

Water Resources

Q1.

Q2.

1. 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. In the country, there are about 10,360 rivers and their tributaries longer than 1.6 km each.
2. As per the latest reports of Food & Agricultural Organization (FAC), agriculture is the major user of water in India as it consumes 90% of the replenishable yield of water. Domestic water supply uses 8% while as industry consumes 2% of the available water resource.
3. The ground water utilization is very high the states of Punjab, Haryana, Rajasthan and Tamil Nadu. It is because more than 85% of their net sown area under irrigation. Wheat and rice are grown mainly with the help of irrigation in these states.
4. Different sources of irrigation are used in India depending upon the topography, soils, rainfall, availability of surface or ground water, and requirement of crops. The major sources of irrigation used in our country are canals, wells, tube wells, tanks etc.
- 5.

Ans.

Merits of well Irrigation:

- i. It is the cheapest source of irrigation.
- ii. They can be dug at a convenient place.
- iii. They are indispensable source of irrigation.

Demerits of well irrigation:

- i. They tend to be shallow and may dry up.
 - ii. They can irrigate only a small area.
 - iii. They need high water table.
6. 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.

Q3.

Upper Bari Duab canal – Ravi
Agra Canal – Yamuna River
Mettur canal – Kaveri River

Q4. Long Answer Type Questions:

As per the latest reports of food and agricultural organization (FAO) agriculture is the major user of water in India as it consumes 90% of the replenishable yield of water. Domestic water supply uses 8% while as industry consumes 2% of the available water resources. The enormous population size of India (1.25 bn), along with the rapid expansion of agriculture to feed to growing population has increased the demand of water throughout the country.

Widespread contamination and pollution of water bodies at various places have rendered fresh water unusable or unfit for human consumption. All these factors are directly or indirectly contributing to the emerging water crises in India, which can be tackled by adopting various water conservation measures at domestic and industrial level. Furthermore efficient and innovative means of irrigation such as sprinkle and drip irrigation can also be helpful in reducing the pressure on our water resources.

Q5.

River valley projects which serves many purposes simultaneously are called multi-purpose projects.

Merits of multipurpose river projects:

- a. Flood control
- b. Power generation
- c. Irrigation
- d. Fishing
- e. Soil conservation
- f. Domestic uses
- g. Industrial uses
- h. Increasing urbanization
- i. Rising standards of living
- j. Encourage tourism and recreations.
- k. Provide inland navigation

Demerits of multipurpose river projects:

- a. Obstructs the stream flow
- b. Sedimentation
- c. Affecting aquatic life.
- d. Submergence of existing vegetation
- e. Loss to land
- f. Displacement of people
- g. Loss of lives and property.

- Q6.** Irrigation: 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.
 - b. Water is must for commercialization of agriculture.
 - c. Irrigation played a major role in the process of Green Revolution in India.
 - d. Many regions like Punjab. Haryana have become leading producers of rice because of irrigation.
 - e. Many crops are sown in Rajasthan and other arid regions of India because of irrigation.
- Q7.** A tube well is a deeper well generally over 15 metres deep from which water is lifted with the help of a pumping set operated by an electric motor or a diesel engine.

Advantages of tube wells

- a. It is the simplest and cheapest source of irrigation and Indian farmer can easily afford it.
- b. It is an independent source of irrigation and can be used and when the necessity arises.
- c. Several chemicals such as nitrate, chloride, sulphate, etc. are generally found mixed in well water. They add to the fertility of soil when they reach the agricultural field with tube well water.
- d. The farmer has not to pay for tube well irrigation.

Disadvantages of tube wells

- a. Only limited area can be irrigated.
- b. The well may dry up and may be rendered useless for irrigation of excessive water is taken out.
- c. Tubewells can draw a lot of groundwater from its neighbouring areas and make the ground dry and unfit for agriculture.
- d. Tube well irrigation is not possible in areas of brackish ground water.

- Q8.** Rain water Harvesting: It is a technique of increasing the recharge of ground water by storing rain water by constructing structures like percolating pits and check dams.

Components of a rainwater harvesting system:

- 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 proved area like a terrace or courtyard of a building, or on unproved area like a lawn or open ground.

- b. Coarse Mesh:** Coarse mesh is required at the rood to prevent the passage of dobris with the water.
- c. Gutters:** It includes channels all around the edge of a sloping roof to collect and transport rainwater to the storage tank.
- d. Conduits:** These are Pipelines or drains that carry rainwater from the catchemtn 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 large 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 filled with filtering media such as fibre, coarse ground and reed etc.

Lesson No. 4

Agriculture

Q1.

- a. Subsistence Agriculture
- b. Nomads
- c. Horticulture
- d. Kharif season crops
- e. Plantation

Q2.

- I. India is bestowed with variety of crops and multiple cropping seasons because:**
 - a. It enjoys varied and almost all types of climates found in the world.
 - b. The tropic of cancer divides it into almost two equal parts etc southern half belongs to the tropics and at northern half falls into the sub-tropic climatic zones.
 - c. In India there are regions of heavy rainfall, moderate rainfall, low rainfalls and scanty rainfall.
 - d. We have all types of soils – rich alluvial, black (cotton) soil, red soil, laterite soil, desert soil, mountainous soil etc.
 - e. In India we have a growing season all year around.
 - f. India is a vast country with large area under cultivation.
- II.** Agriculture is the mainstay of Indian economy. Two-thirds of the population is dependent on agriculture and it generates large scale employment. It provides food for teeming millions. It provides raw materials to many agro-based industries like cotton, rubber, sugar. Export of agricultural products earns valuable foreign exchange like tea spices. It contributes to 26% of gross domestic product (GDP).
- III.** Some of the main crops grown on commercial forms include bananas, coffee, corn, cotton, nuts, tea, sugar cone and wheat.
- IV.** Wheat is a Rabi crop and a temperate crop. It requires well drained fertile soil. It requires about 10-15⁰c temperature and a rainfall of 50-75 cms.
- V.** Rice produces many by products. Rice husk waste 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.** Three main components of green revolution are:
 - a. Continued expansion of the farming areas.
 - b. Double cropping in existing farmland.

c. Use of highly yielding variety seeds.

