabi* crop.

28. Why is wheat not grown in the extreme southern parts of India?

Wheat requires that at the time of sowing, the temperature should not rise beyond 15 °C. This is not possible in southern parts of India where the temperatures in winter are higher than 15 °C. Hence, wheat is not grown in south India.

29. In terms of climatic conditions, what is the difference between the cultivation of rice and wheat?

a. Rice is a *kharif* crop while wheat is a *rabi* crop.
b. Rice requires higher temperatures of 18 to 32 degree Celsius while wheat requires cooler conditions of 10 to 15 degree Celsius
c. Rice requires heavy rainfall while the same is harmful for wheat.

30. Why is the area under wheat cultivation on the increase?

The use of **Green Revolution Technology** (use of chemical fertilisers, irrigation and insecticides and pesticides) has helped grow high yielding varieties of wheat which are also drought-resistant and are able to survive high fluctuations in rainfall. For these reasons, wheat is now been brown in areas where it was not grown earlier, thus increasing the area under wheat cultivation.

31. State the climatic and soil conditions favourable for the cultivation of wheat.

Soil	Well drained heavy textured soil rich in lime, e.g., alluvial and black soil
Temperature	10 °C to 15 °C while sowing; 25 °C to 28°C while harvesting
Rainfall	50 cm to 100 cm
Additional	While sowing, temperature should not be more than 15 °C

32. State three factors which make it possible to grow wheat in Western U.P.

The factors which make it possible to grow wheat in western U.P. are

a. Cool climate while sowing
b. Well drained, heavy textured, alluvial soil

c. Rain due to western disturbances in winter

33. What is the common feature of all millets?

The common feature of all millets is that they are grown on inferior soils where it is not possible to grow rice. In addition, all millets have round seeds which are borne in large numbers on short stalks at the end of the stem.

34. Why are millets called 'dry' crops?

Millets are called dry crops because they do not require much rainfall and can survive drought.

35. What are the main uses of millets in India?

Millets are widely used as animal fodder and bird seed; millets flour is used to make the Indian pancake known as 'roti'.

36. State the importance of pulses in India. Pulses are important in India because of the following reasons.

a. They are the chief source of protein to the largely vegetarian population of India.

b. They are leguminous plants which restore the nitrogen content of the soil.

37. Why are pulses considered a good rotation crop for rice?

Rice is a *kharif* crop while pulses are *rabi* crops. Pulses help restoring the nitrogen content of the soil which is exhausted by rice and hence they are considered good rotation crops for rice.

38. State the conditions of soil and climate suitable for the cultivation of gram.

Soil	Any soil which is not water logged
Temperature	20 °C to 30 °C
Rainfall	25 to 50 cm
Additional	Too much rainfall after sowing and during flowering is damaging

39. How are pulses harvested?

Pulses mature in about 150 days or about five months. When leaves of plants become dry and begin to shed, these plants are pulled out. They are dried for a few days. Then they are threshed by trampling under the feet of bullocks or with sticks to get the seeds.

9. Cash Crops

40. State or name

a. One state in south India which produces sugarcane in large quantities

Maharashtra

b. Largest sugarcane-producing state of India

Uttar Pradesh

c. Method of propagating sugarcane crop from the existing crop

Ratooning

d. Short stalks from which sugarcane is propagated

Setts

e. Curved knife used to harvest sugarcane

Machete

f. Three mainstream products of sugarcane

Sugar, Gur (jaggery) and khandsari

g. Three by-products of sugarcane

Molasses, Bagasse and pressmud

h. Dark brown syrup obtained after filtering sugarcane juice

Molasses

i. Crushed material obtained after extracting juice from sugarcane

Bagasse

j. Scientific name of the rubber tree

Hevea Brasiliensis

k. Viscous liquid obtained from the rubber tree which is processed into rubber

Latex

l. Largest rubber-producing state of India

Kerala

m. Common pest of the cotton crop

Bollworm

n. Process of separating seeds from cotton fibre

Ginning

o. Two varieties of cotton

Short staple cotton and long staple cotton

p. Leading cotton-producing state of India

Gujarat

q. Process in which jute stems are immersed in soft running water

Retting

r. Largest jute-producing state of India

West Bengal

s. A crop which is considered to be a substitute for jute

Mesta

t. Two types of groundnut plants grown in India

Bunch type and Runner type

42. State or name

a. Largest groundnut-producing state of India

Gujarat

b. Two oilseed crops which bear yellow flowers and look identical in the field

Mustard and Rapeseed

c. Oilseed used for perfumery

Sesamum Oil

d. Plant which yields linseed

Flax

e. Fabric obtained from the fibre associated with linseed

Linen

f. Oil used for seasoning of wood

Linseed Oil

g. Oil used as a lubricant for high-performance engines and airplanes

Castor Oil

h. Oil equal to olive oil in quality

Sunflower Oil

i. Oil used to make vanaspati

Sunflower Oil

p. Removal of central stem in tea and coffee in order to encourage lateral growth

Pruning

q. A set of two leaves and a bud which is plucked from the tea plant

Flush

r. Five steps in the processing of tea

a. Withering b. Rolling c. Fermentation d. Drying e. Sorting

s. Full form of CTC

Crushing, Tearing and Curling

t. Four varieties of tea based on size

Pekoe, Orange Pekoe, Pekoe Suchong and Pekoe dust

u. Process of mixing tea of good flavour and taste

Blending

v. Varieties of tea based on extent of fermentation

Green Tea, Black Tea and Oolong Tea

w. Three varieties of coffee

Coffee Arabica, Coffee Robusta and Coffee Liberica

x. Coffee which is used to make instant coffee

Coffee Liberica

y. Two trees which are grown to provide shade to the coffee plant

Oak and Jackfruit

z. Three cover crops in the cultivation of coffee

Orange, pepper and cardamom

43. State the geographical conditions essential for the growth of sugarcane.

Soil	Well drained, highly fertile soil like alluvial soil or black soil
Temperature	20 °C to 30°C
Rainfall	75 cm to 150 cm
Additional	Alternating wet and dry conditions

44. Why is irrigation necessary in the case of sugarcane cultivation?

Sugarcane requires alternating wet and dry conditions. This can be possible with controlled irrigation. Hence, irrigation is necessary in the case of sugarcane cultivation.

45. Why is it not advisable to grow two sugarcane crops one after another?

The sugarcane plant depletes the soil off its constituent minerals. Hence it is not advisable to grow two sugarcane crops one after another.

46. List three ways in which sugarcane can be propagated.

a. Sowing of seeds

b. Growing from short stalks of sugarcane (setts)

c. Growing from stumps of existing harvested sugarcane crop (ratooning)

47. What is 'ratooning'? What are its advantages and disadvantages?

Ratooning is a method by which a sugarcane crop is propagated from the stumps of an already harvested sugarcane crop.

The advantage of ratooning is that the cost of cultivation is less; it matures earlier and requires less labour while growing.

The disadvantage is that the ratoon crop is poorer in quality, its yield is less and soil is depleted.

48. Why are manures essential for sugarcane cultivation?

The sugarcane crop puts heavy demands on the soil for minerals, which is why it is essential to treat the soil with manure before cultivating sugarcane.

49. How is sugarcane harvested?

The sugarcane crop is cut close to the ground using a curved knife called a machete. This is done because the maximum concentration of sugar is at the base of the sugarcane plant.

50. Which is the most critical condition in the processing of sugarcane? Why?

The harvested sugarcane must be sent for processing within 48 hours because its sugar content rapidly decreases after 48 hours.

51. State the uses of molasses and bagasse.

Molasses are used to make alcohol.

Bagasse is used as an organic fertiliser and cattle feed. Besides, it is used as raw material in the paper industry and synthetic fibres.

52. List the sugarcane producing states of India.

In northern India, sugarcane is grown in Uttar Pradesh, Bihar, Haryana and Punjab.

In peninsular India, sugarcane is grown in Maharashra, Karnataka, Andhra Pradesh and Gujarat.

53. State the problems faced by sugarcane farmers in India.
Sugracane farmers in India face the following problems.
a. Canal irrigation is ideal for providing alternating dry and wet conditions for sugarcane. But in India, canals are often non-perennial. This factor makes the supply of water uncertain.
b. In south India digging of canals is very difficult. Also, rainfall received is low in interior parts of the Deccan.
c. Sugarcane cultivation requires a large quantity of manure and fertilizers as it is a soil-exhausting crop.
d. Cultivation of sugarcane on very small farms becomes highly uneconomic.
e. In many cases, farms growing sugarcane are away from the factories. A delay of more than 2 days, i.e., 48 hours between harvesting and crushing of sugarcane gives decreased sugar content of the sugarcane.
f. The support price determined by the government for sugarcane does not consider the quality of sugarcane. So, there is no incentive for better crop.
54. Why is the yield of sugarcane higher in the southern states?
In the southern states the sugarcane yield per hectare is higher due to the following reasons.
1. The farmers have consolidated their farms and hence reduced the cost of cultivation.
2. As a result of consolidation, the farmers are able to invest in better quality fertilisers, irrigation facilities, machines and setts of high yielding varieties of sugarcane.
3. Many farmers have established sugarcane processing units within the consolidated farms eliminating the risk associated due to transportation of sugarcane.
4. The farmers themselves work in the factories thus also eliminating labour cost in the sugarcane factories.
55. What steps has the government taken to help sugarcane farmers?
The government has taken the following steps to help sugarcane-growing farmers.
1. The government has set up several fertiliser units like GSFC, IFFCO, GNFC, etc.
2. By constructing multi-purpose projects, the government has ensured a dependable supply of water.
3. In the Ganga Plains, the government has provided loans to the farmers for the construction of tube wells.
4. Co-operative societies have been established to provide support to the farmers and help solve many of the problems that they face.
5. The Sugarcane Research Institute at Coimbatore has been established by the government to develop hybrid varieties with much higher sugar content.
56. Which characteristics of rubber make it such an important substance?
Rubber is elastic, water proof, air tight and insulates electricity. These characteristics of rubber have made it an important material.
57. State the geographical conditions essential for the growth of rubber.

