Geography

Chapter 1: Resources Concept, Classification and Management

Exercise

A. Very Short Answer Type Questions.

Ans. a. Resource

- **a.** Living
- **b.** Species and the area
- c. Accessibility and concentration
- **d.** Solar

B. Short answer type questions:

a. Define a Resource? Give some examples of resources.

Ans. Everything available in the environment that can be used to satisfy our needs provided it is technically accessible, economically feasible and culturally acceptable is termed as resource. E.g. soil, water, humans forests, iron ore etc.

b. Which three things interact to develop resources for human satisfaction?

Ans. The three things that interact to develop resources for human satisfaction are: nature, man and man's culture

c. How is manganese ore a renewable resource despite of abiotic nature?

Ans. Manganese ore is continuously being formed in nodules on the ocean floor. Its growth exceeds the rate at which it is being used and thus is considered renewable despite of its abiotic nature.

d. Define inexhaustible resources, give some examples?

Ans. Resources which can be renewed by reproduction or by physical, mechanical, or chemical processes are known as inexhaustible resources. Solar energy, air, water, wildlife, forests and human beings are examples of inexhaustible resources.

Biotic Resources	Abiotic Resources
1. These are living resources.	1. They are material resources and have no life of their own.
2. These are obtained from biosphere	2. These comprise non – living things.

e. Difference between the biotic and abiotic resources?

Ans.	3. These continue to reproduce and	3.These	cannot	reproduce	and
	regenerate.	regener	ate.		
	Examples: Fish, Humans, plants etc	Examp	les: Land,	Minerals, fuels	s etc.

f. Write a short note on resource development?

Ans. Resource development is the process by which some natural resources are developed to enable their utilization. It is also concerned about preservation and reuse of natural resources.

g. What is the principle sustainable yield?

Ans. The principle of sustainable yield is the process by which locally available renewable resources should be used where possible and renewable resources should not be used faster than their replacement by natural processes.

C. Match the following: (Answer)

a.	Mesabi Range	USA
b.	Kola Mines	Karnataka
c.	Amu Darya	Central Asia
d.	Rhine River	Europe
e.	Hwang Ho	China

D. Long answer type questions:

a. The definition of natural resources has changed over time. Discuss?

Ans. The definition of the term Natural Resource has undergone a tremendous change during the last two decades. Man's ever increasing dependence on Natural Resources had brought in new meaning foe the term. In the 20th century, natural resources were viewed primarily as sources of valuable and useful commodities. They were mostly the raw materials present in the environment that man could use. But now it includes the total natural environment available to man. It encompasses the entire surface layer of the earth as all parts of the earth's surface are of some use to man. The earth's surface contributes to the production of necessities and amenities that people

demand. The oceans, the atmosphere, the deserts, even the polar, tropical and temperate regions contribute something useful for man's sustenance. These resources provide necessities and comforts to man and thus are added to natural resources available to him.

b. What are exhaustible resources and how are they different from in exhaustible resources?

Ans. Exhaustible Resources are those resources which cannot be replaced once they are used.

S. No	Exhaustible Resources	Inexhaustible Resources
1	These resources cannot be replaced once they are used.	These resources can be renewed by reproduction or by physiochemical process.
2	These resources are limited in quantity.	These resources are unlimited.
3	Once used, they are exhausted and resource development is of no use.	Resource development is an important exercise for inexhaustible resources.
4	Examples: Fossil Fuels, Minerals	Examples: Sunshine, water, soil, air etc.

c. What is resource planning? Discuss in detail about its various stages.

- Ans. Resource planning is the widely accepted strategy for cautions use of resources. It is an essential step foe judicious development of resources. The various stages of Resource Planning are:
 - i) **Survey**: this is done by preparing an inventory of resources. An expert body like the Geological survey of India, in the case of mineral resources, uses various methods and techniques to identify and locate resources in certain geographical areas. Similarly, animal resources land resources or forest resources may be surveyed and identified by respective field of interest then an inventory is made.
 - **ii) Evaluation**: These are based on the type of resources likely to exist in an area or the region. For example, India has vast potential of human resources, which, if channelised properly, can catapult it to the position

of a super – power. Evaluation is done with respect to need and available technology as well as economy.

iii) Exploitation: Resources, after survey and evaluation, have to be used and reused. These steps are taken to exploit the resources within a certain geographical area. Resources are not exploited all at once. Planning also involves correlating resources to their future needs.

d. What are various methods which help in managing and conserving the resources?

- Ans. i) Locally available renewable resources should be used where possible, and renewable resources should not be used faster than their replacement by natural processes. This is known as the principle of Sustainable Yield.
 - **ii**) High quality energy should not be used to do something that can be done with lower quality energy. For example, we do not need to use a chain saw to cut butter. This is known as the Principle of Energy Efficiency.
 - **iii)** Pollution prevention and waste reduction are the best and cheapest ways to sustain the earth. The best way to control pollution and waste is to produce minimum possible waste. This is known as the Principle of pollution prevention and Waste reduction.
 - **iv**) Reducing resource consumption and waste production should be top priority, followed by reusing items and recycling key minerals resources. This is known as the Principle of Three "R"s of Earth Care.
 - v) Products or wastes that can be recycled or reused should not be dispersed, mixed, burned or buried. This is termed as the Principle of Resource Conservation.
 - vi) Last but not the least we should consider that everyone is downwind or downstream from everybody. Therefore, we should leave all the Global Commons like fresh water and fresh air to our next generation as good as we have received them from our ancestors if not in a better position. This is known as the Principle of Global Commons.

Chapter 2: Land Resources

Exercise

A. Very Short Answer Type Questions.

- **a.** 328.93 hectares
- **b.** 2.4 % & 17.16 %
- **c.** 27%
- d. Human
- e. Five

B. Short answer type questions:

a. What is the importance of land as a resource?

Ans. Land is the basic resource in which all agricultural and industrial processes and patterns depend. Human beings, animals and plants live mostly on land. Forests too are found on land. Therefore, land is a very important resource.

b. What are the two major categories of land not available for cultivation?

Ans. The two major categories of land not available for cultivation are:

- i) Barren land, and
- ii) Pastures and grazing land.

c. Differentiate between Gross Cropped Area and Net Sown Area?

Gross Cropped Area	Net Sown Area
1. It is the total land under crop	1. It is the area sown more than
production minus wasteland or	once in an agricultural year
land left fallow	plus net sown area.
2. In India, 46% of the total land is	2. In India, 62% of the total area
net sown area.	is Gross Sown Area.

Ans.	3. These continue to reproduce and	3. These cannot reproduce and
	regenerate. Examples: Fish, Humans, plants etc	regenerate. Examples: Land, Minerals, fuels etc.

d. Write about four measures that control land degradation?

- Ans. i) Afforestation: Afforestation and reforestation is needed to hold the soil. Advancement of desserts can be checked by planting trees along the margins of desserts.
 - **ii)Controlled Grazing:** The number of cattle to be grazed on slopes should be according to the rearing capacity of the pastures.
 - **iii)Terraced Agriculture:** Slopes must be cut into a series of terraces (fields) for cultivation so as to slow down the flow of rain water.
 - **iv)Check dams:** Check dams are built in the upper course of rivers to control floods and check soil erosion.
 - v)Contour Ploughing: Contour Ploughing, terracing and building is done to check soil wash on slopes. Ploughing is done at right angles to the hill slopes.
 - vi)Moisture conservation and control of weeds also help in checking land degradation.
 - vii) Proper disposal of wastes and industrial effluents can also lead to improvement in quality of land.
- e. Define a protected forest?