VII. Zaid crops: An extra cropping seasons which starts at the end of Rabi and ends till Kharif starts mainly from March to June. Important crops of this season are watermelon, toris, cucumber and other leafy vegetable.

Q3. Match

Food grain – wheat

Commercial crop – cotton

Plantation crop – sugarcane

Horticulture crop – apple

Q4. Long answer type questions

In the last decade, there have been signs of stagnation everywhere. Overall land under food grains has remained at 120 million hectares and is showing signs of dropping further. Public investment in agriculture as a percentage of GDP has dropped from 3% to around 1.7%. Addition to irrigation was very low compared to previous decades. Ground water tables have dropped rapidly and shortage of water for farming has reached crisis levels worse, there has been no technological break through that can boost the yields of major food grains to produce a second green revolution. Farmers across the country have taken a beating. Their incomes rose by a measly 0.28% as compared to 4% in other sectors. Not surprisingly a recent national sample survey showed that 40% of the farmers went to opt out of their current profession. And that every year over 20,000 farmers commit suicide out of despair over failing crops and impossibly high debt.

Besides in an effort to boost yields in some of these crops, farmers have reused fertilizers or mixed them in the wrong proportion. Since urea is cheaper than potash or phosphorus, farmers have greatly misused it, damaging the fertility of the soil.

- No new technological breakthrough in terms of high yielding varieties for food grain crops.
- Soil fatigue due to over-exploitation of nutrients and organic matter in intensive cropping areas.
- Non- availability of quality seeds resulting in low seed replacement rates.
- Inadequate or poor harvest management infrastructure at the farm level.

Q5. Sugarcane: It is a perennial plant that can be reproduced from stem cutting once harvested, the cane grows again from the roots in the soil. However, the productivity keeps decreasing with each passing year. Therefore, it is planted fresh after a varying interval in different regions. Although India grows sugarcane over large

areas in the northern plains where winters are quite cold, the higher productivity is obtained in the peninsular platen region.

Sugarcane is a plant of the wet tropical region. It needs high temperature (25⁰C) and high rainfall (150cm). it grows best on well drained alluvial soils. It needs cheap labour, regular used of fertilizers, irrigation and bright sunshine.

Alluvial or lava soils suit best. Soil must be well drained. It is soil exhausting so it regularly needs nitrogen fertilizers. Sugar, Gur (Jaggery), Khandsari and Malasses are all obtained from sugarcane. It also provides raw materials for the manipulating of alcohol, paper and other chemical products. Some parts of sugarcane are also used as a fodder.

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 U.P is the largest produce of sugarcane in India. Sugarcane is now set to face tough competition from sugar beet, produced in European countries and the USA.

Punjab, Haryane and Bihar are other states producing sugarcane in Northern India, Southern India, with its hot-wet climate, has fourable conditions. As a result, higher yield is obtained there odisha, Andhra Pradesh, Tamil Nadu and Meharashtra as well as the deltas of Mahands, Godavari, Krishna, Keveri are other main produces of sugarcane.

Bee and production of sugarcane			
Year	Area (lakh hectors)	Production (Lakh tonnes)	Yield (Tonnes per hector)
1950 – 51	17	570	33
1985 – 86	29	1820	60
2005 – 06	42	2990	70

Q6. J&K is known worldwide for its fresh fruits like apple, mango, pear, plum, cherry and apricot and dry fruits like walnut and almond. Apart from this, some major vegetables like onion, potato, tomato, turnip, peas, radish and carrot along with spices like chilies, garlic and turmeric are also grown at minor scale.

As per the official record of 2011 – 12 data, the total area under fruit cultivation is 3,41,372 hectors in which fresh fruits occupy 2,30,409 hectors and dry fruits occupy 1,10,963 hectors. Among the fresh fruit apple leads with 1,54,721 hectors followed by citrus fruits 13655 hectors. Pear 13219 hectar, mango 12295 hectores. Horticulture is major contributor to the GDP of the state with approy. Annval turn over of 500 crore rupees. Saffron is another prominent commercial crop which is mainly cultivated in the karewas of pampore and adjoining lands. It earns valuable foreign exchange for the country.

Horticulture in J&K also provides direct and indirect employment to large number of people and plays a crucial role in poverty alleviation. The export of apple, walnut, almond and saffron earns valuable foreign exchange for the country. Owing to diverse geo climatic set up of the state, horticulture has got tremendous scope and

potential, as it can help in the establishment of a vibrant agro-based industry which will help in the diversification of the economy.

Q7. Green Revolution: It refers to the renewal of agricultural practices that started in Mexico in the 1940s. The beginnings of the Green Revolution are often credited to Norman Borland, an American scientists who developed new disease resistance high-yield varieties of wheat. In India, Dr. Swaminathan played a major role in the initiation and propagation of Green Revolution with the advent of green revolution the period between 1967 and 1978 was marked with used of improved seeds of high yielding varieties, adequate and assured supply of water for irrigation, and appropriate application of chemical fertilizers.

Merits of Green Revolution:

1. Enhancement in agricultural productivity and increase yield per hectare.
2. Change in approach of the peasant's employment opportunities both in agricultural and non-agricultural sectors.
3. Shift from customary agriculture.
4. Emergence of new cropping patterns, improved economy and standard of living.

Demerits of Green Revolution:

1. Environmental degradation
2. Soil and water pollution
3. Loss of bio diversity
4. Decrease of water table
5. Loss of local variety of crops
6. Promoted weed and pest resistance.

Mineral Wealth

Chapter: 6

Q1.

- a. Minerals
- b. Conventional , raw material
- c. 40 – 60
- d. The Digboi
- e. Padder (Kishtwar)

a. Minerals are these natural resources which are obtained from the rocks in their raw form. In other words, mineral is a substance which is found in the earth's crust which generally has a definite chemical composition.

b. Importance of Minerals:

- i. Minerals, infact, have contributed a good deal to man's economic progress different ages of development, such as those of copper, bronze and iron etc. throw a good deal of light on the importance of man's evolution and has march to progress.
- ii. After the industrial revolution the importance of minerals has increased all the more. Minerals are the backbone of mineral based industries. Countries those are rich in mineral are developed countries we cannot think of industrialization without minerals.
- iii. Modern welfare is also based a minerals. Minerals also provide employment to millions of people.
- iv. All means of transportation are made out of minerals and run on power resources derived from the earth.
- v. Banxite is the main ore of aluminum. Aluminum is a very light, yet strong metal with many uses. It is used for making pots and pans because it is a good conductor of heat. It is widely used for making electrical wires. It can be pressed into a thin foil that is used both commercially and in homes for wrapping foods for storage the bodies and parts of some automobiles. Trucks, boats and trains are made from aluminum alloys.

