

CHAPTER-5- MINERALS AND ENERGY RESOURCES

1. What are minerals? What is its importance?

- i) Minerals are natural chemical compounds uniform in composition and structure and are constituents of rocks and ores.
- ii) These are homogenous, naturally occurring substance with a definable internal structure.
- iii) These are formed through various geological processes taking place in the earth.
- iv) Minerals are naturally found in solid, liquid and gaseous states ranging from the hardest diamond to the softest talc.
- iii) Minerals are one of the most important resources of a country. It provides sound base for economic and industrial development.

Importance:

- a) Minerals are indispensable part of our lives. Almost everything that we use, from a tiny pin to a towering building or a big ship, all are made from minerals.
- b) The railway lines and the pavements of the roads, our implements and machinery too are made of minerals.
- c) Cars , buses, trains, airplanes are manufactured from minerals and run on power resources derived from the earth.
- d) Even the food that we eat contains minerals. In the stages of development, human beings use minerals for their livelihood, decoration, festivals and religious and ceremonial rites.

2. What are the properties of minerals?

- i. Minerals are in wide range of colours, hardness, crystal forms, luster and density, because, these are formed from, a certain combination of elements depends upon the physical and chemical conditions under which the material forms.
- ii. Minerals are naturally found in solid, liquid and gaseous states ranging from the hardest diamond to the softest talc. (any other points from answer 1)

3. What are the different types of formations of minerals? OR Where do different forms of minerals generally occur?

- i. In **igneous and metamorphic rocks**, minerals occur in the cracks, crevices, faults or joints. The smaller occurrences are called **VEINS** and the larger are called **LODES**. They are formed when minerals in molten and gaseous forms are forced upward through cavities towards the earth's surface. They cool and solidify as they rise.
- ii. In **sedimentary rocks**, a number of minerals occur in beds or layers. They have been formed as a result of deposition, accumulation, and concentration in horizontal strata. Coal and some forms of iron ore have been concentrated as a result of great pressure for a long period. Another group of sedimentary minerals is gypsum, potash salt and sodium salt. These are formed as a result of evaporation especially in arid regions.

- iii. Another mode of formation involves the decomposition of **surface rock**, and the removal of soluble constituents, leaving a residual mass of weathered material containing ores. Bauxite is formed this way.
- iv. Certain minerals may occur as **alluvial deposits in sands of valley floors** and the base of hills. These deposits are called ‘placer deposits’ and generally contain minerals which are not corroded by water. Gold, silver, tin and platinum are most important among such minerals.
- v. **The ocean water** contains vast quantities of minerals, but most of these are too widely diffused to be of economic significance. However, common salt, magnesium and bromine are largely derived from ocean waters. The ocean beds too are rich in manganese nodules.

4. How are minerals formed in igneous and metamorphic rocks? (Ans. Point i above)

5. Describe the diversity in the distribution of mineral resources in India. State an important reason for this diversity.

- i. The peninsular rocks contain most of the reserves of coal, metallic minerals, mica and many other non metallic minerals.
- ii. Sedimentary rocks on the western and eastern sides of the peninsula in Gujarat and Assam have most of the petroleum deposits.
- iii. Rajasthan has reserves of many non-ferrous minerals.
- iv. These variations exist because of the difference in the geological structure, processes and time involved in the formation of minerals.

6. Distinguish between ferrous and non-ferrous metals.

- i. Ferrous metals are those metals, which have iron content in it where as non-ferrous metals do not have iron content in it.
- ii. Normally ferrous metals are available in plenty whereas non ferrous metals are available in limited quantity.
- iii. Iron ore, manganese ore, chromate, pyrite, tungsten, nickel, and cobalt are some examples of ferrous metals. Copper , bauxite, lead, zinc, and gold are examples of non ferrous metals.
- iv. Ferrous minerals provide a strong base for the development of metallurgical industries. Non ferrous minerals play an important role in a number of metallurgical, engineering and electrical industries.

7. Which are the important iron ore belts in India?

- i. Orissa Jharkhand belt: High-grade hematite ore is found in Badampahar mines in the Mayurbhanj and Kendujhar districts of Orissa. It is found in Gua and Noamundi mines of Singhbhum districts of Jharkhand too.
- ii. Durg-Bastar-Chandrapur belt in Chhatisgarh: Very high-grade hematite is found in the Bailadila range of hills in the Bastar district of Chhatisgarh. It is found in Durg and Dantewara districts of Chhatisgarh.