Ans. It is an area notified under provisions of Indian Forest Act having limited degree of protection. In these forests, all activities are permitted unless prohibited. These account for 29% of the total forest cover.

f. Highlight various factors which are helpful in increasing net sown area?

Ans. The various factors that are helpful increasing net sown area are:

- i) Good and timely rainfall.
- **ii**) Weather conditions
- iii) Prices of agricultural commodities
- iv) Political stability
- v) Security of tenure and tenancy.

g. Name four ways of urban land utilization?

Ans. The four ways of urban land utilization is:

- i) Development of residential areas.
- ii) For development of Industry.
- iii) Land for transport.
- iv) Land for recreational facilities.

C. Long answer type questions:

a. Forests play an important role in the ecology and economy of India. Discuss.

Ans. India has 70.01 million hectares which amounts to 22.9% of total reported area under forests. These forests play a vital role in maintaining the ecology and economy of India. The forests absorb huge amounts of carbon dioxide from the atmosphere that may otherwise lead to Green House Effect. Forests in India provide home to wildlife and help in its continuation. Forest land also helps in permeation of rainwater and regulates the flow of river water which would otherwise bring floods.

The forests are economically very viable to the people. These provide livelihood to the local tribes and are a source of medicinal herbs. The sources of fire woods, timber, bamboo, fodder etc are the forests.

b. What is Land Degradation and what are its major causes?

Ans. The land which has depleted its value chiefly, soil resource value is called Land Degradation.

The major causes of Land Degradation are:

- i) Mining: Mining, chiefly open cast mining or surface mining leads to abandonment of site or settlements, roads, factories which all lead to depletion of vegetation and consequently, land degradation.
- ii) Mineral Processing like grinding of limestone, quarrying and crushing of stones raise dust in the atmosphere leading to environmental degradation. The dust settles on vegetation and harms it.
- **iii)Saline and alkaline soils:** These are found in dry and marshy areas. These are locally known as Thur, Reh and Kallar. The accumulation of salts makes these infertile. Many industrial wastes as well as surface run offs cause salinity and alkalinity in marshy areas.
- **iv)Industrial effluents and wastes:** Effluents in water bodies or air also cause land pollution near cities and industrial areas.

c. What is Fallow Land? What are the various reasons for keeping land Fallow?

Ans. It is cultivable land which is cultivated once in two or three years. It is allowed to rest for one or two seasons to regain its fertility.

The main reasons for keeping land fallow are:

- i) Inability of farmers to cultivate
- ii) Inadequate water supply
- iii) Malarial climate
- iv) Silting of canals and rivers
- v) Soil erosion
- vi) Un remunerative farming

d. Highlight various programmes that have been initiated by the government to control further land degradation?

- **Ans.** The policies formulated by the Government of India to control of land Degradation are:
 - i) Integrated land and water use management.
 - **ii**) Comprehensive approach foe formulation of policies in different areas such as food security, forests, soil conservation and water resources.
 - **iii)** Involvement of the local communities at every stage in the implementation of the projects.
 - iv) Judicious management of irrigation with reduction in wastage.
 - v) Prevention strategies mitigating the erosional impact of rain and wind
 - vi) Wasteland reclamation.
 - vii) Social awareness.

Chapter 3: Water Resources

Exercise

A. Very Short Answer Type Questions.

- i) 2%
- **ii**) 4%, 17%
- iii) High
- iv) Summer

B. Short answer type questions:

i) Define surface water and highlight its major sources?

Ans. Water that flows on the earth's surface in the form of streams, rivers, lakes or reservoir, etc. is known as surface water resource. There are four major sources of surface water, which includes rivers, lakes, ponds and tanks.

ii) Mention sector wise major users of water in India?

- **Ans. i)** Agriculture 90%
 - ii) Domestic Water Supply 8%
 - iii)Industry 2%

iii) Name any three states where groundwater utilization is very high. Give reasons?

Ans. The groundwater utilization is very high in the states of Punjab, Haryana and Rajasthan.

This is because these areas lie in the north western region of India where the ground water level is low as compared to other regions.

iv) What are the major sources of irrigation in India?

Ans. The major sources of irrigation in India are Canals, wells, tube – wells, tanks etc.

v) Highlight merits and demerits of well irrigation?

Ans. Merits:

- i) Cheapest source of irrigation
- ii) They can be dug at a convenient place.
- iii) Indispensable source of irrigation.

Demerits:

- i) They tend to be shallow and may dry up.
- ii) They can irrigate only a small area.
- iii) They need high water table.
- iv) At some places well water contains a high percentage of minerals which makes the water unsuitable for irrigation.

vi) Canal irrigation is widespread in northern India. Give reasons.

Ans. Canal irrigation is more widespread in northern India because of:

- i) Leveled relief
- **ii**) Deep fertile soil which helps in recovering the cost of construction of canals.
- iii) Alluvial formations due to which digging of canal is easy.
- iv) Perennial flow of rivers which originates in the snow covered Himalayan ranges.

vii) Name the states were tank irrigation is widespread in India.

Ans. Tank irrigation is widely prevalent in Tamil Nadu, Andhra Pradesh, Karnataka and Orissa.

C. Match the following canals with their source rivers.

i) Upper Bari Doab Canal Ravi

ii)	Agra Canal	Yamuna River
iii)	Sirhind Canal	Sutlej
iv)	Mettur Canal	Kaveri River
v)	Jawahar Canal	Nagarjuna Sagar Dam

D. Long answer type questions.

- 1. Name the major users of water in India and also suggest measures to solve the emerging water crises in the country?
- Ans. The major users of water in India are: Agriculture (90%), Domestic water supply (8%), Industry consumption (2%)India's population is growing at a very fast speed. It is becoming difficult to provide quality water to the people. India is passing through a crisis of water shortage. Some measures to solve this crisis are:
 - **a. Rain water harvesting:** It can help meet increasing demand for water and raise the water table in a given area. Rainwater harvesting refers to collection and storing rain water in underground tanks for future use. Water from such tanks can be diverted to an underground pit from where it can seep deeper into the ground and help raise the water table.
 - **b. Recycling:** We can recycle water used in our kitchens for other domestic purposes, such as washing courtyards, watering plants, etc. Industries can also recycle and reuse water for processing.
 - **c. Efficient Use:** The efficient use of water like closing the taps after use, sprinkler irrigation against canal irrigation need to be popularized.
 - **d. Recharge of Ground water:** Ground water recharge is a process by which water percolates in the ground due to rainfall, snow melting or surface run off, etc. and reaches the water table.
 - **e.** The treatment of sewage and industrial effluents before releasing them into water bodies can help check water pollution.
 - **f. Improving vegetation cover:** The roots of plants bind the soil and allow rainwater to percolate underground. The surface runoff is more on bare soils, than on vegetated soil surface. Therefore, it is necessary to increase the vegetation cover, improve its quality and density to prevent surface run offs.

2. What are multipurpose river projects? Highlight their merits and demerits?

Ans. A multipurpose project is a large scale integrated hydraulic systems designed to serve several purposes simultaneously. Multipurpose projects are used for irrigation, flood control, Hydro electric power generation, navigation, fisheries and tourism.