Q2.

- a. The important petroleum producing states of India are Assam, Gujarat, Tamil Nadu, Arunachal Pradesh, Nagaland, Maharashtra etc.
- b. Orissa has rich coal reserves most of the deposits are found in Dhenkanel, sambalpur and sundargarh distrits. It has emerged as the leading producer of iron ore. India's richest hematite deposits are located in Barabil – Koira Valley where these deposits are spread over 530 km². Besides in fuel minerals Orissa with a share of 11% is contributing a lot for the value of national output.

c. Measures to conserve the minerals:

- i. The minerals should be used in planned way in a judicious manner.
- ii. Modern technology should be used for the exploitation of minerals.
- iii. We should think about the use of substitutes in order to save minerals and should encourage recycling of metals.

d.

<u>Metallic Minerals</u>	<u>Non-Metallic Minerals</u>
<ol style="list-style-type: none">1. These minerals can be melted to obtain new products e.g. Iron, copper, zinc etc.2. They are generally associated with igneous rocks.3. They are ductile and malleable.4. They are usually hard and have luster.	<ol style="list-style-type: none">1. These minerals do not yield new products on melting e.g. coal, salt, clay etc.2. They are generally associated with sedimentary rocks.3. They are not ductile and malleable.4. They are not so hard and have no luster.

Q3. Match

Anthracite – J&K

Bituminous – Jharkhand, Orissa and West Bengal

Lignite – Rajasthan, Tamil Nadu and Assam

Peat – Bihar and Madhya Pradesh

Q4. Long Answer Type Questions:

Mineral resources in India are adequately rich, wide spread and varied which provide the nation with a strong industrial base. The most important mineral resources which India possess include Manganese, coal, bauxite, mica, iron and salt. However petroleum, gypsum, tin, mercury, copper, nickel, lead and zinc are not found in sufficient quantity India is mostly rich in iron resources. Iron and coal, actually forms the bases of the machine age. As per the estimations, India possesses virtually world's one fourth of iron – ore reserves Manganese required by the ferrous industries in India is found in abundance. It is used to manufacture steel alloys.

As per the 2014 report of Indian Bureau of Mines Nagpur, the value of mineral production in India covering fuel, metallic, non-metallic 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.

Fuel minerals contributed a major share (69%) in the value of mineral production in 2011-12, followed by 18% metallic minerals and 13% non-metallic minerals.

Q5. India has rich reserves of iron ore, both in quantity and quality. It has more than 20% of the world's iron ore deposits and is the largest producer and exporter of iron ore in South Asia. There are four varieties of iron ore available in the country. They are haemetite, magnetite, limonite and siderite. The total reserves of iron ore in the country are about 12,317 million tons of haemetite and 539.5 million tonnes of magnetite. Although iron ore is found in several parts of the country, the major reserves are concentrated in the North-east of peninsular India. Orissa, Jharkhand, Karnataka and Goa are the major producers of iron.

Distribution of iron ore:

- a. Magnetite and haemetite occur in Jharkhand, Chattisgarh, Andhra Pradesh, Goa, Orissa, Karnataka, Tamil Nadu, Maharashtra and Rajasthan.
- b. Most of the iron ore mines in the country come from Chhattisgarh, Jharkhand, Orissa, Goa and Karnataka.
- c. Some well – known iron – ore mines are in Durg and Dantewada districts of Chattisgarh, Paschim and Purbi Singhbhum districts of Jharkhand and Sundergarh, Kandujhar and Mayurbunj districts of Orissa, North Goa districts of Goa, Chikmagalur and Bellary districts of Karnataka.

Q6.

Coal is the principal source of commercial energy in India. About 67% of the country's requirement of power is met by coal. It is the prime source of energy in the manufacturing of iron and steel. It is also used as a raw material mainly for chemical industry. It is called black gold.

Different Varieties: There are four types of coal – anthracite, bituminous, lignite and peat.

Coal Reserves: India has a coal reserves of about 2,14,000 million tonnes. At present, it produces over 330 million tonnes of coal in a year.

Major Producers: Most of the coal fields of India are located in the north eastern part of the peninsula. About two – thirds of the annual production of coal comes from Jharkhand (Bokaro, Giridih, Jharia) : Chhattisgarh (Singrauli, Talapani Karagarh) ; West Bengal, (Burdwan, Bankura, Purulia, Birbhum, Darjeeling, Jalpaiguri and Raniganj).

Andhra Pradesh (Adilabad, Karimnagar, Warangal, Khammam, East Godavari and West Godavari)

Lignite is produced in Tamil Nadu and Gujarat. Neyveli mines of Tamil Nadu are located in Villupuram district. Mining of coal provides employment to about 7 Lakh person.

Q7. Mineral Wealth of J&K:

The state of J&K is well endowed with forest and nature resources. It is however having certain reserves of minerals as well.

- a. 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.
- b. Borax:** It is used in boric acid and other minerals. It is found in Sokar Lake in Ladakh.
- c. 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 districts, where a thermal power plant has been set up to use coal wealth of the state to generate power.
- d. Gold:** It is present on the banks of Indus River in the form of placer, gold in Ladakh region.
- e. Gypsum:** It is extensively used in the cement industry, dentistry, sculpture and in the manufacture of sulphuric acid. This is derived from a sedimentary rock consisting mainly of calcium sulphate. Quality gypsum exists in Jammu area.
- f. Lignite:** It is a low quality fuel and has been reported from Handwara region in millions of tonnes, as well as in Jammu region.
- g. Limestone:** It is a carbonate rock of sedimentary origin, which caps most of exquisite hill-rocks surrounding Anantnag, Pulwama, Baramulla and Ladakh districts. Limestone is the primary material from which CaCO_3 , lime and Portland cement are manufactured.
- h. Magnesite:** It is mostly composed of MgCO_3 , which is used in the manufacturing of glass. It is found in Anantnag.
- i. Marble:** This is a carbonate rock, which originates from the metamorphosis of limestone over a long period of time. It is used for decorations and in buildings. It is found in Kupwara.
- j. Sapphire:** It is gemstone, a precious one, found in Padder (Kishtwar) Kashmir. It is famous throughout the world.