Soil	Porous, well-drained laterite soil
Temperature	21 °C to 35°C
Rainfall	200 cm to 400 cm well distributed throughout the year
Additional	Hot, humid and wet conditions throughout the year

58. Describe the two methods used to propagate rubber.
Rubber can be cultivated or propagated in the following two ways: *(Note: These methods are rarely practiced in India, In India grafting is the process)*
1. **Propagation by seeds:** In this method, first of all, good quality seeds are germinated before planting. After germination, seedlings are planted in the nurseries. Unhealthy plants are eliminated in

the early stage and good care is given to the rest of the healthy plants. The plants are then transplanted to the field.

2. **Propagation by bud grafting:** In this method, buds from high yielding rubber tree is grafted on the seedling of about 5 cm high. The graft is then bound for a few weeks. A leaf is also tied on the graft to provide shade. When new shoot starts coming out or below the union. After this, the new shoot or the grafted section becomes the main part of the tree.

59. Why is rubber grown on gently sloping land?

Due to the following considerations rubber is grown on gentle slopes:

1. On flat or gentle slopes, machines can be used to clear the original vegetation.

2. Soil erosion becomes less on relatively gentle slopes, whereas on steep slopes soil erosion has turned out to be a major problem.

3. Terraced farming on steeper slopes may add to the cost of rubber cultivation because the formation of terraces requires additional labour.

4. Tapping of latex becomes easier on gently sloping land.

60. What are 'cover crops' in the context of rubber cultivation?

Some leguminous crops are sown between the seedling trees of rubber to conserve the soil by adding humus and nitrogen content to the soil. The cover crops become the source of income for farmers until the rubber trees become mature after 7 to 8 years and starts giving income.

61. List the four criteria for tapping latex from the rubber tree.

Tapping latex from the rubber tree would involve the following considerations.

1. The cut of groove has to be made 1.5 m above the ground.

2. The cut should be sloping towards the right.

3. The cut should be inclines at 30° with the horizontal.

4. The cut should be only 2 mm deep.

62. Why is taping of latex not done during the rains?

Tapping of latex is not done during as it dilutes the latex.

63. How is rubber processed?

The following steps are involved in the processing of rubber:

1. Coagulation of rubber by adding acids into it.

2. Pressing of rubber to squeeze out water.

3. Drying and smoking of rubber.

4. Packing rubber in bales for marketing.

64. Which conditions in Kerala favour the growth of rubber?

Kerala is well suited for the growth of rubber. This is due to the following factors.

1. The climate of Kerala is almost equatorial. It enjoys a hot and humid climate throughout the year.

2. Kerala receives plenty of rain from April to November.

3. It has well drained laterite soil in the Annamalai hills which is suitable for the growth of rubber.

65. Why is tapping considered to be such a skilled job?

Tapping of latex from a rubber tree is really a skilled job because a tapper has to make a cut which is only 2mm deep. If the cut becomes deep, it will damage the cambium which is a paper-like thin skin between the bark and the wood of the tree.

66. Which is the most widespread fibre crop of India? Which soil is most suitable for its growth?

Cotton is the most widespread fibre crop of India. Black soil is most suitable for its growth.

67. State the geographical conditions essential for the growth of cotton.

Soil	Black soil most suitable, but can grow on red soil and alluvial soil etc.
Temperature	21 °C to 27°C, abundant sunshine
Rainfall	50 cm to 80 cm well distributed during the growing season
Additional	Warm days, cool nights; can be grown both as *kharif* and *rabi* crop

68. Why is dry weather essential at the time of picking cotton?

Dry weather and sunny days at the time of harvesting of cotton help ripening and bursting of cotton balls.

69. What is meant by 'ginning'?

Ginning is a process by which the cotton fibre is separated from the cotton seeds. This is done using a ginning machine.

70. What is short staple and long staple cotton? Which states in India produce long staple cotton?

Short staple cotton has a fibre length of 2.2 cm while long staple cotton has a fibre length of 2.8 cm. In India, long staple cotton is grown in Punjab and Haryana.

71. State the distinctive feature of marketing raw cotton in Maharashtra?

In Maharashtra, many co-operative societies have undertaken the marketing of cotton. They also undertake its ginning and processing.

The government of Maharashtra also buys cotton from farmers at fixed guaranteed prices. This is to provide fair prices to the farmers and also to ensure the supply of unadulterated cotton to the consumers at reasonable prices.

72. State the geographical conditions essential for the growth of jute.

The geographical conditions essential for the growth of jute.

Soil	Deltaic alluvial soil renewed every year
Temperature	27 °C to 34°C
Rainfall	170 cm to 200 cm
Additional	Relative Humidity of 80% to 90%

73. Why is jute called the 'brown paper bag of wholesale trade'?

Jute is called the 'brown paper bag of wholesale trade' due to the widespread use of the jute fabric for wrapping bales of cotton and wool and packing and storing of cereals, fertilisers, finished products, etc in jute sacks.

74. Describe the appearance of fully grown jute plant.

The jute plant grows to a height of 2 to 4 metres. It has a spear like appearance and round 1 inch stems. It has some branches at the top. The fibre which is soft yet strong is obtained from the inner bark of the stem.

75. How long does jute take to mature? When is it harvested?

Jute takes 4 to 6 months to mature. The appearance of flowers marks its maturity. It is harvested in September-October.

36. What do you mean by 'retting'?

Retting is a microbiological process of removal of jute fibre from its stalk. After harvesting the jute, plants are submerged in soft, running water for two or three weeks. This loosens the fibres to remove it from the stalk. The retting process is said to be complete if the fibres slip out easily when the stalk is pressed between the index finger and thumb.

77. Briefly state the processes which are undertaken to prepare the jute crop for export.

a. After the retting process is complete, the fibres are obtained from the stalk by beating them with a wooden mallet to loosen the fibres.

b. The fibres are washed in clean water and wrung. They are then spread out in the sun to dry.

c. When the fibres are dry, they are bundled and sorted according to quality.

d. The bales are of 180 kg if meant for export and between 55 to 150 kg, if meant for local use.

e. They are sent to Kolkata, which is the nearest port, for export.

78. What are the uses that jute can be put to?

Jute can be used for making ropes, sacks, carpets, rugs, tarpaulins, upholstery, etc. Nowadays, jute dresses are also manufactured and sold in the market.

79. Which is a crop which can substitute some of the uses of jute? What advantages does it have over jute? Where is it grown in India?

Mesta is a crop which can substitute jute. It has coarser fibre and is inferior to jute in quality in strength. It can be used to make coarser sacks and bags. Since it can tolerate drier conditions, it can be grown in areas unsuitable for the cultivation of jute. Mesta is cultivated in Assam, Bihar, Tamil Nadu, Maharashtra and Kerala.

80. Name the major jute producing regions of India.

62% of the total jute comes from West Bengal. Jute is also cultivated in Bihar, Assam and Orissa.

81. State the economic importance of oilseeds in India.

a. As agricultural produce, oil seeds rank second to food grains in the Indian economy.
b. Oil-seeds provide vegetable oils which are being preferred to animal fats now-a-days, as people are becoming more and more health conscious.
c. Edible oils form a necessary part of our diet and provide energy.
d. Extraction of edible oil from oil-seeds in mills and ghanis gives employment to people. The oil industry provides employment to more than 10 million people.
e. Oil-cake is used as cattle feed and also as fertilizer for crops like cotton, tobacco, tea, sugarcane, etc.
f. Linseed oil and other vegetable oils are in demand in the manufacture of paints, varnishes and lubricants.

82. What is'oilcake'? What is its use?

After oil has been extracted from the oilseeds, the remainder is made into a cake known as oil cake. It is used as cattle feed.

83. Name four oilseeds which yield edible oil and two oilseeds which yield non-edible oil.

Oilseeds which yield edible oil are
a. Groundnut
b. Sunflower
c. Cotton seed
d. Mustard and Rapeseed
Oil seeds which yield non-edible oil are linseed and castor.

84. After oil extraction, what other uses can the oilseed is put to?

After oil extraction the oil seed can be made into an oil cake which in turn is used as a cattle feed.

85. State the main uses of linseed oil.

Linseed oil is used in the manufacture of paints, varnishes, thinners and printing inks. Besides it is also used in the seasoning of wood. The oil cake can be use as cattle feed.

86. What conditions of soil and climate are suitable for the cultivation of groundnut?

Soil	Light, sandy soil
Temperature	22 °C to 28°C
Rainfall	50 cm to 75 cm
Additional	Grown as a *rabi* crop in the southern states, as a *kharif* elsewhere

87. State the significance of the groundnut crop.

a. Groundnut oil forms an excellent cooking medium as refined oil and vanaspati ghee.
b. It is used in the manufacture of soaps, lubricants, candles, and margarine.
c. It is a leguminous plant which enriches the soil.
d. Its oil-cake is used as cattle feed.
e. Groundnut is eaten raw and roasted. It is nutritious as it contains vitamins A and B.

88. Is groundnut a 'kharif' crop of a 'rabi' crop? In which state is it grown extensively?

Groundnut is grown as a *rabi* crop in the southern state and as a *kharif* crop elsewhere. It is grown extensively in Gujarat.

89. Why are mustard and rapeseed grown along with wheat?

The geographical requirements of mustard and rapeseed are similar to those of wheat. Hence, they are intercropped along with wheat.

90. State four uses of sesamum oil.

a. Sesamum oil is used in cooking, perfumery and medicinal purposes.
b. Its seeds are rich in proteins, carbohydrates and minerals, so these can be eaten fried or with sugar as *laddoos* and *tilpattis*.
c. It serves as a good condiment for pickles.
d. Oil-cake of sesamum makes an ideal food for milch cattle and pigs.

91. Why is linseed oil used in making paints and printing ink? What other uses can linseed oil be put to?

As linseed oil dries up easily, it is used in making paints and printing ink. It can be also used in the seasoning of wood. The oil cake can be use as cattle feed.