Main Objectives:

- a) Generation of Hydel power: Multipurpose projects are the main source of power generation. They provide us neat, pollution free and cheap energy which is the back bone of industry and agriculture.
- **b)** Flood Control: These projects control the floods because of their huge water storing capacity.
- c) Soil conservation: These projects help to conserve the soil as they slow down the speed of water thereby reducing its erosive intensity.
- d) Irrigation: These projects are the main source of irrigation for our country. These irrigate the fields during the dry seasons. Many canals have been dug and they irrigate dry areas across the country.
- e) Afforestation: Trees are systematically planted in and around reservoirs. This helps in preserving 'wildlife' and natural ecosystem.
- **f) Water navigation:** Multipurpose river valley projects often provide for inland water navigation through main rivers and canals. They help to raise the level of rivers and there tributaries which makes them navigable. It is the cheapest means of transport for heavy goods.
- g) Fisheries: These provide ideal conditions for the breeding of fish.
- **h**) **Tourist centers:** These projects are well cared and are scientifically developed. So these become the centers of tourist attraction and also offer recreational avenues to the adjoining villages and towns.

Drawbacks:

In recent years multipurpose projects and large dams have come under scrutiny and opposition due to following reasons:

- a) **High cost:** The initial cost of building the dams is very high. It requires huge capital.
- **b)** Adverse impact on environment: as vast variety of flora and fauna (plants and animals) as well as human settlements get submerged in the water of reservoir formed by the dam. Submergence causes huge loss of agricultural land forest land and large scale displacement of people.

- c) Adverse effect on the fertility of the soil: Due to construction of dams there are no annual floods in the river, due to which the soil of the downstream region gets deprived of the nutrient rich "salt", ultimately leading to decrease in the fertility of the soil.
- d) Adverse impact on Aquatic life: Regulating and damming of rivers affects natural flow of water causing poor sediment flow downward and excessive sedimentation at the bottom of reservoir, resulting in rockier stream beds and poorer habitats foe the rivers aquatic life.
- e) Non availability of water throughout the year: Most of the rivers in India flow only for few months. So water is not sufficient to build a dam.
- **f) Displacement of local communities:** Building of large dams results in displacement of local communities. The local people often had to give up their land and livelihood foe the greater good of the nation.
- **g)** Change in the cropping pattern: multipurpose projects are responsible for providing assured means of irrigation to farmers. Consequently most of the farmers have changed the cropping pattern, shifting to water intensive and commercial crops, which leads to salinisation of soil especially in the semi arid and arid regions of the country.

3. Define irrigation and highlight its importance?

Ans. The process of supplying water to crops by artificial means such as canals, wells, tube – wells, tanks, etc. from various sources of water is called irrigation.

Importance of irrigation:

- **a**) Water is basic input for agriculture. Cultivation of crops depends on the availability of water. Water dissolves minerals and other nutrients in the ground. The roots of the plants draw this nutritious water from the soil.
- **b**) Water is must for commercialization of agriculture.
- c) Irrigation played a major role in the success of Green Revolution in India.
- **d**) Many regions like Punjab, Haryana have become leading producers of rice because of irrigation.
- e) Many crops are grown in Rajasthan and other arid regions of India because of irrigation.
- 4. Highlight the advantages and disadvantages of tube wells as a source of irrigation?

Ans. Merits:

- i) Cheapest source of irrigation
- ii) They can be dug at a convenient place.
- iii) Indispensable source of irrigation.

Demerits:

- i) They tend to be shallow and may dry up.
- **ii**) They can irrigate only a small area.
- iii) They need high water table.
- iv) At some places well water contains a high percentage of minerals which makes the water unsuitable for irrigation.

5. What is rainwater harvesting? Mention various components of rainwater harvesting system?

Ans. Rain water harvesting: It is the technique of increasing the recharge of ground water by capturing and storing rain 'water by constructing structures such as dry wells, percolating pits, check dams. Rain water is stored in ground water reservoirs 'by adopting artificial recharge techniques to meet the household need through storage in tanks.

Components of Rain Water Harvesting: A rainwater harvesting system comprises of various components:

- a) Catchments: The catchment of a water harvesting system is the surface which directly receives the rainfall and provides water to the system. It can be a paved area like a terrace or courtyard of a building, or an unpaved area like a lawn or open ground. A roof made of reinforced cement concrete (RCC), galvanized iron or corrugated sheets can also be used for water harvesting.
- **b) Coarse mesh:** Coarse mesh is required at the roof to prevent the passage of debris with the water.
- c) Gutters: Gutters include channels all around the edge of a sloping roof to collect and transport rainwater to the storage tank.
- **d**) **Conduits:** Conduits are pipelines or drains that carry rainwater from the catchment or rooftop area to the harvesting system.
- e) First flushing: A first flush device is a valve that ensures that runoff from the first spell of rain is flushed out and does not enter the system. This needs to be done since the first spell of rain carries a relatively larger amount of pollutants from the air and catchment surface.

f) Filter: The filter is used to remove suspended pollutants from rainwater collected over roof. A filter unit is a chamber with filtering media such as fiber, coarse gravel and reed etc.

Chapter 4: Agriculture

Exercise

A. Very Short Answer Type Questions

- i) Shifting Cultivation
- ii) Trans humans
- iii) Mediterranean
- iv) Rice, Maize
- v) Plantation

B. Short Answer Type Questions

- i. India is bestowed with variety of crops and multiple cropping seasons. Give some reasons?
- **Ans.** India is a huge country. Due to its size India is bestowed with variety of crops and multiple cropping seasons. The other reasons are: Diverse geo physical and varied climatic conditions.

ii. Highlight the importance of agriculture in India.

- Ans. Importance of Agriculture in India: India is primarily an agricultural country. Indian society is an agrarian society. About 70% of the population depends upon agriculture. It indicates that India is yet a developing country. Agriculture is the backbone of Indian economy. Agriculture is important in India in the following ways:
 - 1. Agriculture feeds more than 103 crore people of India.

- 2. Agriculture contributes 26% of Gross Domestic Product.
- **3.** Three-fourths of the people of India live on agriculture. Beside 10% more are engaged in occupations connected with agriculture.
- **4.** Agriculture provides raw material for our agro-based industries. Cotton, jute and sugarcane are the typical examples.

iii. Name some commercial crops grown in India.

Ans. Sugarcane, Cotton; Jute

iv. What are the climatic conditions required for the cultivation of wheat?

Ans. Wheat thrives well with cool winters and the hot summers. The required monthly average temperature ranges between $10^{\circ} - 15^{\circ}$ C during sowing and between $21^{\circ} - 26^{\circ}$ C during ripening; nevertheless the temperature at maturity must not fall below 21° C.

v. What is the utility of byproducts of rice?

Ans. Rice husk is used as cattle feed on large scale. Rice bran is obtained from the outer layers of the brown rice and is a good source of edible oil. The crude rice bran oil is used in soaps, paints, enamels, varnishes, wax and de – oiled bran is used as cattle and poultry feed.

vi. Name the three main components of green revolution.

Ans. The three main components of green revolution were:

- **a.** Continued expansion of the farming areas.
- **b.** Double cropping in existing farmland.
- **c.** Use of high yielding variety seeds.

vii. Define Zaid crops.

Ans. Zaid crops are crops that are raised throughout the year deploying artificial irrigation system. These are mainly grown between Rabi and Kharief crop seasons. Examples: Watermelon, Toris, Cucumber etc.