- iii. Bellary-Chitradurga-Chikmagalur-Tumkur belt in Karnataka: It has the largest reserves of iron ore. The Kudremukh mines located in the Western Ghats of Karnataka are known to be one of the largest in the world.
- iv. Maharashtra –Goa belt: The iron ore of the North Goa district of Goa and Ratnagiri district of Maharashtra are not of high quality, yet they are efficiently exploited.

8. Differentiate between magnetite and hematite.

These are the two important types of iron ores. Magnetite is the finest iron ore with a very high content of iron up to 70 %. It has excellent magnetic qualities and is valuable in the electrical industry. Hematite is the most important industrial iron ore in terms of quantity used. It has a lower content of iron from 50 to 60 %.

9. What are the uses of manganese as a mineral? Name any two states producing manganese ores.

- i. Manganese is used in the manufacturing of steel and ferro-manganese alloy. It is also used in manufacturing bleaching powder, insecticides, and paints.
- ii. Odisha is the largest producer of manganese ores in India. It accounted for one-third of the country's production in 2001.

10. State any two uses of copper. Name the states where it is produced.

- i. Copper is used in electrical cables, electronics and chemical industries.
- ii. The Balaghat mines in Madhya Pradesh produce 29% of copper .Copper is produced in Singhbhum district of Jharkhand (16 %) and Khetri mines in Rajasthan (48%).

11. What are the advantages of bauxite as a metal ore? Where is it found?

- i. Bauxite is the ore from which aluminium is obtained. Aluminium is a light metal used in manufacture of airplanes, utensils and other household goods.
- ii. Aluminium is an important metal because it combines the strength of metals like iron with extreme lightness and with good conductivity and malleability.
- iii. Odisha is the largest bauxite producing state with 34.97 % of the country's total production in 2009-10. Panchpatmali in Koraput district is the important bauxite producing centre in Odisha.

12. What are the properties of mica as a mineral? What are its uses? Where is it found?

- i. Mica is made up of a series of thin plates or leaves.
- ii. Mica has insulating properties and has the quality to withstand high voltage and temperature. Hence it is used in electrical and electronic industries
- iii. It is clear, black, green, red yellow or brown.
- iv. Mica is found in northern edge of Chotanagpur plateau. Koderma Gaya – Hazaribagh belt of Jharkhand is the leading producer of mica. Ajmer in Rajasthan and Nellore in Andhra Pradesh are the other areas, producing mica.

13. Name an important rock mineral. What are its uses? Where is it found?

Limestone is an important rock mineral. It is found in association with rocks composed of calcium carbonates or calcium or magnesium carbonates. It is found in sedimentary rocks of most geological formations. It is used as a raw material in cement industry . It is used in the blast furnace in the smelting of iron ore. It is produced in Andhra Pradesh, Madhya Pradesh, Rajasthan, Gujarat and Tamil Nadu.

14. Why is conservation of minerals necessary? Suggest a few measures to conserve minerals.

- i. The total volume of workable mineral deposits is only one per cent of the earth crust. We are rapidly consuming mineral resources that requires millions of years to be created and concentrated. The rate of replenishment is very slow but the rate of consumption is very fast. So conservation is necessary.
- ii. Mineral resources are finite and non-renewable. Rich mineral deposits are short-lived possessions. So conservation is necessary.
- iii. Continued extraction of minerals leads to increasing costs as it comes from greater depths along with decrease in quality. Therefore, we have to conserve it.

Measures:

- a) A concerted effort has to be made in order to use our mineral resources in a planned and sustainable manner.
- b) Improved technologies need to be constantly evolved to allow use of low-grade ores at low costs.
- c) Recycling of metals, using scrap metals and other substitutes are steps in conserving it for future.

15. What is the significance of energy resources?

Energy is an indispensable requirement in modern life. It may be manual or animal and mechanical or electrical. Availability of energy is a pre-requisite of modern economic activities. Economic development of a country depends on the energy sources available in a country. It is needed to cook, to provide light and heat, to run vehicles and to drive machineries in industries.

16. How are the sources of energy categorized?

The sources of energy are classified into two:

(a) Conventional source of energy:

These are the sources of energy, which have been in use for a long time. Coal Petroleum, natural gas, and thermal and hydro electricity are conventional sources of energy. These are non-renewable sources of energy.