92. What are the uses of castor oil?

Oil extracted from castor seed is used in the manufacture of paints, varnishes, printing inks, soaps, plastic, oil cloth and transparent paper. It is also used as lubricant for high speed engines and aeroplanes.

93. List some of the unique characteristics of soya bean.

a. Its beans may be eaten as a vegetable or can be made into different types of food.
b. Its beans contain twice as much proteins and fats than meat.
c. Soya bean contains all the 22 amino acids required for a balanced and healthy growth.
d. They are good source of iron and calcium and are low in cholesterol and starch.
e. Flour made from soya beans is gluten-free.
f. Its oil is low in fat.

94. What are the uses of soya bean oil?

Apart from cooking, soya bean oil is used to make margarine, paints, varnishes, etc.

95. What is the economic importance of tea in India?

The tea crop in India is important due to the following reasons.
1. It is the most preferred beverage in India
2. It provides employment to 1 million people in the areas where it is grown.
3. It supports the plywood, fertiliser and the transport industry.
4. It is one of the major foreign exchange earners of India.

96. What conditions of soil and climate are suitable for the cultivation of tea?

Soil	Porous soil like laterite soil
Temperature	25 °C, frost free conditions
Rainfall	150 cm to 200 cm well distributed throughout the year
Additional	Cannot tolerate stagnant conditions so it is to be grown on hill slopes

97. Explain why hill slopes are preferred for the cultivation of tea.

Tea plant cannot tolerate stagnant water around its roots. So, to prevent water-logging, mountainous slopes are preferred for tea cultivation.

98. What is clonal planting in tea cultivation?

In this method of tea growing, seeds are not planted rather cuttings from good high-yielding mother plants are used. This method is known as clonal planting.

99. What is meant by 'pruning'? State the reason for pruning.

Pruning is a method by which the central stem of the tea plant is cut in order to arrest vertical growth and keep the plant at a convenient height. This also encourages lateral growth and the occurrence of new shoots with soft leaves.

100. List the importance of all the five stages in the processing of tea.

a. **Withering:** This step removes the excess moisture from the tea leaves.
b. **Rolling:** To get the characteristic flavour, the leaves are twisted to break the cells. This step exposes the natural juices to fermentation.
c. **Fermentation:** The tannin in the leaves is oxidised in order to impart a coppery red colour to the tea leaves.

d. **Drying:** In this process, tea leaves are put in an oven set at a temperature between 70 °C and 75 °C for two weeks.
e. **Sorting:** Tea leaves are sorted according to decreasing size.

101. Explain how tea is plucked?

Tea leaves can be plucked after 3 to 5 years. Plucking is done by hand. The tea pluckers pluck a set of two tender leaves and a bud known as a 'flush' which is called fine plucking. Each plucker plucks up to 50 kg of tea leaves every day.

102. What is meant by 'blending' of tea?

Blending of tea involves a desirable mixing of tea of good flavour and good liquor. Blending of tea is done by 'tea-tasters' who have sensitive tea buds. Darjeeling tea has good flavour while Assam tea has good liquor.

103. Describe how tea is exported from India.

After tea has been processed, sorted and blended it is packed in plywood chests lined with aluminium foil in order to retain its flavour. It is then sent to Kolkata or Kochi for export.

104. Explain 'green' tea, 'black' tea and 'oolong' tea.

Green tea is neither fermented nor processed. Oolong tea is partially fermented and processed. Black tea is completely fermented and processed.

105. Which conditions favour the growth of tea in Assam?

The following conditions favour the growth of tea in Assam.
1. Assam consists of gently sloping hills topped with laterite soil.
2. It has a warm, humid climate.
3. It receives plenty of rainfall throughout the year.
4. Plenty of cheap labour is available from the surrounding regions.
5. Tea grown in Assam is sent to Kolkata for export.

106. Describe the appearance of the coffee plant.

The coffee plant has shiny, green leaves and bears white flowers. It bears cherry like fruits which are initially green but turn into crimson red when ripe. Each fruit contains two coffee beans covered with a parchment or pulp.

107. What conditions of soil and climate are suitable for the cultivation of coffee?

Soil	Well drained soil rich in humus
Temperature	15 °C to 28 °C, dry season while harvesting
Rainfall	150 cm to 200 cm well distributed throughout the year
Additional	Altitude of 1100 to 2200 m; should be protected from sunlight

108. What is the importance of 'cover' crops in the context of coffee cultivation?

The coffee plant starts yielding fruits after about 6 years. To cover expenditures during this long period, coffee estates are inter planted with 'cover crops' like orange trees, cardamom and pepper vines.

109. How is coffee processed?

The processing of coffee involves the following steps.
1. The upper parchment is removes (parching). This can be done in one of the following ways.
a. **Wet or Parchment method:** In this method, coffee beans are fermented and washed in tanks several times. Then they are dried and cured. Machines remove the thin skin of the berries called parchment.
b. **Dry or Native method:** The outer covering of berries is removed in this method by drying them under the sun. Seeds are pounded to remove their parchment.
2. The coffee beans are then roasted.
3. The beans are then sorted according to quality and size.

110. Explain why all the coffee producing states are in southern India.

a. The Western Ghats provide ideal altitude between 700 to 1500 metres for coffee cultivation.
b. Soil here is loamy, well-drained and rich in iron and humus contents.

c. Temperature (150C to 280C) and rainfall (125 cm to 300 cm) from the south-west monsoons are highly suitable for coffee growth in southern India.
d. Sunny days and dry weather required for drying of berries are also available in southern India. Such a mix of conditions is not available in the northern states of India.

111. Why are trees planted in between tea and coffee plantations?

Both the tea and coffee plants cannot tolerate direct, intense, sunlight. For this reason, trees are planted in between tea and coffee plantations to provide shade to the plants.

112. Discuss some of the problems faced by the coffee cultivators of India.

The total production of coffee in India is low as compared to other countries of the world. it is due to the lack of high-yielding plants, poor and outdated management techniques and unimpressive use of manure and pesticides. The quality of India coffee also fluctuates frequently depending upon climatic and soil conditions in India.

10. Agro Based Industries in India

1. State or name

a. Two types of industries based on the nature of products

Heavy industry and Light industry

b. Three types of industries based on size and investment

Large Scale, Medium Scale and Small Scale industry

c. Two types of industries based on location and market

Village industry and Cottage industry

d. Four types of industries based on ownership

Public Sector, Private Sector, Joint Sector and Co-operative Sector

e. Two examples of forest based industry

Paper and Timber industry

f. Two examples of animal based industry

Dairy industry and Leather industry

g. Two examples of ancillary industry

Auto parts industry and Computer peripherals industry

h. Two examples of tertiary industry

Transport industry and Banking industry

i. Two important centres in the Northern Industrial Zone

Delhi and Kanpur

j. Two important centres in the Western Industrial Zone

Mumbai and Ahmadabad

k. Two important centres in the Eastern Industrial Zone

Kolkata and Jamshedpur

l. Two important centres in the Southern Industrial Zone

Chennai and Bangalore

m. City which is known as 'Lancashire of India'

Mumbai

n. City which is known as 'Manchester of India'

Ahmadabad

o. City which is known as 'Manchester of North India'

Kanpur

p. Three important centres of the jute textile industry

Kolkata, Titagarh and Serampore

q. Three important centres of woollen textile industry

Amritsar, Ludhiana and Dhariwal

r. Imported sheep which yield better quality wool
Merino and Corriedale
s. Two important centres of mulberry silk
Bangalore and Mysore
t. Two important centres of non-mulberry silk
Kamrup and Hazaribagh
u. Three types of non-mulberry silk
Tasar, Eri and Muga
v. Three major synthetic fibres
Rayon, Terylene and Dacron
w. Three centres of synthetic textile industry
Mumbai, Ahmadabad and Surat
x. Two centres of the sugar industry in Uttar Pradesh
Gorakhpur and Sharanpur
y. Two centres of the sugar industry in Maharashtra
Solapur and Nasik
z. By-product of sugar industry which is used in making shoe polish, carbon paper and wax
Press Mud
2. State or name
a. One silk weaving centre in each of the following states
i. Bihar – Bhagalpur
ii. Jharkhand – Ranchi
iii. Uttar Pradesh – Varanasi
iv. Tamil Nadu – Kanchipuram
v. Assam – Navagaon
vi. Punjab - Jallandhar
b. Three synthetic fibres and the raw material from which each is obtained
i. Rayon is obtained from cellulose
ii. Terylene is obtained from oil
iii. Nylon is obtained from coal
c. Three centres noted for rayon weaving
Mumbai, Ahmadabad and Surat
d. Two regions where the sugar industry is concentrated
i. Northern region consisting of Uttar Pradesh, Punjab and Bihar
ii. Peninsular region consisting of Maharashtra, Karnataka and Andhra Pradesh
e. The important states which constitute the sugar belt of India
i. Uttar Pradesh, Punjab and Bihar
f. Two places in each of the following states which are important for the sugar industry

i. Andhra Pradesh – Vijayawada and Nizamabad
ii. West Bengal – Murshidabad and 24 Paraganas
iii. Tamil Nadu – Arkot and Madurai
iv. Bihar – Muzzaffarpur and Darbhanga

3. Define the term 'industry'.
An industry is defined as 'an enterprise which produces goods or services in order to earn profit'.
4. What is the need for industrialisation in India?
Industries convert raw material into finished goods. By doing so, they add value to the gifts of nature. For example, a small wrist watch which may weigh a few grams of fine steel, costs much more than a tonne of iron ore. The key to India's prosperity lies in industrialisation. The revenue generated

through industrialisation can be used to provide employment, improve India's balance of trade, alleviate poverty and improve the quality of life.

5. What are the requirements for setting up an industry?

To set up an industry, the following basic requirements must be met.

1. The required raw material must be available.
2. The location must be appropriate.
3. Finance and infrastructure in terms of management and human resources must be available.
4. The market for the finished goods must be identified.

6. Mention three geographical factors that determine a viable site for setting up an industry. Give suitable examples to support your answer.