Forests and Wildlife

Chapter No. 5

Q1.

- a. Naturally
- b. Animal
- c. 200 – 300
- d. Rare Species
- e. In – Situ , Ex – Situ

Q2.

- a. Temperature, humidity, precipitation, land and soil are the main factors responsible for the distribution of vegetation.
- b. **Biosphere Reserve:** It is a conserved ecosystem. It is managed in such a way that not only is its biodiversity preserved but also its resources are used in a sustainable manner for the benefit of the local communalities. There are 18 biosphere reserves in India examples, The Nilgeris, Sunderbons etc.
- c. **The different types of vegetation in India are:**
 - i. Tropical Rain or Evergreen forests
 - ii. Tropical Deciduous forests
 - iii. Thorn forests
 - iv. Mangrove forests
 - v. Montane forests
- d. **Tropical Deciduous Forests:** This is the most dominant vegetation belt of India and is spread over the vast areas of the country. These forests are also known as Mansoon forests.

These forests are commercially most exploited large tracts of these forests have been cleared to provide land for agricultural purposes these forests have also suffered from severe biotic factors, such as over – cutting, over – grazing etc. These forests urgently need scientific management and conservation.

- e. **Mangrove forests:** These forests are also known as mangrove or littoral forests. Tidal forests are found on the estuaries and fringes of Deltas along the East coast. The roots of plants are submerged under water. The most important tree is the Sundari tree. The dense mangrove forests occur along the coast lime in the sheltered estuaries, backwaters, salt marshes and mud flats. Sunderban west Bengal contains 50% of India's mangrove forests. The deltas of the Ganga, the Mahanedi, the Krishna and the Keveri are covered by such vegetation.

Q3.

Main objectives of the national forest policy of 1988 is protection, conservation and development of forest, under the scheme of forest conservation following measures have been adopted.

- a. Bringing 33% of the area under forest.
- b. Conserving the biological diversity of the country.

- c. Checking on soil erosion and the extension of sand dunes.
- d. Conservation of Natural Heritage.
- e. Promotion of Afforestation and Reforestation programmes.
- f. To great mass awareness for the maintenance of environment and preservation of ecological balance

Q4. Some projects have been made to preserve the tigers a rare species of wild life in India the project tiger has been a great success. At present there are 27 tiger reserves carrying 37,7618² in different parts of the country the important tiger reserves are

- i. The Hazaribagh National Park (Jharkhand)
- ii. The Kanha National Park (MP)
- iii. Taruga National Park (Maharashtra)
- iv. The Corbett National Park (Uttaranchal)
- v. Sanjay National Park (Chhattisgarh)
- vi. Sariska (Rajasthan)

The reasons behind the declining tiger population include, poaching for trade, shrinking habitat, depletion of prey base species, ever increasing human population the trade of tiger skins and the use of their bones in traditional medicines are also major threats to tiger population.

Q5. Many negative factors, particularly human activities are causing harm to our environment. Some of these activities are responsible for depletion of flora and fauna.

- a. Over – utilization of forest resources affect, ecosystem.
- b. Deforestation accelerates soil erosion such as overgrazing and affects groundwater recharge. It leads to disappearance of wildlife and wide variety of plants.
- c. Agricultural expansion during the post – independence are led to serious deterioration in reserves of plant species. Most plant founds and cereal crops have emerged from the wild in the forests.
- d. Several thousand kilometers of forest land was cleared for development projects like road, drains, industries, housing etc, have caused depletion of wide variety of flora and fauna.
- e. Mining seriously threatens the environment the ecosystem of Bhutans and lot of Overs (high altitude ecosystem of trees occurring in a rocky belt) is considerably threatened by mining.
- f. Migration routes of wild animals and fish have been blocked by dams, factory sites and other installations besides disturbing the habitat.
- g. In equitable use of resources by the rich and poor both at national and international levels has caused ecological damage.
- h. Continued hunting and poaching or trade in animal products have seriously threatened thousands of plants and animal species.

- Q6.** For a healthy environment, we must protect our forests and wildlife resources, conservation preserves then ecological diversity and the quality of our support system i.e. air, water and soil. It preserves the genetic diversity of plants and animals following are the steps taken by the government for the conservation of flora and fauna.
- a.** Formulation of National forest policy with the objectives of restoration of ecological balance check on soil erosion, check on extension of sand dunes, increase in forest tree cover, increase in productivity of forests and efficient utilization of forest produce. As aforesaid, it has been decided that minimum area under forests should be about 33% (60% in the Himalayan region and 20% in the Great Plains).
 - b.** Legislative measures include passing of wildlife protection act, 1972 under which national parks, wildlife sanctuaries and biosphere reserves have been set up now these have increased to 102 National Park, 515 wildlife sanctuaries and 18 biosphere reserves. Forest conservation Act. 1950 was passed to check deforestation.
 - c.** National Environment Awareness Campaign (NEAC) was launched under which several centers of excellence have been set up and awards instituted.
 - d.** 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.
 - e.** There are also programmes for conservation of mangroves and coral reefs.
- Q7.** Forest is a protector and provider. It is renewable resource. Its importance is as under:
- a.** Forests support animal kingdom by providing suitable habitat.
 - b.** They supply a number of products such as lac, tanning material, herbs, medicines and resins etc.
 - c.** It is a source of great employment.
 - d.** Export of forest products helps in earning foreign exchange.
 - e.** Grazing of cattle in the forest helps in dairy farming and cattle rearing.
 - f.** Many forest reserves have been developed into tourist centres.
 - g.** They help in maintain ecological balance.
 - h.** They reduce the fury of flood and regulate stream flow.
 - i.** They protect soil from erosion and enrich the underground water resources.
 - j.** They act as sound absorbers and moderate the temperature.
 - k.** They help in causing rain, produce oxygen and control pollution.
 - l.** They are a great source of humus to the soil.
- Q8.** The state of J&K is best owed with lofty snow crested mountains fascinating valley, sparkling streams, rushing rivers and emerald forests, the state is blessed with diverse ecosystems. Its natural vegetation has great diversity ranging from the lush

evergreen conifers on the gentle slopes at high altitudes to deciduous forests on the southern slopes of the Himalayas. Forests of the state are spread over three broad geographical – climatic zones covering Jammu, Kashmir and Ladakh region of the state. Vegetation and climate can broadly be categorized into sub – tropical, temperate and alpine zones.