(b) Non-conventional source of energy:

These are the new sources of energy developed recently. Solar, wind, tidal, geothermal, biogas and atomic energy are non-conventional source of energy. These are renewable sources of energy.

17. Name the two common sources of energy in rural areas. Why is its use discouraged?

Firewood and cattle dung are the common sources of energy in rural areas. About 70 % of energy requirements in rural areas is met by these two.

Since forest area is decreasing, the use of firewood is discouraged to prevent further decreasing of forests. The use of cattle dung is discouraged because it consumes most valuable manure which could be used in agriculture.

18. How is coal formed? What is its use?

- a) Coal is formed due to the compression of plant material over millions of years. It is found in a variety of forms depending on the degrees of compression, depth, and time of burial. It is found in sedimentary rocks beneath the earth's surface.
- b) Coal is the main source of power in India. It is used for power generation, to supply energy to industries as well as domestic needs.
- c) It is also used as a raw material in chemical industries. It is used in Iron and steel industries as a raw material to reduce its temper. Coal is so useful that it is called 'black gold'.

19. What are the four different types of coal? (Black gold) Write its characteristics.

- (a) Anthracite is the best quality coal. It is hard black and compact.
- (b) Bituminous is the most popular coal for commercial use. High grade bituminous coal is the metallurgical coal which has a special value for smelting iron in blast furnaces.
- (c) Lignite is a low-grade brown coal, which is soft with high moisture content and is used for generating electricity.
- (d) Peat has low carbon and high moisture content and low heating capacity. It burns like wood and gives more smoke and less heat.

20. Differentiate between peat and bituminous.

- i. Peat has low carbon and high moisture content where as bituminous has high carbon and low moisture content.
- ii. Peat has low heating capacity. It burns like wood and gives more smoke and less heat where as bituminous has high heating capacity, it gives more heat and less smoke.
- iii. Peat is not widely used where as bituminous is the most popular coal for commercial use. High grade bituminous coal is the metallurgical coal which has a special value for smelting iron in blast furnaces.

21. Name the main rock series of geological ages where coal occurs in India. Or (Name the main rock series of coal found in India)

- a. Gondwana coal, a little over 200 million years in age , is found in Damodar valley in West Bengal and Jharkhand.
- b. Tertiary coal, only about 55 million years old, is found in north-eastern states of Meghalaya, Assam, Arunachal Pradesh, and Nagaland.

22. State the importance of petroleum production in India. Where does it occur in the rock formations?

- i. Petroleum is the second major energy source after coal.
 - ii. It provides fuel for heating and lighting, lubricants for machineries and raw materials for a number of manufacturing industries.
 - iii. Petroleum refineries act as a nodal industry for synthetic textile, fertilizer and a numerous chemical industries.
- a) Most of the petroleum occurrences in India are associated with anticlines and fault traps in the rock formations of the tertiary age.
 - b) In regions of folding, anticlines or domes, it occurs where oil is trapped in the crest of the up fold.

- c) The oil-bearing layer is a porous limestone or sand stone through which oil may flow. The oil is prevented from rising or sinking by intervening non-porous layers.

23. Describe the distribution of petroleum in India.

- i. About 63 % of India's petroleum production is in Mumbai High off shore in Maharashtra.
- ii. About 18 % is from Gujarat . The most important oil field in Gujarat is Ankeleshwar.
- iii. About 16 % is from Assam. It is the oldest oil producing state in India. Digboi, Naharkatiya and Moran-Hugrijan are the important oil fields in Assam.

24. What are the advantages of petroleum as a fuel?

- a) Petroleum oil emits very little smoke compared to coal.
- b) It does not leave any ash or residue.
- c) It can be used up to the last drop.
- d) It has low ignition point and catches fire easily

25. Why is natural gas considered as the fuel for the present century? (environmentally fuel)

Where are the natural gas reserves located in India?

- i. Natural gas is an important clean energy resource found in association with or with out petroleum.
- ii. It is used as a source of energy as well as an industrial raw material in petrochemical industry.
- iii. It is an environment friendly fuel because of low carbon dioxide emissions, hence it is considered as the fuel for the present century.

Natural gas reserves are found in Krishna Godavari basin. It is found in Mumbai High and Gulf of Cambay. Andaman and Nicobar islands have large deposits of natural gas.