Three fundamental geographical factors that determine a viable site for setting up an industry are

1. **Raw material:** Proximity to the area producing raw material is a prime requisite foe setting up an industry. For example, the iron and steel plants are concentrated in Jharkhand because this region is endowed in all the raw material (iron-ore, manganese, limestone and coal) which is used to produce steel.
2. **Power supply:** Power is required for any industry in order to run machines which process the raw material into finished products. This is why industries are located near Jamshedpur and Kolkata where cheap labour is available from the Damodar Valley Project.
3. **Water:** Although water is required for all the industries, it is particularly important for certain industries like the jute, food and chemical industries. The jute industry in West Bengal is very much benefited due to the availability of soft, running water in the Ganga-Brahmaputra Delta.

7. What is meant by 'public' and 'private' sector industries? Give two examples of each.

	Public Sector Industries	**Private Sector Industries**
Owned by	Government	Private Individuals
Purpose	Public Welfare	Profit
Examples	Chittaranjan Locomotive Works	Reliance Industries Ltd.
	Indian Railways	Tata Iron and Steel Company Ltd.

8. Mention three non-geographical factors that influence the development of industries in certain regions.

Three non geographical factors that influence the development of industries in certain regions are

1. Government policies
2. Transport
3. Capital

9. State the economic importance of the cotton textile industry in India.

The cotton textile industry is important for India in the following ways.

a. 20% of the working population is employed in the cotton textile industry.
b. Garments and textiles are essential for life.
c. It generates a substantial amount of foreign exchange through export to countries of Asia and Africa.
d. It supports other industries like dyeing and bleaching, washing powder and soaps, packaging and transport industries.

10. Mention three problems associated with the cotton textile industry.

Following are the problems associated with the cotton textile industry.

1. **Raw Material:** The supply of raw cotton is very uncertain because the Indian farmers mostly depend upon rains for its cultivation. Also, India produces only medium quality cotton and has to depend on Egypt for good quality cotton.
2. **Outdated Machinery:** Due to outdated machinery and plants, the productivity is low and uneconomical.
3. **Stiff Competition:** The cotton textile industry of India has to face competition from two fronts.

a. The synthetic textile industry of India
b. Exported textiles from Taiwan, South Korea and Japan

11. What role has the government played in improving the plight of the cotton mill workers?

The government has taken control over mills which were running inefficiently and running at a loss ('sick' mills). This has been done so that the mill workers can retain their employment.

12. Explain why the Hooghly basin is the main centre for the jute textile industry.

The Hooghly basin is the main centre for the jute textile industry because of the following reasons.
1. The Hooghly basin alone cultivates more than 50 per cent jute in the country. Adjoining regions of West Bengal, Bihar and Orissa are also important producers of jute. Thus, raw material is easily available. Additional requirement of jute is met through import from Bangladesh.
2. Densely populated area of the lower Ganga basin provides cheap labour.
3. Enormous supply of water from the river Hooghly
4. Kolkata has a good network of transportation both of land and water. It has the facility of transport through- rivers, canals, railways, and roads.
5. International airport and a big port in Kolkata have also helped in the transportation of materials.
6. Coal-mines of Raniganj and Asansol provide sufficient supply of power to this industry in Kolkata.

13. What problems is the jute industry in India facing? What measures has the government taken to overcome these problems?

The jute industry of India is facing the following problems.
1. Because of the 1947 partition of India, most of the jute producing areas fell into Bangladesh while the jute mills remained in India.
2. Jute cultivation depends on good rains. Hence the supply fluctuates from year to year.
3. Apart from Bangladesh, Malaysia, Philippines, Egypt and Brazil also offer competition to India in the international market.
4. Jute products are also being substituted by paper, hemp and synthetic products.
5. Outdated machinery causes high costs of production, thereby making jute production uneconomical and unprofitable.

To overcome these problems, the government has taken the following remedial steps.
1. The government is encouraging research in new uses and products like jute carpets, tarpaulins, garments, etc.
2. Modern machines have been installed in public sector units.
3. Effort is being made to stabilise jute prices and increase exports.

14. Why is the Indian woollen industry not well developed?

The woollen textile industry is not well developed in India due to the following reasons.
1. India is a tropical country. Hence, the need for woollen garments is limited to the winter months only.
2. Indigenous wool is of poor quality. India has to depend on imports from USA and Australia to meet its demand for better quality raw material.
3. Wool is expensive. Garments made from synthetic textile are cheaper.

15. What measures has the government taken to improve the situation of the woollen textile industry?

The government of India has initiated measures to produce better quality wool. Sheep breeding farms have been set up in North India where high breed sheep like *Merino* and *Corrie dale* are being imported and reared

16. Why is Karnataka the most important centre for the silk textile industry?

The following conditions in Karnataka favour the growth of silk industry in Karnataka:
1. Suitable climatic conditions, with temperatures ranging from 16 °C to 30 °C, is well suited for raising silkworms throughout the year.
2. Availability of soft water in large amount
3. Mulberry bush is grown as a plantation crop.

17. Enlist the factors that favour the development of the synthetic textile industry.
The following factors favour the development of the synthetic textile industry.
1. Availability of raw material like bamboo, wood and other grasses
2. Chemical industries which provide chemical essential for processing
3. Plenty of river water for processing
4. Support of research for its development
5. Sizeable market for finished goods
6. Availability of skilled and unskilled labour
18. What are the problems of the khadi and handloom industry?
The Khadi industry is facing the following problems.
1. The quality, quantity and availability of raw material are very unsatisfactory.
2. Products do not appeal to changing tastes and fashions.
3. Most of the people lack adequate technical knowledge to modernise their equipment.
4. This industry faces stiff competition from mill made cloth.
5. Quality and standard of products is not maintained.
6. The marketing of products is not organised.
19. The Khadi and Handloom sectors cannot be ignored. Give two reasons to justify this statement.
The Khadi and Handloom industry provides full-time or part-time employment to a large number of people who can supplement their meagre incomes. In fact, more people are employed in this sector than the number of persons employed in the organised industries and mining put together. This is why the khadi and handloom industry cannot be ignored. Moreover, this industry also earns foreign exchange for the country.
20. What are the steps being taken by the government to promote the Khadi and Handloom industries?
Apart from establishing organisations like the All India Handloom Board, The Khadi and Village Industries Commission, etc. to improve the status of the Khadi industry, the government has also taken certain specific measures which are as under.
1. The government itself issues orders for the supply of khadi and handloom products.
2. The government levies a cess on the cotton and synthetic textile mills and uses the revenue for the promotion of the khadi and handloom industry.
3. The government also reserves certain lines of production for the khadi industry. For example, it places a limit on the saree production by mills.
4. Assistance is made available to improve techniques of production and management.
5. Financial aid is provided to the industry. Also, the government charges lesser taxes on the production of khadi and handloom products.
6. The government itself undertakes the marketing of the khadi and handloom products.
21. What are the factors that affect the location of the sugar industry?
Factors affecting the location of the sugar industry are as follows.
1. Proximity to the sugar producing areas in order to maintain timely availability of good quality of raw material
2. Cheap labour, particularly people who are willing to work in sugar factories only for a specific time of the year
3. Uninterrupted supply of power
22. Explain why sugar mills in the co-operative sector have an advantage over those in the private sector?
Sugar is a seasonal industry and so labour cannot be employed throughout the year. That is why sugar mills in the co-operative sector have an advantage over those in the private sector. The sugar mills are owned and managed by the farmers and so they have work throughout the year.
23. India ranks second the world sugar production in spite of being the largest producer of sugarcane. Give reasons.
This is because of the following reasons.

1. The sugarcane grown in India is of lower quality with low sugar content.
2. More than half of the sugarcane is used to produce *gur* and *khandsari*.

24. Name three important by-products of the sugar industry and state the commercial use of each.

The three by-products of the sugar industry are as follows.

1. **Molasses:** A dark brown syrup used to make industrial alcohol, fertilisers, rum and yeast
2. **Bagasse:** Crushed sugarcane used as an organic fertiliser, cattle feed, fuel for mills and as a raw material in the manufacture of paper and synthetic fibres
3. **Press Mud:** Used to make shoe polish, carbon paper, wax, etc.

25. Why are more than 60% of the sugar factories located in the sugar belt comprising of Uttar Pradesh, Bihar and Punjab?

This is due to the following reasons.

a. The Ganga plain has fertile soil and heavy rainfall suitable for sugarcane cultivation.
b. Cheap labour is easily and regularly available from this densely populated plain of India.
c. Coal, the main source of energy used in sugar factories, is available from nearby coal mines of Bihar.
d. This sugar belt is also a large consumer of sugar. So, easy market is available.

26. Recently, the sugar industry has shown a tendency to shift towards the south. List four reasons for this trend.

a. Sugar mills in the south are in the co-operative sector. Thus, people do more work and get better dividends here under co-operative movement.
b. Labour is comparatively cheaper in south India.
c. In south, sugar mills are closer to the fields. This proximity prevents the loss of sugar content in transportation.
d. There is a strong sugar lobby in Maharashtra which invests in sugar industry and tries to get maximum returns.

27. Explain the following terms.
a. Sericulture
b. Ancillary industry
c. 'Sick' Mills
d. Mulberry silk

a. **Sericulture:** The rearing of silkworms to produce raw silk is known as sericulture. Fresh mulberry leaves are fed to the silkworms and thread is unravelled from the cocoons on small spinning machines. Sericulture is of two types— mulberry and non-mulberry. The mulberry sector accounts for nearly 90 % of the natural silk produced in India.

b. **Ancillary industry:** Industries whose products are not meant for the consumer but are raw material or assemblages for other industries are known as ancillary industries. An auto parts manufacturing company which sells its parts to a car maker, or a cloth producing unit which sells cloth to the garment industry are good examples of ancillary industries.

c. **'Sick' Mills:** This is a term used for those textile mills which have become uneconomical and ceased to make any profit on a sustained basis. Nowadays, the government has taken control over such 'sick' mills in order to protect the plight of the mill workers.

d. **Mulberry Silk:** This type of silk is obtained from the silkworm which feeds on the mulberry leaves. The mulberry sector is better organised and accounts for nearly 90 % of the natural silk produced in India. It is produced in Karnataka, West Bengal, Jammu and Kashmir and Himachal Pradesh.