C. Match the following:

i. Food grain Wheat

Comm	ercial	Cro	р
	Comm	Commercial	Commercial Crop

iii. Plantation Crop

iv. Horticultural Crop

Sugarcane Cotton

Apple

D. Long Answer Type Questions

1. Food production in India is showing signs of stagnation. Give reasons?

- **Ans.** There are many factors responsible for stagnation of food grains production. These are briefly summarized below:
 - **i.** The productivity of land has started showing a declining trend. The degradation of soils caused by fertilizers and pesticides is often cited as the reason for this declining trend.
 - **ii.** There has been a gradual shift from cultivation of food crops to cultivation of horticulture crop crops like fruits, vegetable and even industrial crops.
 - iii. Competition of land use between non agriculture uses such as houses, roads and industrial buildings and agricultural use has resulted in reduction in net sown area.
 - **iv.** Farmers face shortage of eater for irrigation on account of climate change. This has put a heavy pressure on groundwater resources. At many places, water level has gone down and wells and tube wells are running dry.
 - v. The widening gap between the rural rich and poor, on account of land ownership and other factors have also resulted in declining food production. The market uncertainties have further widened this gap.

2. What are the geo-environmental conditions for the cultivation of sugarcane in India and also given its production and distribution?

Ans.Geographical conditions for growth: Sugarcane is a plant of hot-wet tropical region. It needs high temperature $(21^{\circ} \text{ to } 27^{\circ}\text{C})$ and high rainfall (75 cm to 150 cm). it grows best on well drained alluvial soil. It needs cheap labour, regular use of fertilizers and bright sunshine. About 92 percent of sugarcane lands are under irrigation.

Areas and Production: India is the second largest (after Brazil) and the oldest producer of sugarcane in the world. It has the largest area under sugarcane cultivation in the world. But the yield is low. Uttar Pradesh is the largest producer of sugarcane in India.

Punjab, Haryana and Bihar are the states producing sugarcane in Northern India. Southern India, with its hot-wet climate, has favourable conditions. As a result, higher yield is obtained there. Orissa, Andhra Pradesh, Tamil Nadu ad Maharashtra as well as the deltas of Mahanadi, Godavari, Krishna, Kaveri are other main producers of sugarcane.

Area under sugarcane production has increased from 29 lakh hectares in 1985-86 to 42 lakh hectares in 1990-2000 and production has increased from 1,820 lakh to 2,990 lakh tones, while yield has increased from 60 tonnes per hectare to 71 tonnes per hectare during the same period.

3. Highlight the importance of horticultural in the agriculture sector of Jammu and Kashmir?

Ans .Horticulture is major contributor to the GDP of the state with approximate annual turnover of 5000 crore rupees.

Horticulture in Jammu and Kashmir also provides direct and indirect employment to large number of people and plays a crucial role in poverty alleviation. More than seven crore boxes of apple are exported from the state every year. The export of apple, walnut, almond and saffron earns valuable foreign exchange for the country. Jammu region produces some of the famous varieties of mango owing to its sub-tropical climate. Ladakh region is famous for the production of apricot throughout India.

4. Write a note on Green Revolution, its merits and demerits?

Ans. The term Green Revolution actually originated in Mexico in 1940s where intensive agriculture with the help of high yielding strains of plants, fertilizers and pesticides combined to record higher productivity. In India, similar method of intensive agriculture came to be called Package Technology. With the spectacular increase in production of food-grains in plains of Punjab it came to be called Green Revolution. It remained confined to 39 districts of Punjab, Haryana, West Bengal, Karnataka, Tamil Nadu and Maharashtra. Besides large scale use of fertilizers, high yielding varieties of seeds, insecticides and pesticides it also involved land reforms like consolidation of holdings, mechanization and electrification of rural areas.

Merits of Green Revolution:

- **a.** Enhancement in agricultural productivity and increase yield per hectare.
- **b.** Change in approach of the peasants.

- **c.** Employment opportunities both in agricultural and non-agricultural sectors.
- d. Shift from customary agriculture.
- e. Emergence of new cropping patterns, improved economy and standard of living.

Demerits of Green Revolution

- **a.** Environmental degradation
- **b.** Soil and water pollution
- **c.** Loss of bio diversity
- **d.** Decrease of water table.
- e. Loss of local variety of crops
- **f.** Promoted weed and pest resistance

Chapter 5: Forest and Wildlife

Exercise

A. Very Short Answer Type Questions.

Ans.

i. Naturally
ii. Animals
iii. 200 – 300 cm
iv. Endangered
v. In – situ, Ex – situ

B. Short Answer Type Questions:

i. Name the main geographical factors which influence the type and distribution of vegetation?

- Ans. Factors effecting natural vegetation: The assemblage of plant species found in an area is primarily affected by the following factors:
 - **a.** Climate: The vegetation of different places varies with the type of climate ruling that region. Growth of trees depends on the temperature and rainfall pattern of the region.
 - **b. Relief:** The mountains, plains, plateaus and valleys that represent the relief have a great variation on climatic type vegetation. It is because the temperature decreases with the altitude.

c. Aspect: It refers to the direction in which the slope of a land faces the sun. The sun facing slope (windward side) receives more rainfall and hence has more vegetation and vice-versa.

ii. What is a biosphere reserve?

Ans. There is a great biological diversity of our land. Vast areas have been reserved for the preservation and protection of flora and fauna of the country in their natural form. Such areas are called bio-reserves. In these areas, natural plants and animals are protected for the use of future generations.

iii. Name different types of vegetation in India :

- **Ans. a.** Tropical evergreen forests
 - **b.** Tropical deciduous forests
 - **c.** Thorn forests
 - **d.** Mangrove forests
 - e. Mountain vegetation

iv. Define tropical deciduous forests and their concerns?

Ans. Mangroove forests are the dense forests that grow in coastal areas. The roots of the plants grown here are submerged under water. These occur along the coast line in the sheltered estuaries, backwaters, salt marshes and mud flats. These forests are found in Sundarbans, the deltas of the Ganga, the Mahanadi and the Kaveri.

v. Write a note on the main objectives of the National Forest Policy.

- **Ans.** National Forest Policy was introduced in 1998 for conservation and development of forest in India. Its main aims are:
 - **a.** Maintain Ecological Balance
 - **b.** Preservation of environment
 - c. Conservation of natural heritage
 - d. Check soil erosion
 - e. Check advance of deserts
 - f. Afforestation and social forestry
 - g. Awareness among people.

vi. Write a note on project Tiger?

Ans. The First Tiger Project was started in 1973 when it was realized that its population had dwindled from the then estimated from 55,000 to 1827. Since then, many projects have been started and at present there are 27 projects in 17 states spread over an area of 37,761 sq km in existence. Besides, trade in tiger

skin and other products have been banned. Two-thirds of the tiger population of the world is found in India and Nepal. These nations have become the prime targets of illegal hunting of birds or animals (poaching). The Project Tiger initially showed considerable success. The tiger population rose up to 4002 in 1985 and to 4334 in 1989 but fell to 3600 in 1993. Some of the National Parks where tigers can be found are Corbett National Park, Sunderbans, Bandhavgarh, Sariska Wildlife Sanctuary and Periyar Tiger Reserve.

Long Answer Type Questions:

i. Human activities affected the depletion of Flora and Fauna? Explain.