26. What are the two main ways by which electricity is generated?

i. Hydro electricity:

Hydro electricity is produced by running water, which drives hydro turbines. Water is released at a great force from a high place on water wheel and turbine, which is connected to a powerful generator. Thus, electricity is produced. For this purpose, dams are constructed across rivers to store water.

ii. Thermal electricity:

Thermal electricity is generated by burning coal, petroleum or natural gas. The steam produced by burning coal is used to operate turbines and generators. Nowadays diesel, petrol, or natural gas also used to generate electricity. Diesel engine is connected to generators so steam is not required.

27. How is nuclear energy produced? Where are the nuclear power plants located in India?

- i. Nuclear electricity is produced by altering the structure of atoms. When such an alteration is made, much energy is released in the form of heat and this heat is used in the generation of electric power.
- ii. Uranium and thorium are used to generate atomic power.
- iii. There are six nuclear power plants in India. They are, Tarapur in Maharashtra, Kalpakkam in Tamil Nadu, Rawatbhata near Kota in Rajasthan, Narora in Uttar Pradesh, Kakrapara in Gujarat and Kaiga in Karnataka.
- iv. The gross electricity produced by nuclear power is 2720 MW per year, which is less than 4% of the total production of electricity.

28. What is solar energy? Why do you think solar energy has a bright future in India?

Photovoltaic technology converts sunlight into electricity. It is solar energy. It can be used for cooking, pumping, and heating of water, refrigeration and street lighting. Solar energy has a bright future in India because of the following:

- a) India is a tropical country and ample sunshine is available. It has the potential to generate 20 MW electricity per sq. Km.
- b) At present 70% of our energy requirement comes from thermal power and the fuel used like coal and petroleum are non-renewable resources, which are going to exhaust soon. So solar energy has a bright future.
- c) More over it is pollution free, eco friendly, renewable, and abundant. The largest solar plant in India is located at Madhapur near Bhuj in Gujarat and is used to sterilize milk cans.

29. What are the advantages of solar energy?

- i. It is a renewable source of energy and it will not be exhausted.
- ii. It is pollution free and eco friendly.
- iii. Use of solar energy will minimize the dependence of rural house holds on fire wood or dung cakes, which in turn will contribute adequate supply of manure in agriculture.

30. Distinguish between natural gas and biogas.

- 1) Natural gas is found associated with or without petroleum. It is naturally made. Bio-gas is man made by decomposition of organic matters. Shrubs, farm wastes, animal and human wastes are used to produce bio-gas.
- 2) Bio-gas has more thermal efficiency than Kerosene and charcoal. However, it has lower thermal efficiency compared to natural gas.
- 3) Natural gas is a commercial energy where as bio-gas is used for domestic purposes.
- 4) Biogas (Gobar gas) has a twin advantage of getting energy as well as improved quality of manure. (What are the advantages of bio gas?)

31. How is tidal energy generated?

Oceanic tides are used to generate electricity. Floodgate dams are built across inlets. During high tide water flows into the inlet and gets trapped when the gate is closed. After the tide falls out side the floodgate, the water retained by the floodgate flows back to the sea through a pipe that carries it through a power-generating turbine. A 900 mw. tidal power plant is set up in Gulf of Kuchchh by the National Hydro Power Corporation.

32. How is geo thermal energy produced?

It is produced by using the heat of the interior of the earth. The earth grows progressively hotter with increasing depth. High temperature is found even in shallow depth where geothermal gradient is high. Ground water in such areas absorbs the heat from the rocks and becomes hot. It turns into steam when it rises to the surface. This steam is used to drive turbines to generate electricity. **There are several hundreds of hot springs in India.** Two experiment projects have been set up in India in the Parvati valley near Manikarn in Himachal Pradesh and the other in the Puga Valley at Ladakh. (Why should we harness Geo thermal energy to meet the growing need?)

33. Suggest a few measures to conserve energy resources.

- (1) Use more and more public transport system and less of individual vehicles,
- (2) Switch off electricity when not required,
- (3) Use power saving devices,
- (4) Check the power equipments regularly,
- (5) Emphasis on greater use of non-conventional sources of energy are some measures to conserve energy resources.

- 34. India is fortunate to have fairly rich and varied mineral resources. Explain.**
- Peninsular rocks contain most of the reserves of coal, metallic minerals, mica and many other non metallic minerals.
 - Sedimentary rocks on western and eastern flanks of the peninsula in Gujarat and Assam have most of the petroleum deposits.
 - Rajasthan with the rock system of the peninsula has the reserves of many non-ferrous minerals.
 - The vast alluvial plains of north India is devoid of economic minerals.