Questions asked in previous years' ICSE exams

Q.1. *Name one commercial product obtained from each of the following: (i) Press mud (ii) Molasses [1992]*
Ans. (i) Shoe polish (ii) Alcohol

Q.2. State one town famous for -each of the following cottage industries. (i) Woollen shawls (ii) Bidri ware [1992, 1999]

Ans. (i) Amritsar (ii) Bidar (Kamataka).

Q.3. State two ways by which the government has encouraged cottage industries. [1992, 2000]

Ans. (i) Improved tools and equipments are provided at subsidized rates. (ii) Government provides loans, give incentives and provides raw materials.

Q.4. Give two reasons to explain why cottage industries are important in India's economy. [1995, 2000, 2002] OR What is the importance of cottage industries in India's economy? [1994]

Ans. (i) Cottage industries provide jobs to millions of people in rural areas because they use local raw materials and need less investment. (ii) Their products earn a lot of foreign exchange for the country.

Q.5. Name two textile industries using animal fibres and another two using plant fibres. Write against each one of them an important centre of the respective industry. [1996]

Ans. Using animal fibres — (i) Woollen textile industry; Jammu, (ii) Silk textile industry; Bangalore. Using plant fibre — (i) Cotton textile; Ahmadabad. (ii) Jute textile; Hooghly Basin.

Q.6. What makes Khadi and Handloom sector of the textile industry still very important even in this modern large-scale industrial era? Give two reasons to justify your answer. 1996]

Ans. *Khadi* and Handloom textiles produce durable and colourful patterns which are cheap when compared with the products of the modern large scale industries. The reasons for their importance are: (i) They bring pride to the country. (ii) They provide money to the workers.

Q.7. *Which agro-based industry has a tendency to migrate towards the south in India? Give reasons to justify your answer. [1997]*

Ans. Sugar industry. The main reasons are: (i) Black soil is more fertile which is suitable for sugarcane cultivation. (ii) Sugarcane produced in the tropical climate contain more content of sugar. (iii) Long crushing season. (iv) Maritime climate of south India.

Q.8. What are the four special features of the cotton textile industry in India? [1997]

Ans. The four special features of cotton textile industry in India are: (i) It is oldest and largest industry in India. (ii) It is widespread industry found almost in all states of India. (iii) This industry provides employment opportunities both in rural and urban areas. (iv) This industry accounts for the largest proportion of foreign exchange.

Q.9. State two economic advantages of the handloom industry. [1998]

Ans. (i) Handloom industry provides employment to the people. (ii) Handloom products have traditional designs and colourful variety which is in great demand.

Q.10. Explain why: (i) Carpet-making as a cottage industry has developed in the Kashmir valley. (ii) The pure silk handloom industry is important In Bangalore. [1998]

Ans. (i) Carpet-making as a cottage industry has developed in Kashmir valley because in this area, sheep are reared for wool which is essential material for weaving the carpets. (ii) The pure silk industry is important in Bangalore because of the large scale rearing of silk-worms on the mulberry leaves.

Q.11. Give two reasons why the cotton textile industry has developed around Mumbai. [1999]

Ans. (i) Harbour facilities (ii) Availability of raw cotton from Maharashtra.

Q.12. Give two reasons to explain why there is a need for rapid industrialization in India. [2000]

Ans. The two reasons for need for rapid industrialization in India are: (i) To raise national and per capita income. (ii) To remove unemployment and under employment.

Q.13. Why is there an increasing demand for handloom materials? [2000]

Ans. Demand for handloom materials is increasing because of the following reasons: (i) Traditional art/rich culture (ii) They are colourful, durable and attractive.

Q.14. Name a state famous for mulberry silk. [2001]

Ans. Kamataka.

Q.15. Mumbai-Pune region is the most important industrial region of India. Substantiate the statement giving two reasons. [2001]

Ans. Mumbai-Pune region is the most important industrial region of India because of the following reasons: (i) Availability of raw materials (ii) Sufficient power resources.

Q.16. Give two reasons to show why the sugar industry has flourish in Uttar Pradesh and Bihar. [2002]

Ans. (i) The Ganga plain has fertile soil and heavy rainfall suitable for sugarcane cultivation. (ii) Cheap labour is easily and regularly available from these densely populated states of Uttar Pradesh and Bihar.

Q.17. Give two reasons for the following: "The silk handloom industry is important in Mysore," [2002]

Ans. (i) The raw material for silk handloom is available in plenty (ii) Soft water is available in large amount

Q.18. With the help of an example, explain how agro-based industries are different from mineral-based industries. [2003]

Ans. Those industries which use agricultural products as their raw materials are known as agro-based industries, for example, cotton textiles, vegetable oil and sugar industries. Industries which depend for their raw materials on minerals are known as mineral-based industries, for example, iron and steel, and ship-building industries.

Q.19. Give four reasons to justify that the rayon textile industry in India has a great future, [2003]

Ans. The following points will bring out to show the great future of rayon textile industry in India: (i) The sufficient quantity of bamboo, grass and cotton waste which are necessary for the production of pulp. (ii) Availability of sufficient amount of chemicals, (iii) Availability of skilled and unskilled labour. (iv) Research and training centres for the production of synthetic silks have been set up in most of the rayon production cities.

Q.20. Why is the woollen textile industry not as well developed as the cotton textile industry in India? [2003]

Ans. The woollen industry is not as well developed as the cotton textile industry in India because of the following reasons: (i) Pour quality of local wool (ii) Low demand as only northern India has cold winters (iii)Woollen clothes are expensive than cotton clothes.

Q.21. With the help of an example each, differentiate between Basic and Consumer Industries. [2004]

Ans. Basic industries are those industries on which various other industries depend. Example: Iron and steel industry. Consumer industries are those industries which produce various items to fulfil the day-to-day requirement of the consumers. Example: Sugar industry/Plastic industry.

Q.22. The 'Khadi and Handloom Sectors of the Textile Industry cannot be ignored'. Give two reasons justifying this statement. [2004]

Ans. (i) It employs a large number of people (ii) It is a good source of foreign exchange.

Q.23. Give reasons why: (i) The woollen industry is concentrated in North India. (ii) Tree plantation is essential in and around Heavy Industrial areas. [2005]

Ans. (i) Woollen industry is concentrated in North India since winters are very severe here and there is a great demand for woollen products. Secondly, climatic conditions favour sheep rearing, hence, there is no dearth of raw materials. (ii) Tree plantation is essential in industrial regions for purification of the atmosphere. Industrial smoke causes atmospheric pollution and the trees absorb excess CO2 and replenish the O2 level of the air.

Q.24. State four geographical factors which should be kept in mind while setting up an agro-based industry. [2005]

Ans. Four geographical factors to be considered are as follows:

(i) Proximity to growing areas,

(ii) A well developed transport system.

(iii) Facilities for proper storage of the raw materials as well as finished products.

(iv) There should be a good demand for the product.

Q.25. Mention three main problems faced by the cotton textile industry in India. [2005]

Ans, Three major problems faced by the cotton textile industry in India are: (i) Competition from synthetic fibres which are cheaper and easy to maintain. (ii) Old and obsolete machinery and technology of production. (iii) It being an agro based industry, is exposed to the vagaries of nature. Any year there is a crop failure. The supply of raw cotton gets affected.

Q.26. Name three by-products of the sugar industry. Give one important use of each. [2005]

Ans. Three by-products of sugar industry are: (i) Molasses — used for distilling alcohol (ii) Bagasse — used for making cardboards (iii) Press mud — used for making wax and shoe polishes.

11. Mineral Based Industries of India

Iron and Steel Industry

1. State or name

a. Two ores of iron

Haematite and Magnetite

b. Two metals which are alloyed together to make steel

Iron and Manganese

c. Two non metals which are used to make steel

Coal and Limestone

d. Furnace used to reduce iron ore to iron

Blast Furnace

e. Name of iron obtained through reduction of iron ore

Pig Iron

f. Furnace where iron is alloyed with other metals to obtain steel

Steel Melting Furnace or Basic Oxygen Furnace

g. Place where steel is cast into several shapes

Rolling Mill

h. Two industry standard shapes of steel

Ingots and Billets

i. Two types of steel plants

Integrated Steel Plant and Mini Steel Plant

j. Largest private sector steel plant

Tata Iron and Steel Company (TISCO)

k. Largest public sector steel plant

Bhillai Steel Plant

l. Largest steel plant in India

2. What is the importance of the iron and steel industry?

Iron and Steel Industry is considered to be a key or basic industry because the product of this industry is steel which in turn is used to make machines for other industries. Moreover, steel is required for construction, making agricultural equipment, defence equipment, transport and several other applications.

3. Mention four sectors of economy where steel is essential.

Industry, Agriculture, Infrastructure and Transport

4. List the four steps involved in steel production.

Step	**Process**	**Output**
1	Extraction of iron ore	Iron Ore
2	Smelting (reducing iron ore to iron)	Pig Iron
3	Alloying	Steel
4	Casting	Ingots, Billets, Sheets

5. In what ratio are iron ore, coking coal and limestone mixed in the blast furnace?
Iron ore: Coking Coal: Limestone = 4:2:1
6. What do you mean by smelting of iron ore?
The process in which iron ore is mixed with coking coal and limestone ain the ratio of 4:2:1 in a blast furnace in order to reduce iron ore to pig iron is called smelting.
7. What is the role of limestone in steel production?
Limestone ($CaCO_3$) is used to remove silica impurity (SiO_2) from iron ore. Limestone acts as a flux. It mixes with silica to give slag ($CaSiO_3$). $CaCO_3$ (flux) + SiO_2 (impurity) □□ $CaSiO_3$ (slag)
8. Mention two reasons why pig iron cannot be used directly.
Two reasons why pig iron cannot be used directly are
i. It is brittle
ii. When exposed to oxygen, it converts to rust
9. What happens in a steel melting furnace?
In a steel melting furnace (or basic oxygen furnace or LD convertor), pig iron and manganese are mixed together along with nickel, carbon and chromium and heated to a temperature of 1800 ˚C. Oxygen is blown over the molten mixture such that the final output is steel.
10. What is the role of steel rolling mills?
In a steel rolling mill, steel produced is cast into several shapes depending on requirements such as sheets, rods, ingots or billets.
11. What is the difference between primary steelmaking and secondary steelmaking?
The process of making steel from iron ore is called primary steelmaking. The process of making steel from steel scrap is called secondary steelmaking.
12. What is an integrated steel plant?
An integrated steel plant is one in which steel is produced right from iron ore. It uses a blast furnace.
13. What is a mini steel plant?
A mini steel plant is one in which steel is produced from steel scrap. It uses an electric furnace.