As per the annual report of J&K Forest department and the recorded forest area is 22519sq km, which constitutes 22.5% of geographical area of the state (Kashmir valley 51%, jammu region 49% and ladakh 0.03% forest percentage). There are five forest types occurring in the state.

- i. Subtropical Dry evergreen
- ii. Himalayan Moist temperate
- iii. Himalayan Dry temperate
- iv. Subtropical pine sub alpine
- v. Alpine forests

Flora of Kashmir Himalayan comprises of about 3 – 54 species. About 880 species are found in Ladakh and 506 species found in Jammu. These figures only include the angiosperms, gymnosperms and pteridophytes. The plants of western Himalayas are well known for their medicinal properties. Thus area is store house of medicinal and aromatic plants which are used in pharmaceutical and perfume industries.

In terms of forest canopy, the state has 4140km² of very dense forests, 8760 km² of moderately dense forests and 9639 km² of open forest.

On the other hand, the faunal component of biodiversity of the state is rich. The variety of animal forms ranges from higher groups like vertebrates, including mammals, birds, reptiles, amphibians and lower groups like invertebrates including insects and even unicellular micro organisms J&K has got 5 national parks, 14 wildlife sanctuaries, 21 conservation reserves, 14 wetland reserves and 4 Ramsar sites.

Manufacturing Industries

Chapter No. 7

Q1.

- a. Manufacturing
- b. Capital
- c. Cotton textile
- d. Public sector
- e. Carpet

Q2.

- i. Manufacturing: it is a process in which the raw materials are converted into finished material use.
- ii. Raw material is the most important geographical factor and its significance in manufacturing industry is beyond explanation. Indeed, the location of industrial enterprises is sometimes determined simply by location of the raw materials e.g. pig iron, produced by smelting industry, serves as the raw material for steel making industry. Industries which use heavy and building raw materials in their primary stage in large quantities are usually located near the supply of the raw materials.
- iii. The entire process of manufacturing is useless until the finished goods reach the market. 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 and saving the overall production cost.
- iv. Cotton textile industry is one of the oldest industries in India. The first modern cotton textile mill was set up in 1818 at Fort Gloster (Kolkata). The real first cotton mill was established in 1854 in Mumbai. A large home market, manufacturing of textile machinery and abundant supply of cotton have led to the growth of this industry in India. There are about 1850 textile mills scattered over 80 towns and the annual production of cloth is about 37.4 billion metres. India is the second largest producer of cotton textile in the world. About 64 million workers are engaged in this industry. It has the largest amount of capital (Rs 1300 crores) invested. It earns about a sum of Rs 200 crores as foreign exchange by export of manufactured goods. Many industries such as dyes, chemicals depend on cotton products.

Most of the cotton textile industries are concentrated in Maharashtra Gujarat, West Bengal, U.P, M.P and T. Nadu.

v.

Private Sector Industry	Public Sector Industry
a. These are owned by individuals, groups of individuals or firms.	a. These are either nationalized or owned by the government.
b. These require comparatively more investment.	b. These require comparatively less investment.
c. Profit is comparatively more.	c. Profit is comparatively less
d. All investment is made by	d. All or more than 50% of the capital

individuals or private firms.	is invested by the governments.
e. e.g. Bajaj Auto Reliance, Godrej industries, Tisco, Birla mills etc.	e. e.g. Bharat Heavy Electrical Ltd. NHPC, NTPC, ONGC, Bhilai steel plant, Indian Railways etc.

- vi. Industries are unevenly distributed in India, because the factors affecting industrial location are not the same everywhere. Industries tend to concentrate in a few pockets because of certain favourable factors. The pockets having high concentration of industries are known as industrial regions.

Following are the major industrial regions of India

- a. Mumbai – Pune Industrial Regions.
- b. Hoogli Industrial Region
- c. Bangalore - T. Nadu Industrial Region
- d. Gujarat Industrial Region.
- e. Gorgon - Delhi – Merrut Industrial region etc.

- vii. Kashmir is known for the following handicrafts throughout the world.

- a. **Carpets:** The art of making carpets is a gift of caravans coming into the valley from central Asia. In the time of Zain-ul-Abidin Badshah, this art was greatly developed by imported skill and royal patronage. There are more than 15 well known factories with about 350 looms weaving carpets.
- b. **Namdas:** These are made of wool of inferior quality and old woolen blankets are used for making gabbas. Namdes and Gobbas are embroidered with thread, which gives them colour, beauty and strength. This cottage industry is concentrated in Anantnag, Rainwari and Baramulla.
- c. **Lois** (woolen blankets) of Shopian and Bandipora are well known. Hand – woven blankets of Rainawari are also durable and warm. Woolen pattus, tweeds and worsteds are manufactured in hand and power looms established in and around Srinagar.
- d. **Wicker work:** Kashmir is known for its wicker work. Wicker is used for making baskets, boxes, lamp-shades, curtain rings, trays, chairs, tables, kangri, and cycle baskets etc, Srinagar. Harwan, Shalabug, Hazratbal and Soura are the centres of its production.
- e. **Paper Mache:** It is a monopoly of Kashmir, pulp and paper are shaped into a variety of decorative articles and colourful designs are painted on them. The goods prepared are mostly boxes, table lamps, toilet sets, jewellery boxes and other articles of decoration. Srinagar, Rainwari and Anantnag are famous for this cottage industry.
- f. **Pashmina Shawl Industry:** It is an old industry of Kashmir. Pashmina wool used to come from Tibet via Ladakh but Pashmina shawl and carpet industries have been affected greatly. Now the raw material comes from Ladakh only.