- **Ans.** Human activities have depleted our forests and wild life. Some of the causes of depletion of flora and fauna are
 - a. Expansion of the commercial and scientific forestry and mining activities: During the colonial period due to the expansion of the railways, agriculture, commercial and scientific forestry and mining activities Indian forests depleted to an extent.
 - **b.** Agricultural Expansion: Even after Independence, agricultural expansion continues to be one of the major causes of depletion of forest resources. Between 1951 and 1980 over 26,200 sq. km. of forest area was converted into agricultural land especially in the northeastern and central India for shifting cultivation (Jhum) and a type of 'slash and burn' agriculture.
 - **c. Enrichment Plantation** was a plantation in which a single commercially valuable species was widely planted and other species reduced.
 - **d. Development projects.** Large-scale development projects have also contributed significantly to the loss of forests. Projects still in continuation like the Narmada Sagar Project in Madhya Pradesh have swallowed up 40,000 hectares of forests.
 - e. Mining. Mining is another important factor behind deforestation. The Buxa Tiger reserve in West Bengal is threatened by the ongoing dolomite mining. It has disturbed the natural habitat of many species and blocked the migration route of several others including the great Indian elephant.
 - **f. Unequal Access to Resources.** The wealthiest 5% of Indian society cause more ecological damage because of the amount they consume than the poorest 25 per cent and shares minimum responsibilities for environmental well-being.
 - **g. Habitat destruction.** Habitat destruction, hunting, poaching, overexploitation, environmental pollution, poisoning and forest fires are factors, which have led to the decline in India's biodiversity.

ii. What steps have been taken by the Government for the conservation of flora and fauna?

- **Ans.** The government has taken many steps for the conservation of flora and fauna. It has accorded high priority to promote environmental education, create awareness and disseminate information. Some of the steps taken by the Government are:
 - a. Biosphere Reserves, National Parks and Wildlife Sanctuaries: Biosphere reserves are multi-purpose protected areas on a very large scale. The National Parks are closed areas on a smaller scale. Wildlife sanctuaries are meant for giving protection to wildlife. In India, we have today a network of 89 national parks, 490 sanctuaries and 14 biosphere reserves.
 - **b.** Legislation: At international level, the Convention on International Trade in Endangered Species (CITES) has evolved strategies to save rare species like tigers, elephants, whales and many other animals. The government of India passed the Wildlife (Protection) Act, 1972. Some more species have now been included in the Schedule I of this Act. It was under this Act that National Parks and Wildlife Sanctuaries were set up. The Forest Conservation Act, 1980 in India, has been enacted to check indiscriminate deforestation or diversion of forest lands for non-forest purposes. A Bill in regard to control of pollution is currently under the consideration of the Parliament of India.
 - **c.** Other Initiative: There are also programmes for conservation of wetlands, mangroves and coral reefs. These are described as special ecosystems because of the role they play in linking different ecosystems. Some important areas of biological significance have also been recognized. These are important for biodiversity and gene pools of a variety of flora and fauna. Special conservation measures have been taken in these areas.

iii. Forests are very important. Explain

- Ans. Forests are very useful to man. This is quite clear from the following account:
 - **a.** They are renewable resources and contribute substantially to our economic development.
 - **b.** They play a major and crucial role in enhancing the quality of environment.
 - c. They modify local climate, control soil erosion, and regulate stream flow.
 - **d.** The support a variety of industries.
 - **e.** They provide Livelihood for many communities and offer opportunity for recreation.
 - **f.** They add to the forest floor large quantities of leaves, twigs and branches, which after decomposition form biomass.
 - **g.** They provide industrial wood, timber, fuel wood, fodder and several other minor products of great economic value.
 - **h.** They provide natural environment for wild life.

i. They maintain life support system. They maintain environmental stability and ecological balance.

iv. Give a detailed account of the forests of Jammu and Kashmir.

Ans. The recorded forest area in J&K is 22539 square kilometers, which constitutes 22.5% of the total geographical area of the state. Approximately, 51% of forests are found in Kashmir Valley. Jammu region contains 49% of state forest cover. The state has 4140 sq. km. of very dense forests, 8760 sq. kms of moderately dense forests and 9639 sq. kms of open forest. There are five forest types occurring in the state viz. Subtropical, Dry, Evergreen, Himalayan Moist Temperate, Himalayan Dry Temperate, Subtropical Pine, Sub-Alpine and Alpine Forests. There are nearly 572 plant species belonging to 10.9 different families having medicinal value. The state of J&K also has 5 national parks, 14 wildlife sanctuaries and 21 conservation reserves

Chapter 6: Mineral Wealth

Exercise

A. Very Short Answer Type Questions.

- Ans. i. Mineral
 - ii. Major, Raw material
 - **iii.** 25%
 - iv. Digboi
 - v. Padder (Kistwar)

B. Short Answer Type Questions:

a. Define minerals and their importance.

Ans. A homogenous naturally occurring substance with a definable internal structure is called a mineral.

Importance of minerals:

- **i.** Minerals are indispensable part of our lives. Almost everything we use, from a tiny pin to a towering building or a big ship, all are made from minerals.
- **ii.** The railway lines and the tarmac (paving) of the roads, our implements and machinery too are made of minerals. Car, buses, trains, aeroplanes are manufactured from minerals.

iii. Our food that we eat contains minerals. Human beings have used minerals for their livelihood, decoration, festivities, religious and ceremonial rites.

b. What are the various purposes for which bauxite is used?

Ans. Bauxite is used in the manufacture of utensils and refractory bricks.

c. Name important petroleum producing states of India.

Ans. i. Mumbai High	-	63% of total production.
ii. Gujarat	-	18% total production.
iii. Assam	-	16% total production.

d. Highlight the contribution of Orissa in the national mineral production.

Ans. Orissa is one of the major producers of iron in the country. The richest hematite deposits are located in Barabil – Koira valley. Orissa is also the largest producer of manganese with a contribution of one third of the total production. Orissa also produces 40% of the total production of bauxite in India.

e. Discuss any three measures of conservation of minerals.

Ans. a) The minerals should be used in a planned way in a judicious manner.

- **b**) Modern technology should be used for the exploitation of minerals.
- c) We should think about the use of substitutes in order to save minerals.

f. Distinguish between metallic and non-metallic minerals.

Ans.

Metallic Minerals	Non-metallic Minerals
1. Metallic minerals are those	1. Non-metallic minerals are those
minerals which can be melted	which do not yield new product
to obtain new products	on melting.
2. Iron, copper, bauxite, pyrite,	2. Mica, limestone, nitrate, carbon,
nickel, tin, manganese,	sulphur, phosphorus, arsenic,
chromate, silver, gold, lead,	coal, salt, clay, marble etc., are
tungsten, zinc, etc., are some	some examples.
examples	3. These are generally associated
3. These are generally associated	with sedimentary rocks.
with igneous rocks.	

C. Match the following:

Coal Type	Distribution
i. Anthracite	Jammu and Kashmir
ii. Bituminous	Jharkhand Orissa and West Bengal

Ans.

iii. Lignite	Rajasthan, Tamil Nadu and Assam
iv. Peat	Bihar and Madhya Pradesh

D. Long Answer Type Questions:a. India is adequately rich in mineral wealth? Discuss?

Ans. Mineral resources in India are adequately rich, widespread and varied. The most important mineral resources which India possesses include Manganese, Coal, Bauxite, Mica, Iron and Salt. India is mostly rich in iron resources. Iron and coal, actually forms the basis of the machine age. As per the estimations, India possesses virtually world's one fourth of iron ore resources. A further significant mineral required by the ferrous industries is manganese and in India it is found in abundance. It is used to manufacture steel alloys.

The value of mineral production in India covering fuel, metallic, nonmetallic and minor minerals rose spectacularly during the last 6 decades since 1951. It touched the peak level of Rs. 255677 crore in 2011-12. The increase in the value was attributable to both rises in mineral production as well as in mineral prices.