14. Mention four points of difference between an integrated steel plant and a mini steel plant.

	Integrated Steel Plant	**Mini Steel Plant**
Raw material	Iron ore	Steel scrap
Furnace	Blast Furnace	Electric Furnace
Investment	High	Low
Location	Near source of iron ore	Anywhere

15. Why are mini steel plants becoming popular?
Mini Steel Plants are becoming popular due to the following reasons.
i. The raw material is steel scrap, which is readily available anywhere.
ii. The investment required is quite low compared to integrated steel plants.
iii. They can be located anywhere.
16. Mention 8 important iron and steel plants in India.
The most important iron and steel plants in India are
i. Tata Iron and Steel Company (TISCO), Jamshedpur, Jharkhand
ii. Bhillai Steel Plant, Bhillai, Chhattisgarh
iii. Bokaro Iron and Steel Plant, Bokaro, Jharkhand
iv. Durgapur Iron and Steel Plant, Durgapur, West Bengal
v. Rourkela Iron and Steel Plant, Rourkela, Orissa
vi. Viswaseraiya Iron and Steel Plant, Mysore, Karnataka
vii. Indian Iron and Steel Company (IISCO), Asansol, West Bengal
viii. Vishakhapatnam Iron and Steel Plant, Vishakhapatnam, Orissa

17. With reference to the Tata Iron and Steel Plant, answer the following questions.
a. When was it set up?
b. Where is it located?
c. Where does it get its iron ore and manganese from?
d. Where does it get coal from?
e. What is the source of power for the plant?
f. What does the plant produce?
g. How is the plant favourably located in terms of transport?

Name of Plant	**Tata Iron and Steel Company**
Year of Establishment	1905
Location	Jamshedpur, Jharkhand
Collaboration	
Iron Ore	Singhbhum, Jharkhand
Manganese	Keonjhar, Orissa
Coal	Jharia Coal Field, Jharkhand
Power	Damodar Valley Project
Products	Sheets, Rails, Wheels, Billets
Strategic Location	On route from Delhi to Kolkata

18. With reference to the Bhillai Iron and Steel Plant, answer the following questions.
a. When was it set up?
b. With whose collaboration was it set up?
c. Where is it located?
d. Where does it get its iron ore and manganese from?
e. Where does it get coal from?
f. What is the source of power for the plant?
g. What does the plant produce?
h. How is the plant favourably located in terms of transport?

Name of Plant	**Bhillai Iron and Steel**
Year of Establishment	1957
Location	Bhillai, Chhattisgarh
Collaboration	USSR
Iron Ore	Durg and Bastar Districts, Chhattisgarh
Manganese	Balaghat, M.P.
Coal	Korba coal fields, Chhattisgarh
Power	Korba Thermal Power Station
Products	Sheets, Rails, Billets, Beams and Angles
Strategic Location	On route from Nagpur to Kolkata

19. With reference to the Bokaro Iron and Steel Plant, answer the following questions.
a. When was it set up?
b. With whose collaboration was it set up?
c. Where is it located?
d. Where does it get its iron ore and manganese from?
e. Where does it get coal from?
f. What is the source of power for the plant?
g. What does the plant produce?
h. How is the plant favourably located in terms of transport?

Name of Plant	Bokaro Iron and Steel Plant

Year of Establishment	1964
Location	Bokaro, Jharkhand
Collaboration	USSR
Iron Ore	Singhbhum, Jharkhand and Mayurbhanj, Orissa
Manganese	Keonjhar, Orissa
Coal	Jharia Coal Field, Jharkhand
Power	Damodar Valley Project
Products	Crude Steel and Pig Iron
Strategic Location	Well connected to Kolkata

20. With reference to the Durgapur Iron and Steel Plant, answer the following questions.
a. When was it set up?
b. With whose collaboration was it set up?
c. Where is it located?
d. Where does it get its iron ore and manganese from?
e. Where does it get coal from?
f. What is the source of power for the plant?
g. What does the plant produce?
h. How is the plant favourably located in terms of transport?

Name of Plant	Durgapur Iron and Steel Plant
Year of Establishment	1959
Location	Durgapur, West Bengal
Collaboration	British
Iron Ore	Singhbhum, Jharkhand and Keonjhar, Orissa
Manganese	Keonjhar, Orissa
Coal	Jharia Coal Field, Jharkhand, Raniganj, West Bengal
Power	Damodar Valley Project
Products	Stainless Steel and Billets
Strategic Location	Navigation canal to Kolkata

21. With reference to the Rourkela Iron and Steel Plant, answer the following questions.
a. When was it set up?
b. With whose collaboration was it set up?
c. Where is it located?
d. Where does it get its iron ore and manganese from?
e. Where does it get coal from?
f. What is the source of power for the plant?
g. What does the plant produce?
h. How is the plant favourably located in terms of transport?

Name of Plant	Rourkela Iron and Steel Plant
Year of Establishment	1959
Location	Rourkela, Orissa
Collaboration	Krupp and Demag, Germany
Iron Ore	Keonjhar and Mayurbhanj, Orissa
Manganese	Keonjhar, Orissa
Coal	Talcher Coal Field, Orissa
Power	Hirakud Project

Products	Steel sheets for railways, ships and space shuttles
Strategic Location	Connected to Vishakhapatnam and Kolkata

22. What are the problems of the iron and steel industry of India?
Following are the problems of the iron and steel industry of India.

1. Capital investment
2. Lack of latest technology
3. Low productivity
4. Unions and Strikes
5. Heavy demand

23. What is SAIL? What are its functions?
SAIL stands for Steel Authority of India Ltd. It is a public sector undertaking which is responsible for the management of all public sector plants in India. Additionally, it has taken over the IISCO and Viswaseraiya plant.

Heavy Engineering Industry

1. What is a heavy engineering industry?
Heavy engineering industries are those which have the following features.
a. They convert steel, plastic etc into either finished goods such as modes of transport or make machinery and equipment for other industries
b. Both raw material and finished goods are bulky in nature

2. What are the main requirements for setting up a heavy engineering industry?
Following are the requirements of the heavy engineering industry.
1. Huge investment
2. Heavy and bulky raw material like steel
3. Enormous amount of power
4. Skilled labour in abundance
5. Enormous transport costs

3. What do you mean by a hinterland?
The area around the port which consists of those people and industries which depend on the port for their survival constitutes a hinterland. In other words, the area around the port which is influenced by the activities of the port is known as a hinterland.

4. What are the requirements of the ship building industry?
Following are the requirements of the ship building industry.
1. Large hinterland
2. Deep navigable water
3. Huge investment
4. Raw material like steel, timber, etc
5. Skilled labour in abundance

5. Mention 4 major shipyards of India along with their products

Sr	Shipyard Name	Place	Products
1	Hindustan Shipyard	Vishakhapatnam	Barges, Rigs, Cargo Vessels
2	Garden Reach Workshop	Kolkata	Barges, Dredgers
3	Mazagaon Dock	Mumbai	Cargo and Passenger Ships
4	Cochin Shipyard	Kochi	Naval & Passenger Ships

6. Why are automobile industries preferably located near iron and steel industries? Support your answer with an example.

Automobile industries require bulky raw material like steel plates in a large quantity. In order to reduce transportation costs, automobile industries are located near iron and steel industries. For example, Tata Engineering and Locomotive Company Ltd. (TELCO) is located in Jamshedpur near TISCO.

7. Mention two centres for each of the following.

a. Two wheelers

Gurgaon and Pune

b. Cars

Gurgaon and Halol

c. Trucks

Jamshedpur and Chennai

8. Where are the following manufactured in India?

a. Diesel locomotives

Diesel Locomotive Works, Varanasi

b. Electric Locomotives

Chittaranjan Locomotive Works, Asansol and BHEL, Bhopal

c. Coaches

Integral Coach Factory, Perambur (Tamil Nadu) and Rail Coach Factory, Kapurthala (Punjab)

9. Which company manufactures aircrafts in India?

Hindustan Aeronautics Ltd. (HAL)

10. Mention one unique feature of the aircraft industry in India.

HAL has 11 manufacturing units. However, for security reasons. Each unit manufactures only a few parts of an airplane at a time.

11. Mention four centres of the aircraft industry in India.

Bangalore, Kanpur, Nasik, Hyderabad, Lucknow

12. What are the products of the heavy electrical industry? Mention one industry along with its location for each of the products.

The products of the heavy electrical industry are turbines, generators, transformers, switchgears and cables. BHEL, Bhopal - Transformers, switchgears, generators Hindustan Cables Ltd, Rupnarayanpur – Cables

Petrochemicals Industry

1. What is the raw material for a petrochemical industry? Why is this industry located near a petroleum refinery?

The raw material for a petrochemical industry is petroleum. This industry is located near a petroleum refinery for the want of raw material.

2. What are the products of a petrochemical industry?

The products of the petrochemical industry are PVC, poly propylene, poly ethane, benzene, naptha, synthetic rubber, synthetic leather, etc.

3. Mention a few conventional products which can be replaced by products of the petrochemical industry.

The following are a few examples of the products of the petrochemical industry replacing conventional products.

a. Wooden furniture can be replaced by plastic furniture.

b. Natural leather can be replaced by synthetic leather.

c. Steel pipes can be replaced by PVC pipes

4. Why are the products of the petrochemical industry cheaper?

The raw material is a waste of the petroleum refinery and as such is quite cheap. In addition, all these products can be recycled, which makes them cost effective.