Futther more Kashmir is also famous for wood carving, clay modeling, silver ware and imitation jewellery.

Q3. Match

Mumbai – capital intensive industry

Pune and Banglore – Information Technology Industry

Tisco and Reliance – Private Sector Industry

NHPC and ONGC – Public sector Industry

Amul – Co-operative Sector Industry

Long Answer Type Questions:

Q4. Geographical factors which influence the location of an industry are as

- a. Raw Materials:** It is the most important geographical factors affecting the location of industry. The regular supply of the raw material needed for an industry is the main requirement for the localization of an industry. Availability of iron ore and coal in the chhotanagper plateau has led to the coming up of iron and steel industry there.
- b. Power:** The chief sources of power, electricity should be available at cheap rates for the localization of an industry coal; mineral oil and hydro-electricity are the three important conventional sources of power.
- c. Labour:** For the job of processing primary products into secondary ones, capable and skilled labour is required. Densely populated areas supply cheap labour to sugar industry i.e. North India.
- d. Means of transport and communication:** The means of transport and communication should be well developed. They carry the raw material as well as finished products easily from one place to another.
- e. Market:** It is necessary for the market to be wide so that there is a plenty of demand for the insustrial products. 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 price.
- f. Non – Geographical Factors:**
 - i. Capital:** Modern industries are capital intensive and require huge investments. Big cities like Mumbai, Kolkata, Delhi and Chennai are big industrial centres because the big capitalists live in these cities and there is easy availability of capital.
 - ii. Banking Facilities:** Improved banking system is also helpful in localization and development of an industry. They provide momentary facilities to the industry and the movement of material is easy from one place to another.
 - iii. Insurance:** There is a constant fear of damage to machinery and man in industries for which insurance facilities are badly needed.

iv. Efficient organization: Highly professional management and skilled manpower is an important component in the fast growing IT and E-Commerce industry due to which it gets concentrated in certain favoured pockets such as Bangalore, Hyderabad and Pune.

Q5. India is the 5th largest producer of iron in the world. Iron and steel is the foundation of modern machines, tools, transportation (soil, rail, water, air). It is used in making superstructures, bridges, tanks, agricultural implements and many products of daily use. It is therefore called a basic industry, mother or key industry. It has a great strength, toughness, elasticity and low cost of production. The production and consumption of steel is the index of the economic development of a country.

The real beginning of modern iron and steel industry in India was made in 1907 when Tata iron and steel company (TISCO) was set up at Jamshadpur. The Indian iron and steel company (IISCO) was set up in 1919 at Burnpur followed by the setting up of Mysore steel works at Bhadravati. In India Iron and steel industry witnessed rapid growth after independence. India has presently 10 primary integrated steel plants and more than 200 mini steel plants producing about 100 lakh tonnes of steel annually.

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 most 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.

Q6. The textile industry: Textile is a broad term, which includes cloth woven from cotton, jute, wool and silk. It is an important industry in India as it contributes about 14% of the total industrial production and employs about 40 million persons. The textile industry contributed about 4% towards the GDP. It is the only industry in our country, which is self-reliant and fully complete in the value chain.

Cotton textile: The first modern cotton textile mill was set up in 1818 near Kolkata. This mill could not survive and had to be closed down. The first successful modern cotton textile mill was set up in Mumbai in 1854. The actual growth of cotton textile industry took place in 1870, and it continued to progress till the outbreak of first world war in 1914. The demand for cloth during the second world war led to further progress in industry. There were 417 mills in India in 1945.

The industry suffered a setback in 1947, when most of the long staple cotton growing areas went to Pakistan as a result of the partition of India. However, most of the cotton mills remained in India. At present, there are more than 1600 textile mills

producing cotton and synthetic textiles. About 80% are in private sector and remaining are in public and cooperative sector. There are also several thousand small units, which are based on conventional handlooms in the form of cottage industry. Initially, the cotton textile mills were set up in the cotton producing areas of Maharashtra and Gujrat. This region has the facilities of moist climate, availability of raw material cotton, cheap labour, land, transport port facility, market etc. The industry helped the farmers, cotton pluckers and lakhs of workers engaged in ginning, spinning, weaving, dyeing, designing, packaging, tailoring and sewing. It also supported other industries like dyes and chemicals, mill stores, packing material and engineering works.

The spinning mills are concentrated in Maharashtra, Gujarat and Tamil Nadu. The weaving mills are found in every part of India. India's share in world trade in cotton yarn is about 25%.

Production of fabric in India by different sectors:

	Sector	Share of Production	Loomage
1.	Mills	6.00%	1.33 lakh
2.	Powerloom	54.17%	14 lakh
3.	handloom	23.00%	N.A

Jute Textiles: India is the largest producer of jute textiles in the world, the 2nd largest exporter after Bangladesh. This is the 2nd most important industry after cotton textiles. The first jute mill was set up in 1859 at Rishra near Kolkata. At present there are more than 70 Jute mills in India. After partition of India 1947, about 80% of the jute output went to Bangladesh (East Pakistan), while 102 out of 112 jute mills remained in India. This led to acute shortage of raw jute.

Most of the jute mills in India are located along the highli river in west Bengal. It is a narrow, belt, which is 80km long and 3km wide. Apart from the hugli belt in west Bengal. The jute mills are also located in Guntur, Vishakhapatnam , Elure, , Orgole and Nelinorale in Andhra Predesh, Kanpur and Gorakhpur in Up, Purnia, Katihar, Samastipur, Derbhange and Gaya in Bihar, Odisha, Assam and Tripura also have one jute mill each.

The total employment in jute industry is about 2.6 lakh workers. There are more than 40 lakh farmers, who are producing jute and waste for the jute industry. The production of raw jute increased from 33 lakh bales (of 180 kg each) in 1950 – 51 to 120 lakh bales in 2009 – 11. Recently the demand for jute goods has been increasing. This is due to the concern for the environment friendly biodegradable materials.