Offshore regions continued to be in leading position, in terms of value of mineral production in the country and had the share of about 24% in the value of national output. Next in order is Orissa with a share of 11% followed by Rajasthan and Andhra Pradesh (9% each); Chhattisgarh (7%); Jharkhand and Gujarat (6% each), Assam (5%); Madhya Pradesh (4%) ; West Bengal, Goa, Uttar Pradesh and Maharashtra (3% each); Tamil Nadu, Meghalaya and Karnataka (2% each) in the total value of mineral production.

b. Discuss in detail the production and distribution of iron ore in India.

Ans. Production and Reserves: India has iron ore reserves of about 12,317 million tones of hematite and 5,395 million tones of magnetite. Most of the high grade iron ore (magnetite) deposits are in Bailadial of Chhattisgarh, Bellary-Hospet area of Karnataka state as well as in Jharkhand state. These deposits are the worlds richest and the largest deposits.

Distribution of Iron Deposits: Magnetite and hematite reserves are found in many states but Jharkhand and Orissa produce about 75% of total production of this iron ore in India. This is called 'iron ore belt of India'. Major steel plants of India are located in this region.

1. Jharkhand: Naomundi and Gua mines in Singhbhum and Hazaribgh districts have haematite iron ore mines.

- 2. Orissa: Keonjhar, Mayurbhanj and Bonai mines have haematite iron ore deposits.
- **3. Chhattisgarh:** Dhalli-Rajhara hills (Durg) and Bailadila (Bastar) have abundant amount of haematite deposits. This range of hills comprises 14 deposits of super high grade haematite iron ore.
- **4. Tamil Nadu and Karnataka:** Salem and Madurai belt in Tamil Nadu and Chitradurga, Chickmaglur and Tumkur belt in Karnataka have major steel plants of South India. The Kudremukh mines are located in this region of Karnataka in the Western Ghats.
- **5. Other areas:** Baba Boodan hills and Kudremukh in Karnataka, Kurnool in Andhra Pradesh, Lohara, Ratnagiri and Pipalgaon in Maharashtra, Tiruchchirappalliin Tamil Nadu and Goa are other areas of steel plants.

c. Elaborate in detail the distribution of coal in India.

- **Ans. Distribution of Coal in India:** India is the major producer of coal. Jharkhand, Orissa, Chhattisgarh, West Bengal, Maharashtra and Andhra Pradesh are the main producers.
 - **1. Jharkhand:** Jharkhand is the leading producer of coal in India. Jharia, Bokaro and Giridih are the main mines. Jharia which lies to the southwest of Dhanbad city is one of the richest and oldest coalfields of India.
 - 2. Orissa: Orissa has rich coal reserves. Most of the deposits are found in Dhenkanal, Sambalpur and Sundargarh districts. The Talcher filed stretching eastward from Talcher town to Rairkhol in Dhenkanal and Sambalpur districts rank third in reserves after Raniganj and Jharia coalfields. The Rampur-Himgiri coalfields in the districts of Sambalpur and Sundergarh spread over an area of 520 sq km.
 - **3. Chhattisgarh:** Chhattisgarh also has large coal reserves. Singrauli, Tatapani and Koragarh are the major coal producing areas.
 - **4. West Bengal:** Although West Bengal produces only 8 percent of India's coal, the state has nearly 13 percent of the coal reserves of the country. Burdwan, Bankura, Purulia, Birbhum, Darjeeling and Jalpaiguri are the chief coal producing districts. Raniganj is the largest coalfield of West Bengal. It covers an area of 1,500 sq km mainly in Burdwan, Bankura and Purulia districts. This field produces mainly non-coking steam coal, which is used by railways and thermal plants. In Darjeeling district, coal reserves are found in Dalingkot coalfield.

5. Andhra Pradesh: Most of the coal reserves of Andhra Pradesh are in the Godavari valley in the districts of Adilabad, Karimnagar, Warangal, Khammam, East Godavari and West Godavari. The working collieries are situated at Tandur, Singareni and Kothagudam.

d. Discuss in detail the mineral wealth of Jammu and Kashmir.

- **Ans.** The state is having certain reserves of bauxite, borax, coal, gold, gypsum, lignite, limestone, manganese, marble, and sapphire. A brief survey of these precious minerals is as follows:
 - **1. Bauxite:** It is significant aluminum ore, which is used in the manufacture of utensils and refractory bricks. Millions of tons of this mineral can be found in Jammu.
 - **2. Borax:** This mineral is used in boric acid and other medicines. It is found in Sokar Lake in Ladakh.
 - **3. Coal:** It is a valuable fuel and industrial mineral and is found in the form of anthracite and bituminous coal. Rich deposits of coal can be found in Rajouri district.
 - **4. Gold:** It is present on the banks of Indus River in the form of Placer gold in Ladakh region.
 - **5. Gypsum :** It is extensively used in the cement industry, dentistry, sculpture, and in the manufacture of sulphuric acid. Quality gypsum exists in Jammu area.
 - **6. Lignite:** Lignite is a low quality fuel and has been reported from Handwara region in millions of tons, as well as in Jammu region.
 - **7. Limestone:** It is a carbonate rock of sedimentary origin, which caps most of the exquisite hill-rocks surrounding Anantnag, Pulwama, Baramulla and Ladakh districts. Limestone is the primary material from which CaCO₃, lime and Portland cement are manufactured. The well-known sites in the valley are Verinag, Mattan, Achabal, Shopian, and Khalsi in Ladakh.
 - **8. Magnetite:** It is mostly composed of MgCO₃, which is used in the manufacture of glass. Millions of tons of Magnetite are found in Anantnag.
 - **9.** Marble: Excavated from the marble mines situated at Kupwara, this marble is of high quality and possesses variety of shades and colours.
 - **10. Sapphire:** It is a gemstone, a precious one, found in Padder, (Kishtwar). Kashmir, Sapphire is famous throughout the world for its wonderful shades, variety and quality.

Chapter 7: Manufacturing Industries

Exercise

A. Very Short Answer Type Questions.

Ans. a. Manufacturing

- **b.** Capital
- **c.** Cotton Textile Industries
- d. Public Sector Industry
- e. Carpet

B. Short answer type questions:

a. Define manufacturing.

Ans. Manufacturing means transformation of natural material endowments into commodities of utility by processing, assembling and repairing. It is an activity that works as an engine of economic growth, helps in removing poverty and unemployment and transforms a traditional society into a modern industrialized society.

b. How is raw material an important geographical factor in the location of an Industry?

Ans. The location of Industrial enterprises is most often determined by the location of the raw materials. This helps in transporting the raw materials to the industrial units quickly and at a lower price. The final product thus produced has a low price in production and will fetch higher dividends.

c. Market is an important location factor in the establishment of an industry. Explain?

Ans. Nearness to market is essential for quick disposal of manufactured goods. It helps in reducing the transport cost and enables the consumer to get things at cheaper rates. Industries are seeking locations as near as possible to their markets to save overall production cost.

d. Write a short note on cotton textile industry of India?

Ans. The first successful modern cotton textile mill was established in Mumbai in 1854. The real expansion of cotton textile industry took place in 1870's. By 1875 – 76 the number of mills rose to 47 out of which over 60 percent were located in Mumbai city alone. At present, cotton textile industry is largest organized modern industry of India. There has been a phenomenal growth of this industry during the last four decades. About 16 percent of the industrial capital and over 20 percent of the industrial labour of the country is engaged in this industry. The total employment in this industry is well over 15 million workers.

e. Differentiate between Private Sector Industry and Public Sector Industry?