5. In what way does the petrochemical industry reduce pressure on the environment?
By replacing conventional products like wood and steel, products of the petrochemical industry reduce pressure on lumbering and mining respectively. Additionally, the duration of utility of these products is further increased due to their recyclable value.
6. Mention 5 important centres of the petrochemical industry in India.
Important centres of the petrochemical industry in India are
1. Union Carbide Ltd., Trombay, Maharashtra
2. IPCL, Vadodara, Gujarat
3. Petrofils India Ltd., Vadodara, Gujarat
4. Petrochemical Complex, Bongaigaon, Assam
5. Hindustan Organic Chemicals, Raigad, Maharashtra

Electronics Industry

1. Where does the raw material for the electronics industry come from?
The raw material for the electronics industry mainly comes for the petrochemical industry in the form of plastic and from the iron and steel industry in the form of steel sheets.
2. Why is the electronics industry important for a country like India?
The electronics industry is important for a country like India because of the following reasons.
a. It can be set up on a very small scale
b. It gives employment to a very large number of people who are educated and skilled
3. What is the most important requirement of the electronics industry? Give reasons for your answer.
The most important requirement of the electronics industry is the availability of skilled manpower. This is because of the essence of assembling techniques and innovation in this industry.
4. Name two centres of the electronics in India.
Bangalore and Hyderabad
5. State the importance of Electronics in the field of
a. Space Technology
b. Entertainment.
c. Defence
6. Name four areas other than entertainment, which have been given a new dimension by the electronics industry.
The areas which have been given a new dimension by the electronics industry are: 1. Consumer Electronics, 2. Computers, 3. Software, 4. Space Technology
7. What do you mean by consumer electronics? State the importance of manpower in this industry.
Consumer electronics includes those items which can be sold to consumers directly such as televisions, refrigerators, DVD players, mobile phones, etc. This industry thrives heavily on innovation. Hence the availability of skilled manpower in this industry is highly important.
8. What are the components of the communication and broadcasting industry?
Telephones, mobile phones, optical fibres, fax machines, etc.
9. What is the future of the communication and broadcasting industry in India?
The communications and broadcasting industry has a great future in India. This is due to the rapid growth of population and the plethora of features and services provided by the industry.
10. What is the future of the computer and software industry in India?
The computer industry has a great future in India. This is due to the following reasons.
a. Growth of population
b. Large English speaking population
c. Increasing utility of computers in various fields
d. Alternative of using the computer for self employment
11. Which factors have contributed to the growth of software industry in India in the recent times?
The following factors have contributed to the growth of software industry in the recent times.

i. Large English Speaking population
ii. Highly skilled manpower available at very economical rates
iii. Very less investment to set up a software manufacturing unit
iv. Spurt of areas in which computers can be used

12. Name two important centres of the software industry in India.

Bangalore and Hyderabad

13. What are the components of space technology in India?

Following comprise of space technology in India.
i. INSAT (Indian National Satellite)
ii. IRSS (Indian Remote Sensing Satellite)
iii. PSLV (Polar Space Launching Vehicle)
iv. GSLV (Geo-stationary Space Launching Vehicle)

14. Mention a few important areas in which space technology plays an important role.

Space technology plays an important role in defence, communications and broadcasting, meteorology and education.

15. Mention a few important centres of space technology in India

Following are a few important centres of space technology in India.
i. ISRO (Indian Space Research Organisation), Bangalore and Ahmedabad
ii. SAC (Space Applications Centre), Ahmadabad
iii. NRSA (National Remote Sensing Agency), Hyderabad

16. What is the status of development of the space technology in India?

The Indian Space Program is self reliant. Today India is amongst the top five nations with regard to development of space technology.

Transport in India

General

1. State or name

a. Department responsible for the development of highways in India

National Highways Authority of India (NHAI)

b. Project aimed at creating world class roadways in India

National Highways Development Project (NHDP)

c. First phase of NHDP

Golden Quadrilateral

d. Highways built to facilitate transport at > 120 kmph

Expressways

e. Total length of the Golden Quadrilateral

5846 km

f. Two terminals of the North-South corridor (Phase 2 of NHDP)

Srinagar and Kanyakumari

g. Two terminals of the East-West Corridor (Phase 2 of NHDP)

Porbandar and Silchar

h. Three types of railways in India

Broad Gauge, Metre Gauge and Narrow Gauge

j. Two modern rail routes which still run on narrow gauge

Darjeeling Himalayan Railway (from Darjeeling to Siliguri in West Bengal) Kalka Shimla Railway (from Kalka to Shimla in Himachal Pradesh)

k. Project aimed at converting all railways in India into broad gauge

Project Unigauge

l. Department responsible for development of inland waterways in India

Inland Waterways Authority of India (IWAI)
m. Department responsible for development of marine waterways in India
Shipping Corporation of India (SCI)
n. Two important ports in Gujarat
Kandla and Mundra
o. Four important ports along the west coast
Mumbai, Goa, Mangalore and Kochi
p. Name of port in Navi Mumbai
Jawaharlal Nehru Port
q. Five important ports along the east coast
Chennai, Vishakhapatnam, Kolkata
r. Organisation responsible for development of airports in India
Airport Authority of India (AAI)
s. India's international airline
Air India
t. India's domestic airline
Indian Airlines
2. Appreciate the role of transport in the development of a country.
The development of a country is made possible through transport in the following ways.
i. Transport plays a pivotal role in the economic development of a country by facilitating exchange of commodities and commutation of people.
ii. Transport also plays a key role in the social and cultural integration of a country by facilitating movement of people from one place to another.
iii. Additionally, transport can contribute to the economy through tourism.

Road Transport

3. List 4 advantages of road transport.
Road transport has the following advantages.
i. It can be used by a wide variety of vehicles.
ii. Unlike other modes of transport which provide service from terminal to terminal and have to be supported by road transport, road transport provides a single mode of transport from source to destination
iii. It is possible to have road transport in hilly and inaccessible regions.
iv. Road transport is cheap and easy to establish.
4. List 4 disadvantages of road transport.
Road transport has the following disadvantages.
i. It is not economical over long distances.
ii. It is not suited for transport bulk goods.
iii. Road transport if the largest contributor to air pollution.
iv. The probability of traffic jams and accidents is higher in road transport.
5. In what ways does road transport score over rail transport?
` Road transport scores over rail transport in the following ways.
i. Unlike railways, road transport is an independent mode of transport, i.e., people have a choice of vehicle and schedule.
ii. Unlike railways, it is possible to have road transport in hilly and inaccessible regions.
iii. Unlike railways, road transport provides a single mode of transport from source to destination.
6. Mention 4 types of roadways in India.
Four types of roadways in India are.
i. Expressways
ii. National Highways

iii. State Highways
iv. District Roads
7. What are expressways?
Expressways are those national highways which have the following features.
i. They usually have 6 or 8 tracks
ii. They are meant to handle speeds of 120 kmph or more.
iii. Access to expressways is controlled through levy of toll tax.
8. List a few features of NHDP.
NHDP (National Highways Development Project) has the following features.
i. It was initiated by NHAI in 1998.
ii. The objective of NHDP is to set up 45000 km of world class roadways.
iii. The project will be carried out in 7 phases.
iv. The cost of the project would be Rs. 2,25,000 crore.
v. 'Golden Quadrilateral', the first phase of the project has already been completed.
9. Answer the following questions about 'Golden Quadrilateral'.
a. What is 'Golden Quadrilateral'?
'Golden Quadrilateral' is the first phase of NHDP.
b. What is the objective of the 'Golden Quadrilateral'?
The objective of the 'Golden Quadrilateral' is to set up world class highways connecting the 4 metros of India.
c. Which roads have been used in the Golden Quadrilateral?
Only National Highways have been used in the 'Golden Quadrilateral'
d. Mention the 4 terminals of the Golden Quadrilateral.
Delhi, Mumbai, Chennai and Kolkata
e. How many cities will be benefited by the Golden Quadrilateral?
66 cities will be benefited by the Golden Quadrilateral.
f. How many states does the Golden Quadrilateral pass through?
The 'Golden Quadrilateral' passes through 13 states.
g. What is the current status of development of the Golden Quadrilateral?
As on June 2010, the project has already been completed.
h. What are the economic benefits of the Golden Quadrilateral?
Following are the economic benefits of the Golden Quadrilateral.
i. Better and faster transport between major cities and ports
ii. This results in benefit to industry and trade, agriculture and employment.
iii. Increase demand for labour, cement, steel and construction material
10. List a few problems of roadways in India.
Following are the problems associated with roadways in India.
i. Most roads in India are not well built using state-of-the art technology.
ii. Unstable government policies regarding building and maintenance of roads causes delay in repairs and poor quality of roads.
iii. Lack of order leads to traffic jams and delays.
iv. Too many toll booths and check posts along the roads.
v. Lack of roadside amenities such as petrol pumps, repair shops, motels, etc.

Rail Transport

11. List 4 advantages of rail transport.
Rail transport has the following advantages.
i. In the absence of water bodies connecting two places, rail transport becomes the cheapest mode of transport between those places.
ii. Rail transport is well suited for transportation of bulky goods over long distances.

iii. Rail transport can be used by a large number of people at the same time.
iv. Travel through rail transport is very comfortable.
12. List 4 disadvantages of rail transport.
Rail transport has the following disadvantages.
i. Rail transport is not able to cater to hill regions effectively.
ii. Since rail transport is possible only from one terminal to another, it has to be supported by a good network of roads.
iii. The initial investment required to set up rail transport is very high.
iv. It is very difficult to maintain railway facilities.
13. Why is rail transport more comfortable and popular in India?
Rail transport is preferred by people because there are lesser cities and more villages. Due to this reason, travel to cities involves long distances and railways are very comfortable over long distances. India is a developing country. Most people cannot afford private vehicles due to which they prefer railways as rail transport is very cheap.
14. Mention the three types or railways in India along with their dimensions and network.
Following are the types of railways in India.