Additional Questions:

- 1. Why is mining called a killer industry?**
Mining causes health hazard to people working and environment due to dust and poisonous fumes. Accidents are common in mines like inundation, fire, collapse of mine roof etc.
- 2. Name any two minerals obtained from veins and lodes. (Tin, Copper, Zinc, Lead)**
- 3. What are placer deposits?**
Certain minerals may occur as alluvial deposits in sands of valley floors and the base of hills. These are called placer deposits.
- 4. Name any two minerals obtained from ocean waters.**
Common salt, Magnesium, Bromine
- 5. Name the iron ore which has magnetic properties. (Magnetite)**
- 6. Suggest any two measures to prevent mining from becoming a killer industry.**
Follow safety regulations strictly.
Implement environmental laws effectively.
- 7. State any two factors affecting the economic viabilities of mineral reserves.**
Concentration of mineral in the ore, the ease of extraction and closeness to the market play an important role in affecting the economic viabilities of mineral reserves.
- 8. Which is the nodal industry for synthetic textile, fertilizer and chemical industries?**
Petroleum refineries.
- 9. Where is the largest wind farm cluster located in India?**
In Tamil Nadu from Nagarcoil to Madurai.
- 10. Where is the largest solar plant located in India? At Madhapur near Bhuj in Gujarat.**
- 11. Name the two experimental projects set up to harness geothermal energy.**
i. Parvati valley near Manikaran in Himachal Pradesh ii) Puga valley at Ladakh.
- 12. Name the most popular coal in commercial use.(Bituminous coal)**
- 13. Which is the hardest and softest mineral? Hardest- Diamond- : Softest- Talc**
- 14. What is rat hole mining? It is a long narrow tunnel dug to extract minerals. It is a type of mining owned by communities in North Eastern states.**
- 15. Name any two minerals formed as a result of evaporation.**
(Gypsum, Potash salt, Sodium salt.)

CHAPTER –6 MANUFACTURING INDUSTRIES

1. What is manufacturing? What is the importance of manufacturing? Or Why is manufacturing considered the backbone of economic development of the country?

- (i) Production of goods in large number by using machines is called manufacturing.
- (ii) Raw materials are converted into usable goods in this process.
- (iii) We manufacture cloth from cotton, sugar from sugarcane, paper from wood etc.

The importance of manufacturing is the following:

- (i) Industries play an important role in the economy of a country. The economic strength of a country is judged by the development of manufacturing industries.
- (ii) Industries provide employment opportunities and reduce poverty in India. Thus, solve unemployment problem. It helps reduce dependence of people on agriculture and provide them job in secondary and tertiary activities..
- (iii) Industries bring foreign exchange. Export of manufactured goods expands trade and commerce and brings in much needed foreign exchange.
- (iv) It provides tools and implements for agriculture.
- (v) It brings down regional differences by establishing industries to tribal and backward areas.

2. How are industries and agriculture complimentary to each other?

- i. The industries in India have given a boost to agriculture by raising its productivity. It supplies irrigation pumps, fertilizers, insecticides, machines and tools, and pipes to farmers, thus increases its efficiency.
- ii. Agriculture provides raw materials to agro based industries. It provides jute for jute industries, cotton for cotton textile industries, and sugar cane for sugar industries.

3. Examine the growth rate of industries in the past few decades.

- i. In the last two decades the share of manufacturing sector has stagnated to 17 % of the Gross Domestic Product whereas in some other East Asian countries it was 25 to 35 %.
- ii. The growth rate of industries in the last decade was 7 % per year. The desired growth rate in the next decade is 12 %.
- iii. Since 2003, the industrial growth rate has increased to 9 to 10 % per year.

4. Name the physical and human factors that affect location of industries. Or Explain any four factors which influence the industrial location.

- i. Availability of raw materials, power resources, water facilities, and favourable climatic condition are the **physical factors** that affect the location of industries.
- ii. The **human factors** that control the location of industries are labourers, transport facilities, market, capital, banking facilities and government policies.
- iii. Many industries tend to come together to make use of the advantages offered by the urban centres known as **agglomeration economies**.
- iv. **Least cost** of production, Government policies and availability of specialized labour also influence location of industries.