Ans.	Private Sector	Public Sector
	1. The industries owned and managed by an individual or a group of individuals are private sector units.	1. The industries owned collectively by a community or the government means public sector.
	2. Many industries run by capitals like Birla. Tata are under private sector.	2. Schools, public buildings, nationalized industries are under public sector such as Bhilai Steel Plant.
	3. Private sector runs under strong competition as in Japan, USA	3. Public sector runs on socialistic pattern as in India.

f. What are the major industries regions of India and name five of them?

Ans. Following are the major industrial regions of India: $_{\text{Page No}\ .29}$

- a. Mumbai Pune Industrial Region
- **b.** Hoogli Industrial Region
- c. Bangalore Tamil Nadu Industrial Region
- **d.** Gujarat Industrial Region
- e. Chota Nagpur Industrial Region
- **f.** Vishakhapatnam Guntur Industrial Region
- g. Kollam Thiruvananthapuram Industrial region.

g. Write short note on Handicrafts in Jammu and Kashmir?

Ans. Handicraft Industry: Handcrafts occupy an important position in the state of Jammu and Kashmir. The handicrafts from the state have been in demand all over the world. The Kashmir carpets are famous all over the world. Wood, carvings, shawls, paper machine, woolen shawls, crewel embroidery, namdass and Gabba are the other handicrafts of the state. Handicraft industry is the backbone of the state economy.

C. Match the following.

	_		
a.	Mumbai	Capital Intensive Industry	
b.	Pune and Banglore	Information Technology Industry	
c.	TISCO and Reliance	Private Sector Industry	
d.	NPHC and ONGC	Public Sector Industry	
e.	Amul	Co – operative Sector Industry	

D. Long answer type questions.

estions.

- i) What are the geographical, non geographical factors which influence the location of an Industry?
- Ans. *Geographical Factors:* Following are the factors which are responsible for the location of an industry:
 - **a.** Availability of raw material: availability of war material influences the location of an industry. For example, maximum number of iron and steel industries is located in Chottanagpur region because the raw material is easily available in that region at low cost.
 - **b. Labour**: Cheap labour is required for an industry. For example, cheap labour is available in Chotanagpur region from the states of Bihar, Orissa and west Bengal.
 - c. Power: Regular supply of power is required for running machinery.
 - d. Market: Availability of market for selling finished goods.

Non – Geographical Factors: Following are some of the important non – geographical factors influencing the location of industries.

- a) Capital: modern industries are capital intensive and require huge investments.
- **b) Banking Facilities:** Establishment of industries involves daily exchange of crores of rupees which is possible through banking only. So the areas with better banking facilities are better suited to the establishment of industries.
- c) **Insurance:** There is a constant fear of damage to machinery and men in industries foe which insurance facilities are badly needed.
- d) Highly professional management and skilled manpower is an important component in the fast growing IT & E – Commerce industry due to which it gets concentrated in certain favoured pockets such as Bangalore, Hyderabad and Pune.

ii) Highlight the importance of iron steel industry in India. What are the factors influencing its location?

Ans. Iron and steel industry is the basis of modern industralisation. Iron and steel industry supplies the basic raw material for a large number of assembly industries such as engineering, automobiles, locomotive, ship building, machine tools etc. It is the foundation of modern machines, tools and transportation. Therefore, iron and steel industry is known as basic industry or key industry. It lays the foundation of industrial development in this age of steel.

Factors influencing the location of Iron and steel industry:

Iron and steel industry uses large quantities of heavy and weight losing raw materials and its localization is primarily controlled by the availability of raw materials. Coal and iron ore are the two basic raw materials used by iron and steel industry. On the basis of minimum transportation cost of the steel plants are located at three distinct places viz.

- a) Near coal fields
- **b**) Near iron ore mining centres and
- c) At places between areas of coal and iron ore production.
- iii) Discuss in detail the development, distribution and importance of textile industry of India?

Ans. Development:

Cotton textile industry in India is as old as Indus Valley Civilisation. The first modern cotton mill was set up at Fort Gloster (Kolkata) in 1818. The first cotton mill combining spinning, weaving and finishing was established in 1854 at Mumbai. There are about 1600 cotton and man – made fibre textile mills scattered over 80 towns. About 80% of these are in the private sector and the rest in the cooperative and the public sectors. There are thousands off mills having 4 - 10 looms. These are known as "industries in decentralized sector". Today 93 percent of cotton cloth is produced in the decentralized sector, i.e other than mills. India is the second – largest producer of cotton textiles in the world.

Distribution:

- a) Maharashtra: Mumbai is the oldest centre of cotton textile industry in India. Mumbai is known as " Cottonpolis of India". Nagpur, Pune Sholapur, Amravati are other centres.
- **b**) **Gujarat:** Ahmadabad is the largest producer of cotton textiles in India. It is known as the "Manchester of India".
- c) Tamil Nadu: The development of hydro electricity in the south and cultivation of long staple cotton led to the location of this industry in Southern India. Madurai, Coimbatore, Salem and Chennai are the main centre.
- d) West Bengal: Most of the mills are located at Kolkata in the Hugli basin.
- e) Uttar Pradesh: Kanpur is the main centre and is called the "Manchester of Northern India".

Importance:

- a) Cotton textiles is the oldest and the largest industry in India.
- **b**) About 350 lakh workers are engaged in this industry.
- c) It has the largest amount of capital invested.
- **d**) Many industries such as dyes, chemicals etc, depend on cotton products and thus, it is responsible for demand creation.
- e) It has close links with agriculture and provides a living to farmers, artisans etc., for picking cotton balls, ginning, spinning, weaving, dying, designing, packaging, tailoring and sewing.
- f) India has second largest installing capacity of spindles in the world next to china about 340 lakh 2003 04. It is because the spinning sector has received a lot of attention since mid 80s.
- g) Cotton textile industry contributes substantially to foreign trade.

iv) Discuss in detail the growth and importance of petroleum industry in India?

Ans. *Growth:* The first oilfield in India was discovered in 1867 at Makum in Assam. The production of oil in India is increasing everywhere under the organization of Oil and Natural Gas Commission. Currently, India meets only about 40% of its demands by home production. India had undertaken measures to accelerate exploration formulated under the proposal India Hydrocarbon vision, 2025. Under this proposal, private sector participation is expected to maximize indigenous petroleum production.

Importance:

- **a**) It is used as a fuel and has revolutionized transportation on land, in air and on water.
- **b**) It can be easily transported from the production areas top the consumption areas with the help of tankers and more conveniently, efficiently and economically by pipelines.
- c) It emits very little smoke and leaves no ash.
- **d**) It provides the most important lubricating agents and is used as an important raw material for various petro chemical products.

Chapter 8: Disaster Profile of India

Exercise

A. Short answer type questions:

a. Define a disaster?

Ans. A disaster is any occurrence that causes damage, ecological disruption, loss of human life, ort deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area. Disasters are caused by natural and man induced hazards.

b. What is meant by Hazard? Name some man – made and natural hazards?

- **Ans.** Hazard is a dangerous condition or event that could cause injury, loss of life or damage to property, livelihood or environment. Humans have no control over hazards, however, they can reduce their impact by taking protective measures timely. Hazards could be of three types:
 - i) Natural Hazard: These hazards are natural processes or phenomena occurring in the biosphere that may constitute a damaging event. These can be classified by origin namely Geological (i.e. earthquakes, tsunamis, landslides etc.)

Hydrometrological or Biological (i.e floods, debris and mud flows thunder, hail storms, droughts etc.)