Gauge	**Spacing between tracks**	**Network in India**
Broad	1.67 m	51082 km
Metre	1 m	9442 km
Narrow	0.76 / 0.61 m	2749 km

15. What is the rationale behind having different gauges of rail tracks?
Following are the factors considered while deciding different gauges of tracks.
i. Initial investment
ii. Demand for exchange of commodities
iii. Average number of commuters per day
iv. Flexibility, particularly in hilly regions
16. Mention two favourable conditions for the development of railways in the Northern plains of India.
Two conditions which have favoured the development of railways in the Northern plains of India are
i. The northern plains are a flat expanse of land. Building railways in these plains is very easy.
ii. These plains are densely populated. Therefore, the demand for rail transport is very high.
17. Discuss the importance of railways for the economic development of India with reference to trade and commerce, urbanization, cultural integration and agricultural development.
Railways are known as the lifelines of a country. This is true in the context of India due to the following reasons.
i. Railways are ideal for transportation of bulky goods over long distances due to this reason,
a. Exchange of commodities even over places very far apart has facilitated trade and commerce.
b. It has become possible to transport food grains and agricultural produce over very long distances boosting agricultural growth.
ii. Rail transport is very cheap. It has become possible for villagers have jobs in cities ultimately leading to urbanisation.
iii. Rail transport is very comfortable over long distances. Due to this reason, people have been able to travel to far off places and effect cultural exchange and integration.
18. List the problems associated with railways in India.
Following are the problems associated with railways in India.
i. India is a developing country. As such, it does not have sufficient funds to provide railway service to such a large population.
ii. Because of a varied relief, it is not possible to set up railways everywhere.

iii. Maintenance of railways involves huge costs, large amount of skilled workforce and good management which is a problem.
iv. Since railways have not been able to reap substantial profits, not enough investment has been made on machinery, tracks and procuring latest technology.
v. Due to the rising population, the gap between the demand for rail transport and supply is increasing.
vi. Railways are facing a tough competition with other modes of transport such as roadways and airways.
vii. Heavy consumption of electricity
viii. Because of the above reasons, Indian Railways has earned an image of being inefficient.

19. Mention three advances made by Indian Railways in the recent years.

Three advances made by Indian Railways in the recent years are
i. Fast 'Duronto' trains between a few stations.
ii. E ticketing and reservation
iii. Dedicated Freight Corridor and Dedicated Passenger Corridor (DPC)
The dedicated passenger corridor is called the 'Golden Corridor'
iv. 51082 km of track has been converted to broad gauge.
v. 20059 km of the network has been electrified.

Water Transport

20. In what way do waterways score over other means of transport?

Waterways score over other means of transport in the following ways.
i. Waterways are the cheapest mode of transport.
ii. Waterways are environment friendly.

21. Mention one drawback associated with waterways compared to roadways, railways or airways.

Compared to roadways, railways or airways, waterways are the slowest mode of transport.

22. Give two reasons why inland waterways are not well developed in India.

Two reasons why inland waterways are not well developed in India are
i. Most rivers in India are non perennial
ii. Most rivers in India flow through a very rough terrain making them non-navigable.

23. What is NWAI? What are its functions?

NWAI stands for National Waterways Authority of India. Its functions include
i. Development of inland water bodies as national waterways
ii. Developing infrastructure for floating and fixed terminals along these waterways

24. List the five national waterways of India along with associated water bodies and end terminals.

Route	**Water body**	**End Terminals**	**Length**
NW 1	Ganga	Allahabad and Haldia	1620 km
NW 2	Brahmaputra	Sadiya and Dhubri	891 km
NW 3	West Coast Canal	Kollam and Kottapuram	205 km
NW 4	Buckingham Canal	Kakinada and Puducherry	1095 km
NW 5	East Coast Canal	Talcher and Dhamra	623 km

25. Why are railways and roadways preferred over waterways in India despite the fact that waterways are cheaper?

Railways and roadways are preferred over waterways in India despite the fact that waterways are cheaper due to the following reasons.
i. Unlike waterways which require the presence of navigable water bodies, roadways and railways can be developed anywhere on land and as such have a wider network.
ii. Unlike waterways, railways and roadways are not dependent on rainfall for their effective utility.

iii. Roadways and railways are able to overcome the issue of uneven terrain much more effectively than water transport.
iv. During floods, water transport is risky.

26. Why is the western coastal region in Kerala suitable for development of inland waterways?

The western coastal region in Kerala is suitable for development of inland waterways due to the following reasons
i. Presence of a large number of backwaters
ii. The water bodies are filled with water because of abundant rainfall in this region

27. Which factors have reduced the importance of inland water transport?

The following factors have reduced the importance of inland water transport.
i. Water transport is not reliable since it depends on discharge of water bodies which may not be uniform throughout the year.
ii. Far lesser reach compared to roadways and railways.
iii. Lack of development of infrastructure essential for navigation.

28. Mention 4 advantages of inland water transport.

Inland water transport has the following advantages.
i. It is the cheapest mode of transport.
ii. It is environment friendly
iii. It requires less capital to establish
iv. It is ideal for transportation of bulk goods

29. Mention 4 disadvantages of inland water transport.

Inland water transport has the following disadvantages.
i. It has a limited network.
ii. It requires good and uniform discharge throughout the year
iii. It can transport men and material only from terminal to terminal, so it has to be supported by a network of roadways and railways.
iv. It involves the risk of floods

30. Why is inland navigation more popular in the north than in the south?

Inland navigation is more popular in the north than in the south because
i. Rivers in Northern India are perennial.
ii. Rivers in Northern India flow through a smooth terrain.

31. State the importance of national waterways in North East India?

North East India is a hilly region and hence it is not feasible to build railways which can transport bulk goods. Due to this reason, it is essential that bulk goods are transported along water routes. Additionally, these people in these states are poorer compared to the rest of India, so water transport is able to provide a cheap mode of transport.

32. Appreciate the importance of sea transport.

Sea transport has all the advantages of water transport such as cost-effectiveness, environment friendliness and suitability for transportation of bulk goods. For this reason, it is the most suitable mode of transport when it comes to exchange of commodities for international trade, or trade within a country.

33. What was the objective of setting up the Jawaharlal Nehru Port Trust?

The objective of setting up the Jawaharlal Nehru Port Trust at Navi Mumbai, South of Mumbai port was to reduce the pressure of traffic at the Mumbai Port.

34. Mention 4 advantages of sea transport.

Inland water transport has the following advantages.
i. It is the cheapest mode of transport.
ii. It is environment friendly
iii. It promotes coastal industries

iv. It is ideal for transportation of bulk goods
v. Without sea transport, international trade would become very negligible
35. Appreciate the importance of sea transport in international trade.
Natural resources are not equally distributed amongst all countries. For this reason, there arises a need for exchange of these resources as well as the finished goods obtained from them. Most natural resources are bulky in nature. Sea transport provides the most economical mode of transportation for these goods between countries and hence facilitates international trade.
36. List a few problems faced by ports in India.
Following are the problems faced by ports in India.
i. India does not have natural harbours. Due to this reason, it takes a substantial capital to develop the infrastructure required for ports.
ii. Indian ports are not well connected to their hinterland.
iii. There is a lack of co-ordination amongst different ports causing frequent delays in the entire logistic plan.
iv. Indian ports lack facilities and are very congested.
v. A number of Indian ports are affected by silting and hence require frequent dredging.
37. Answer the following questions.
a. Which port is known as tidal port?
Kandla Port
b. Why is it called so?
A non tidal port is usually located at the mouth of a river. Hence the water levels in the port are fairly uniform. In contrast, the water levels in a tidal port are subject to the level of tides. Kandla is as such a tidal port.
c. Why was it developed?
After partition, Karachi port fell in Pakistan. There was a need to develop a port proximal to Delhi and the Western Industrial Belt of Gujarat and Maharashtra. For this reason, Kandla port was developed in the 1950s.
d. What is its importance?
Kandla port is the only free trade zone in India.

Air Transport

38. Mention 3 advantages of airways.
Air transport has the following advantages.
i. It is the fastest mode of transport.
ii. It is possible to reach remote and inaccessible parts of the world using air transport.
iii. It becomes indispensable for business travel and defence purposes.
39. Mention 4 disadvantages of airways.
Air transport has the following disadvantages.
i. It is very expensive and cannot be afforded by a large number of people.
ii. It has a limited carrying capacity and therefore, is not suitable for transporting bulk goods.
iii. It depends on weather conditions.
40. How can air transport promote tourism at the international level?
Airways have a far wider reach compared to any mode of transport. For this reason, they can promote tourism.
41. Which organization is responsible for regulating civil aviation in India? What are its major functions and responsibilities?
The Directorate General of Civil Aviation (DGCA) is responsible for regulating civil aviation in India. Its functions include
i. Regulation of air transport services to/from/within India;

ii. Registration of civil aircraft in India;
iii. Licensing of pilots, aircraft maintenance engineers and flight engineers;
iv. Licensing of aerodromes in India;
v. Investigation into air accidents and incidents;
vi. Implementation of bilateral air services agreements

42. How are airports classified? Which are the two types of airports in India?

Airports are classified on the basis of the type of traffic they handle. In accordance, the two types of airports in India are international airports and domestic airports.

43. Name the major airline carriers in India.

The major international airline carriers in India are
i. Air India
ii. Indian Airlines
iii. Jet Airways
iv. Kingfisher Airlines
v. Air Sahara

The major domestic airline carriers in India are
i. Indian Airlines
ii. Jet Airways
iii. Kingfisher Airlines
iv. Air Sahara
v. Go Air
vi. Spice Jet
vii. Indigo

44. 'Airlines have a great future ahead.' Support this statement.

Today the world has become a global village. Fast travel from one place to another has become increasingly important for business, defence and tourism. Airways offer the best alternative for this purpose. The field of airways is still in an infant stage. Therefore it is right to say that airlines have a great future ahead.

WISH YOU ALL THE BEST IN YOUR BOARD EXAMINATION

MAY GOD BLESS YOU

THOMAS. K.J