5. On what bases are industries classified?

Industries are classified on the following basis:

- (i) Number of labourers employed or on the bases of capital investment - **large scale or small scale industries**.
- (ii) Source of raw material used- **agro based or mineral based industries**.

- (iii) Nature or type of raw material used. Or based on the bulk and weight of raw material and finished goods- **light or heavy industries.**
- (iv) Ownership of industries- public, **private, joint, or co-operative industries**
- (v) According to their main role in the economy – **basic industries or consumer industries.**

6. How are industries classified based on ownership?

Based on owner ship, industries are classified as the following:

- (a) Private companies: It is completely owned and controlled by private individuals. e.g. Bajaj Auto, Tata Iron & Steel Company, Maruti Udyog Ltd., Bata Shoe Company (BSC), Bombay Dyeing, Mahindra & Mahindra etc.
- (b) Public sector industries: These are owned and controlled by the government. e.g. Bhilai Steel Plant, Bharat Heavy Electricals Limited(BHEL) , H.M.T (Hindusthan Machine Tools) , Steel Authority of India Limited (SAIL) etc. .
- (c) Joint sector industries: These are owned and controlled by both government and private individuals jointly on a share basis. e.g. Oil India Ltd.
- (d) Co-operative sector industries: These are owned collectively by people on voluntary membership. Democratic set up, service motive, and equality of opportunity are its features. e.g. Milk marketing federations and sugar industries are normally under co- operative sector.

7. How are industries classified based on capital investment?

- (i) Industries are classified into small scale and large scale industries based on the capital investment.
- (ii) Large-scale industries employ large number of labourers where as small-scale industry employ a small number of people.
- (iii) Large-scale industries produce both capital goods and consumer goods. But small-scale industries generally produce consumer goods only.
- (iv) Latest machines, tools and equipments and huge capital are used in large-scale industries where as in small-scale industries small capital **less than one crore** and simple machines are used.
- (v) Manufacturing of cotton textiles is a large-scale industry and preparation of Gur and Khandsari is a small-scale industry.

8. Differentiate between heavy and light industries.

- (i) Heavy industries are those in which raw materials used and the finished products are heavy and spacious where as in light industries raw materials and finished products are light in weight.
- (ii) Normally women labourers are not employed in heavy industries where as they are employed in light industries.
- (iii) Iron and Steel Industry, Heavy Machines Industry and Cement Industry are heavy industries. Textile Industry, Telephone Industry, and Ceiling Fan Industry etc. are light industries.

9. Differentiate between agro based and mineral-based industries.

Agro based industries are those industries in which agricultural products are used as raw materials. e.g. cotton, jute, silk, sugarcane and vegetable oil industries are agro-based industries where as Mineral-based industries are those industries in which minerals are used as raw materials. Iron and Steel, Cement and Chemical industries are mineral-based industries.

10. How are industries classified according to their main role in economy?

- i. Basic or key Industries: These industries provide basic materials for other industries like iron and steel, copper smelting and aluminium smelting.
- ii. Consumer industries: These industries produce goods for direct use by consumers. E.g. sugar, toothpaste, paper, sewing machine, fans etc.

11. Describe the importance of textile industries in India. ‘The textile industry occupies a unique position in the Indian industry’ .Explain.

- i. It contributes 14 % of the total industrial production.
- ii. It provides employment to 35 million people directly and it is the second largest after agriculture.
- iii. It earns 24.6 % of foreign exchange. It contributes 4% of the GDP.
- iv. It is the only industry in India, which is self-reliant and complete in value chain from raw material to the highest value added products. (any two)

12. Describe the importance of cotton textile industries in India? Where is it distributed?

Importance:

- (a) It is the largest industry in India. It gives employment to over 1.5 million people, which is about 20% of the industrial labour force in India.
- (b) There are about 1600 cotton and human made fibre textile mills in the country, of this 79% are in the private sector, the rest in the public and co- operative sectors.
- (c) This industry support many other industries like chemical and dyes, packing material and engineering works.

Distribution:

- (a) There are about 1946 cotton and human made fibre textile mills in the country as on 30th November 2011 , of this 80% are in the private sector, the rest in the public and co- operative sectors.
- (b) Cotton textile industries are spread over 80 towns and cities in India, but most of them are concentrated in Maharashtra, Gujarat, West Bengal, Uttar Pradesh, Madhya Pradesh and Tamil Nadu.
- (c) While spinning continued to be concentrated in Maharashtra, Gujarat, and Tamil Nadu weaving is in decentralized sector.