Hazard events such as earthquakes, volcanoes, tsunamis etc can vary in magnitude or intensity, frequency, duration, area of extent, speed of onset, spatial dispersion and temporal spacing.

ii) Man – made hazard: these are physical phenomena caused by political factors like war, civil strife, terrorism, explosion etc. These are also attributed to pollution, fires, dam failures, droughts, gas and chemical leaks etc. Human beings are solely responsible for these hazards.

c. Write a brief note on the earthquake zones in India?

Ans. Almost 57% of the Indian land is vulnerable to earthquake out of which, 12% is prone to very severe earthquakes, 18% to severe earthquakes and 25% to damageable earthquakes. All seven North east states of India - Assam, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura and Meghalaya, Andaman and Nicobar islands and parts of six other states in the north and North – west (Jammu and Kashmir, Uttaranchal and Bihar) and Gujarat, are in Seismic Zone V.

d. Mention some worst cyclone affected areas in India?

- **Ans.** Cyclones typically strike the east coast of India, along the Bay of Bengal, west Bengal, Orissa, Andhra Pradesh and Tamil Nadu. Cyclones also strike to some extent parts of Maharashtra and Gujarat on the West Coast bordering Arabian Sea.
- e. Mention some worst affected landslides areas in North India?
- Ans. Darjeeling in West Bengal, Sikkim, Mizoram, Tripura, Meghalaya, Assam, Nagaland, Arunachal Pradesh, Uttarakhand etc.

f. What is meant by tsunami, name some vulnerable area in India?

Ans. A Tsunami is a natural phenomenon consisting of a series of waves generated when water in a lake or the sea is rapidly displaced on a massive scale. The term tsunami comes from the Japanese language meaning harbor ("tsu") and wave ("nami").

Some vulnerable areas to tsunami in India are :

Tamil Nadu, Kerala, Andhra Pradesh, Andaman and Nicobar Islands etc.

g. Define a cloudburst and its implementations?

Ans. A situation in which a cloud suddenly precipitates tons of water over a small area is called a cloudburst. Cloud burst causes huge amounts of water to fall from the sky at a very rapid pace causing slash floods. Huge amounts of water raise the water level of rivers resulting in floods which can cause devastation.

B. Match the following.

a.	Cloud Burst	Leh
b.	Super Cyclone	Orissa
c.	Bujj Earth	Gujarat
d.	Snow Avalanche	Valtengu Nad

C. Long answer type questions.

i) Give detailed account of flood prone regions of India. Highlight main causes of flooding in India?

Ans. Around 40 million hectares of India are prone to floods. These occur constantly in five states - Assam, Bihar, Orissa, Uttar Pradesh and West Bengal. In the recent past, floods have also hit the areas of Rajasthan, Uttarakhand and Jammu and Kashmir.

Main causes of flooding in India:

- **a.** Monsoon rainfall from July to September results in huge overflow in rivers which causes floods.
- **b.** Rapid melting of glaciers also elevates water level in rivers leading to flooding.
- c. Inadequate drainage and encroachment of river courses is also a factor.
- d. Cyclones are also responsible for flooding in coastal areas.

ii) Discuss in detail disaster profile of India?

Ans. The Indian subcontinent is among the world's most disaster prone areas. Almost 85% of India's area is vulnerable to one or multiple hazards. Of the 28 states and 7 union territories, 22 are disaster prone. It is vulnerable to storms spawned in the Bay of Bengal and the Arabian Sea, earthquakes caused by active crustal movement in the Himalayan mountains, floods brought by monsoons and droughts in the country's arid and semi – arid areas. Almost 57% of the land is vulnerable to earthquake (high seismic Zones III - V), 68% to drought, 8% to cyclones and 12% to floods. India has also become much more vulnerable to tsunamis since the 2004. Of the 7,516 km long coastline, close to 5,700 km is prone to cyclones and tsunamis. Disaster risks in India are further compounded by increasing vulnerabilities related to changing demography's and socio economic conditions, unplanned urbanization, within high risk zones, environmental degradation, climatic change, geological hazards, epidemics and pandemics. Clearly all these factors contribute to a situation where disasters seriously threaten India's economy, its population and sustainable development. Moreover, India is also vulnerable to chemical, biological, Radiological and Nuclear (ABRN) emergencies and other man – made disasters.

iii) Jammu and Kashmir is a multi – hazard prone state? Discuss?

Ans. The state of Jammu and Kashmir has a long history of natural disasters. The state has witnessed many natural disasters especially in the 19th and early 20th centuries. Owing to its peculiar topography, rugged terrain, extreme weather conditions and underdevelopment economy, the state has suffered a lot on account of natural disasters. The J&K state by virtue of being a multi hazard prone region, Hazards like earthquakes, floods, fires, droughts, avalanches and landslides often convert into disasters leading to loss of human lives as well as public and private property. Enhanced vulnerabilities of the built environment make the state highly prone to natural disasters.

The unauthorized and unplanned construction on the river banks has disturbed the river ecosystem. Sand and gravel dredging or top soil denudation foe brick industry to support growing real estate industry have significantly enhanced the human induced disaster risk in the eco – sensitive zones of the state.

Apart from the projected hydro – meterological hazards viz. floods, droughts and cloud bursts there are likely scenarios of natural hazards such caused due to earthquakes, landslides and snow avalanches.

iv) Vulnerability to various disasters in India is very high. Give reasons?

Ans. Vulnerability refers to the susceptibility of a community to a hazard and the prevailing condition, including physical, socio-economic and political factors that adversely affect its ability to respond to hazards.

Due to widespread poverty, poor infrastructure, lack of education and awareness, lack of appropriate technology, and faulty developmental planning, levels of vulnerability to various disasters in India are very high.

The Indian subcontinent is among the world's most disaster prone areas almost 85% of India's area is vulnerable to one or multiple hazards. Of the 28 states and 7 union territories, 22 are disaster-prone. It is vulnerable to storms spawned in the Bay of Bengal and the Arabian Sea, earthquakes caused by active crustal movement in the Himalayan Mountains, floods brought by monsoons, and droughts in the country's arid and semi-arid areas. Almost 57% of the land is vulnerable to earthquake (high seismic zones III-V), 68% to drought, 8% to cyclones and 12% to floods. India has also become much more vulnerable to tsunamis since the 2004. Of the 7,516 km long coastline, close to 5,700 km is prone to cyclones and tsunamis.

Disaster risks in India are further compounded by increasing vulnerabilities related to changing demographics and socio-economic conditions, unplanned urbanization, within high-risk zones, environmental degradation, climate change, geological hazards, epidemics and pandemics. Clearly, all these factors contribute to a situation where disasters seriously threaten India's economy, its population and sustainable development. Moreover, India is also vulnerable to Chemical, Biological, Radiological and Nuclear (CBRN) emergencies and other man-made disasters.

Vulnerability to various disasters in India is very high because of the following reasons:

- a) Widespread Poverty
- **b**) Poor Infrastructure
- c) Lack of Education and Awareness
- d) Lack of appropriate technology.
- e) Faulty development planning.

v) Discuss causes and consequences of drought in India?

Ans. Drought is a long period of abnormally low rainfall that adversely affects growing or living conditions. It leads to shortage of water, causing adverse impacts on vegetation, animals and people.

Causes of drought:

- a) The major cause of drought in India is the failure of monsoon or when it arrives early or very late or withdraws without raining.
- **b**) Man made causes are huge scale destruction of forests, erosion encroachment of water bodies etc.

Consequences of droughts:

- a) Failure of crops.
- **b**) Famine conditions
- c) Acute drinking water crisis
- d) Reduced energy production
- e) Widespread unemployment
- **f**) High and rising prices

g) Health problems

h) Starvation.