Q7. Growth and importance of petroleum industry in India:

Petroleum is the most important source of power in the present age. Many by – product such as kerosene, diesel, lubricating oils, grease, coke and asphalt are obtained from petroleum. Petrochemical products have become very useful. Petroleum is used in agriculture industry, transport, paints, perfumes, cosmetics etc. It is the source of foreign exchange for many oil exporting countries. This mineral oil is rightly called 'liquid gold'.

In about 10 lakh sq.km oil bearing rocks are found in India. The oil reserves in India are estimated to be 40,000 lakh tones (4000 million tons). Only one – fourth of this is exploitable. Actual production is mainly about 330 lakh tones of crude petroleum. The first oil field in India was discovered in 1867 at Maker in Assam. At present, about 63% of it is produced from Mumbai high, 16% from Assam and the rest in small quantities from Andhra Pradesh, Tamil Nadu, Gujarat and Arunachal Pradesh.

Mineral oil is obtained from oil mills in crude form. It is refined in oil refineries. Today there are 18 oil refineries in the country. The refining capacity of these refineries is 112.54 million tonnes a year.

These refiners also supply cooking gas or liquefied petroleum gas (LPG) as domestic fuel. It has succeeded in reducing pressure on our shrinking forests.

In recent years, India has become a big producer, consumer and importer of petroleum products. At the current rate of consumption, Indian's known reserves of oil will last about 30-40 years only. Import of petroleum and its products will put heavy strain on our economic development. Transport sector consumes about 50% of the total consumption of petroleum products (petrol and diesel), road transport alone consumes 37% of this consumption. 16-20% of the oil products are consumed by Industries. Agricultural sector uses diesel. Kerosene and LPG are used in the domestic sector for cooking and lighting in urban and rural areas.

Lesson 8

Disaster Profile of India

Q1.

- a. A serious disruption of the functioning of a community involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope, using its own resources is called disaster.
- b. A hazard is a dangerous event, natural or human induced that could cause injury, loss of life or damage to property, livelihood or environment.
Earthquake, tsunami, volcanic eruption, floods etc are natural hazards while as industrial accidents, terrorist attacks, wars etc are manmade hazards.
- c. Almost 57% of the Indian land is vulnerable to earthquake out of which, 12% is prone to very severe earthquake, 18% to severe earthquakes and 25% to damageable earthquake.
The earthquake zoning map divides India into four seismic zones (Zone II, III, IV and V) . as per this classification all seven N-E states of India-Assam, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura and Meghalaya, A&N islands and parts of six other states in the North and N-W (J&K, Uttaranchal and Bihar) and Gujarat, are in seismic zone V and are prone to severe and very severe earthquakes. The Himalayan regions are particularly prone to earthquakes. The last two major earthquakes shook Gujarat in Jan 2001 and J&K in Oct. 2005.
- d. About 8% of the land is vulnerable to cyclones of which coastal areas experience two or three or tropical cycles of varying intensity each year. Cyclonic activities on the east coast are more severe than on the west coast.

During summer, the Bay of Bengal is subject to intense heating, giving rise to humid and unstable air masses that produce cyclones. Many powerful cyclones, including 1737 Calcutta cyclone, the 1970 Bhola cyclone, the 1991 Bangladesh cyclone and the 1999 Orissa cyclone have led to widespread devastation along parts of the eastern coast of India and neighbouring Bangladesh. Widespread death and property destruction are reported every year in exposed coastal states such as Andhra Pradesh, Orissa, Tamil Nadu and West Bengal.

In terms of damage and loss of life, cyclone 05-B, a super-cyclone that struck Orissa on 29 October 1999, was worst in more than a quarter-century, with peak winds of 160 miles/hr. (257km/hr). It was equivalent to a category of 5 hurricane. Almost 2 million people were left homeless. Officially, 9,803 people died from the storm.

- e. Landslides occur in the hilly regions such as the Himalayas, N-E India, the Nilgiris, and Eastern and Western Ghats. Landslide-prone areas largely correspond to earthquake-prone areas, i.e. N-W and N-E, where the incidence of landslides is the highest. Landslides in the Darjeeling district of West Bengal as also those in

Sikkim, Mizoram, Tripura, Meghalaya, Assam, and Nagaland as Arunachal Pradesh pose chronic problems, causing recurring economic losses worth billions of rupees.

- f. Tsunami is a large wave on the ocean, visually caused by an undersea earthquake, a volcanic eruption, or a coastal landslide. Tsunami is a Japanese term which is translated as harbor wave. A tsunami can travel hundreds of miles over the open sea and cause extensive damage when it encounters land. Tsunamis can have heights of up to 30m (98ft) and reach speeds of 950km (589 mi) per hour. They are characterized by long wavelengths of up to 200km and long periods, usually between 10 and 60 minutes.

By virtue of being surrounded on three sides by Arabian sea, Indian ocean and Bay of Bengal India is very much vulnerable to the tsunami related disasters, out of approx. 7500km of coastline, 5700km are vulnerable to the tsunami originating from surrounding oceans.

- g. Cloudburst: It is a situation when the inter-molecular forces between the water molecules get very high due to the rapid decrease in temperature or excess of electrostatic induct in the clouds causing the lighting to remain inside the cloud only, which causes hyperactive energy inside the cloud. The water molecules get denser and denser and get condensed but do not leave the cloud due to excess of electrostatic forces. As the water concentration gets higher and higher and so the weight gets heavier the water no longer is able to maintain equilibrium with the clouds and consequently precipitates.

A cloud burst can suddenly dump 72,300 tons of water over one acre. However, cloud bursts are infrequent as they occur only in mountainous regions or occasionally when a warm air parcel mixes with cooler air, resulting in sudden condensation.

Q2. Match the columns

Cloud burst	Leh
Super cyclone	Orissa
Buj Earth	Gujarat
Snow avalanche	Vatengu Nad

Q3. Long Answer Type Questions:

Floods occur when peak discharge exceeds channel capacity of a river. This may be brought about naturally by intense precipitation, snow and ice melt, storm surges in coastal regions, sitting of dams, deforestation etc.