13. State any two factors contributed towards the localization of cotton textile mills in India.

Examine some of the problems faced by the cotton textile industries today.

- (a) Wide demand or market and it is one of the traditional occupation.
- (b) Better transport facilities including accessible port facilities,
- (c) Adequate banking facilities and moist climate,
- (d) Availability of raw cotton, electricity, labour and capital contributed towards the localization of cotton textile industries in India
- (d) There are about 1600 cotton and human made fibre textile mills in the country, of this 80% are in the private sector, the rest in the public and co- operative sectors.

Problems faced by the cotton textile industries:

- (a) Scarcity of good quality of cotton,
- (b) Obsolete machinery,
- (c) Erratic powers supply,
- (d) Low productivity of labour and

- (e) Stiff competitions with synthetic fibre industry are the problems faced by the cotton textile industries in India.

14. Why are the jute textile mills concentrated along the Hughli River? Explain by giving four examples. What are the challenges facing jute industry in India?

- (a) Jute producing areas are located at the bank of the river Hughli and the textile mills should be closer to the producing areas.
- (b) Hughli River is used for inexpensive transportation supported by a good network of railways and roadways to help movement of raw materials and finished products.
- (c) Jute mills required a lot of water for processing jute. It is available here.
- (d) Cheap labor is available in West Bengal and the neighbouring states of Bihar, Orissa and Uttar Pradesh.
- (e) Banking facilities are adequate.
- (f) Port facility and banking facilities are also available in West Bengal.

Challenges of jute industries:

- (a) Demand for jute carpets and packing materials declined in the international market.
- (b) Cost of production has increased.
- (c) Stiff competition in international markets especially from Bangladesh, Brazil, Philippines, Egypt and Thailand reduced over all demand for Indian jute products.
- (d) Synthetic substitutes also posing threat to jute industry.

15. What are the steps taken by the Government to protect jute industry in India? or What is the new trend in the demand for jute products?

- i. The National Jute Policy was formulated with the objective of increasing productivity, improving quality, ensuring good prices to jute farmers, and enhancing the yield per hectare.
- ii. The internal market has been increasing due to the Government policy of compulsory use of jute packaging and to prevent the use of polymers or polythene bags.
- iii. The growing global concern for environment friendly, biodegradable materials has once again opened the opportunity for jute products.

16. Why are sugar industries located near to sugarcane producing areas? Why are sugar industries migrating to South India? Name the sugar producing states in India.

Sugar industries are based on sugarcane as the raw material, which is very heavy. So industries are close to its producing areas.

More over sugarcane is a perishable and weight losing products. It should be processed without delay to prevent losing of sugar content. Therefore, industries are located very close to its producing areas.

Sugar industries are migrating to South India due to the following reasons:

- i. The sugar content in the sugarcane in south India is more than that of north India. So it is more profitable there.
- ii. The cooler climate in this region ensures a longer crushing season.
- iii. The co operative societies are more successful in south India.
- iv. Sugarcane requires a lot of water for its processing. It is available in south India.
- v. Sugar industry is a labour intensive industry it requires a lot of cheap labour, which is available in south India. Hence, sugar industry is migrating to south India.
- (a) There are over 662 sugar mills in the country in 2010-11. About 60% of them are located in Uttar Pradesh and Bihar. Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh Gujarat, Punjab, Haryana, and Madhya Pradesh also produce sugar.

17. Why are iron and steel plants located in the north eastern and southern part of Indian Peninsula? Or What are the relative advantage of the Chotanagpur plateau for the development of iron and steel industry?

Iron and steel industry requires low cost iron ore, high-grade coal, limestone and manganese ore as raw materials. It also demands cheap labour and wide market. These are available in the north eastern and southern part of Indian peninsula.

Since raw materials and finished products are heavy good transport system is required for its distribution. These areas have inland waterways and good network of roads.

Except Vishakapatnam steel plants, all steel plants are located to in the mineral rich northeastern and southern part of Indian peninsula.

These industries make use of sea ports of the Indian peninsula like, Haldia, Paradip, Vishakapatnam, Chennai etc.

(**Where should the steel plants be ideally located** ? Select points from the above answer)

18. State any two reasons for the low productivity of iron and steel in India. Or Why are we not able to perform to our full potential though India is an important iron and steel producing country?