About 30 million people are affected annually. Floods in the Gangetic – Brahmaputra plains are an annual feature. In an average, a few hundred lives are lost, millions are rendered homeless and several million hectares of crops are damaged every year nearly 75% of the total rainfall occurs over a short monsoon

season (June-September). Around 40 million hectares, or 12% of Indian land is considered prone to floods. Floods are a perennial phenomenon in at least 5 states – Assam, Bihar, Orissa, V.P and West Bengal. On account of climate change, floods have also occurred in recent years in areas that are normally not flood prone, like Rajasthan and J&K.

Floods in northern India are primarily caused by the concentrated monsoon rainfall from July to September, which is a period rapid melting glaciers also elevates the water level in various rivers of India consequently rivers are unable to accommodate the excessive monsoon run off, forcing them to overflow and inundate the surrounding flood plains. Further many inadequate drainage and encroachment, of river courses also aggravates the flood scenario in various parts of India. Besides the cyclones are largely responsible for widespread flooding in coastal areas of India.

Q4. Most of the developing countries are hit by natural disasters. About 96% of deaths from natural disasters are reported from the developing countries. The Indian subcontinent is among the world's most disaster prone areas as per the statistics published by national disaster management authority 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, earth quakes 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 5,700km 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 non-made disasters.

Some Major disasters in India				
1.	Floods	2014	J&K	300 died
2.	Cloud burst	2010	Leh, Ladakh in J&K	300 Died
3.	Drought	2009	252 districts in 10 states	
4.	Floods	2009	Andhra Pradesh, Karnataka, Orissa, Kerala, Delhi, Maharashtra	300 people died
5.	Kiso floods	2008	North Bihar	Perished, 2,23,000 houses damaged, 3.3 million persons effected.
6.	Cyclone Nisha	2008	T. Nadu	204 deaths
7.	Maharaashta	2005	Mehashtra State	1094 deaths 167 injured 54 missing
8.	Kashmir earthquake	2005	Mostly Pakistan, Partially Kashmir	1400 deaths in Kashmir (86,000 deaths in total)
9.	Tsunami	2004	Coastline of T. Nadu, Kerala, Andhra Pradesh, Pondicherry and NH islands of Indai	10,749 deaths, 5640 persons missing , 2.79 million people affected, 11,827 hectors of crops damaged, 300,000 fisher folk lost their livelihood.
10.	Gujarat Earthquake	2001	Rapur, Bhis, Bhachav, Anpor, Ahnedabadal, Surat and Gujrat state.	13,805 deaths, 6.3 million people affected
11.	Orissa super cyclone	1999	Orissa	Over 10,000 deaths
12.	Cyclone	1996	Andhra Pradesh	1000 people died, 5,80,000 housed destroyed, Rs 20.26 billion estimated dammed.
13.	Latur Earthquake	1993	Latur, Marathweda region of Mahashtra	7,928 people died 30000 injured
14.	Cyclone	1990	Andhra Pradesh	967 people died, 435,000 across of land affected.

Q5. The state of J&K 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 underdeveloped economy, the state has suffered a lot on account of natural disasters. The J&K state by virtue of being a multihazard prone region, hazards like earthquake, 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.

Human activities disturbing the ecological balance in most of the cases directly result in the disastrous event or exacerbate the natural disaster. Experts believe that due to lack

of geo-hydrological assessments in advance while sanctioning projects such as construction of four-lane highway or railway-track, we have unknowingly altered stream course, discharge areas and closed aquifers. Moreover the unauthorized and unplanned construction on the river banks has disturbed the river ecosystem. Sand and gravel dredging or top soil denudation for brick industry to support growing real estate industry have significantly enhance the human induced disaster risk in the eco-sensitive zones of the state with projected increase in the frequency and intensity of extreme events including storms, droughts and floods, disaster management seeks greater attention.

Q6. 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. The community and its members may or may not be contributing intentionally or directly to the prevailing conditions. However, altogether, they create factors and situations that define the vulnerability of the community.

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. Impact of a disaster primarily depends on two things firstly intensity of a hazardous event such as earthquake, flood and cyclone, secondly the levels of vulnerability in the population. Although nobody can control the intensity of the hazard but if the vulnerability of the population is reduced through capacity building, the impact of the disaster can be minimized to a greater extent. Consequently due to high vulnerability in India a moderate intensity hazards cause tremendous damage which as in Japan due to low levels of vulnerability a high intensity earthquake causes little or no damage.

Drought: is a long continuous period of dry weather. It adversely affects growing or living conditions. Major cause of drought in India is the failure of monsoon or when it arrives early or very late or withdraws without raining. According to the Indian Meteorological department the country is said to be drought affected when the overall rainfall deficiency is more than 10% of the long period average and more than 20% of the long period average and more than 20% of the country area is affected by such drought conditions.

About 50 million people are affected annually by drought out of approx 90 million hectares of rain fed areas, about 40 million hectares are prone to scanty or no rain. Rainfall is poor in nine meteorological. Sub division covers a geographical area of more than 10 revenue districts in India. In India annually 33% area receive rainfall less than 750mm and 35% area receive between 750 to 1125mm rainfall and only 32% falls in the high rainfall (1126mm) zone. It typically strikes arid areas of Rajasthan (chronically) and Gujarat states. Drought is not uncommon in certain districts of U.P, M.P, Orissa, Andhra Pradesh, Maharashtra, Northern Karnataka etc.

Q7. Drought reduces agricultural production which results in the increase of prices of food grains and in the increase of unemployment for rural people who depend on agricultural labour. Poor people with inadequate purchasing power suffer the most. Children donot get nutrition's food in drought affected areas. The loss of crops, dairy, and fishery production lead to food shortage; health reduction and increase poverty reduce quality of life and lead to migration.

In the past, droughts have periodically led to major Indian famines, including the Bengal famine 1770, in which up to one-third of the population in affected areas died; the 1876-1877 famine, in which over five million people died, and the 1899 famine, in which over 4.5 million died. In recent history the drought of 1972 affected 200 million people while as 300 million people were adversely affected by 1987 drought in 15 states across India. The drought of 2009 also affected large number of people and forced hundreds of farmers to commit suicide in Rajasthan, Gujarat, Maharashtra and Andhra Pradesh.