- a) High cost and limited availability of coking coal,
- b) Lower productivity of labour,
- c) Irregular supply of energy,
- d) Poor infrastructure. (Explain points)

19. How are integrated steel plants different from mini steel plants? What problem does the industry face? What recent developments have led to a rise in the production capacity?

- i. Mini steel plants are smaller and have electric furnaces, use steel scrap and sponge iron.
- ii. They have re-rollers that use steel ingot as well. They produce mild and alloy steel of given specifications.
- iii. An integral steel plant is large and handles everything related to smelting of iron. Raw materials are converted in to iron . Rolling and shaping is done here and steel bars are made.
- iv. Coal is used as a major source of fuel in integrated steel plants.

The problems faced by the iron and steel industries are the following:

- a) High cost and limited availability of coking coal,
- b) Lower productivity of labour,
- c) Irregular supply of energy,
- d) Poor infrastructure. (Explain points)

Recent developments:

- i. We import good quality steel from other countries.
- ii. In 2010-11 with 72.2 million tonnes of steel production India ranked 4th among the world crude steel producers. India is the largest producer of sponge iron.
- iii. Liberalization and privatization has given a boost to this industry.
- iv. Per-capita consumption of steel in India in 2010-11 was only around 49 kg per annum against world average of 182 kg.
- v.. Foreign Direct Investment increased in India, which helped to absorb new technology at work.

20. Why is aluminium smelting gaining popularity?

It is gaining popularity due to the following reasons:

- i) It is the second most important metallurgical industry in India. Bauxite from which aluminium is obtained is widely available in India. India has vast reserves of bauxite.
- ii) Aluminium is used as a substitute to steel, copper, zinc and lead in a number of industries.
- iii) It is light, resistant to corrosion, a good conductor of heat, malleable and becomes strong when mixed with other metals.
- iv) It is used in manufacturing of airplanes, utensils, electrical wires and other equipments, house fabrications etc. Hence its demand is increasing. India produced 15.29 lakh million tonnes of aluminium in 2008-09.
- iv) It is a cheap metal compared to copper, bronze and iron. For all these reasons aluminium smelting is gaining popularity. (any two)

(Which is the second important metallurgical industry of India? Why is it getting popularity? (Write the answer above)

21. State two prime factors that determine the location of Aluminium industry. Name the states where aluminium plants are located.

- a) Availability of regular supply of cheap electricity
- b) Availability of bauxite. (Explain points)

The aluminium plants are located in Chhattisgarh, Tamil Nadu, Kerala, Uttar Pradesh, Maharashtra and West Bengal (C.T. KUMB)

22. Name any two heavy organic and inorganic chemicals produced in India.. What is its use? Where is it manufactured?

- i. Petrochemicals are heavy organic chemicals, which is used for manufacturing of articles like synthetic fibres, synthetic rubber, plastics, dyestuff, drugs and pharmaceuticals. The organic chemical industries are located near oil refineries and petro-chemical plants.
- ii. Sulphuric acid is a heavy inorganic chemical, which is used for the manufacturing of fertilizers, synthetic fibres, plastics, paints and dyestuffs. Soda ash is used in the manufacture of glass, paper, soap and detergents. Other inorganic chemicals are nitric acid and alkalis.

23. How has chemical industry gained an important position in the Indian economy? Explain any six points in this regard.

- i) Chemical industry is growing fast. Rapid growth has been recorded in both organic and inorganic chemical industries.
- ii) Petrochemicals are heavy organic chemicals, which is used for manufacturing of articles like synthetic fibres, synthetic rubber, plastics, dyestuff, drugs and pharmaceuticals.
- iii) Sulphuric acid is a heavy inorganic chemical, which is used for the manufacturing of fertilizers, synthetic fibres, plastics paints and dyestuffs.
- i) Soda ash is used in the manufacture of glass, paper, soap and detergents. Other inorganic chemicals are nitric acid and alkalis.
- ii) Production of pesticides has contributed much to agriculture by controlling harmful insects and weeds.
- iii) In the production of pharmaceuticals India leads in the developing countries. It contributes 14 % of production of entire manufacturing sector and its share in export is also 14%

24. Name the different varieties of fertilizers produced in India. Name the states where it is produced.

- i. Nitrogenous fertilizers like urea: India is the third largest producer of nitrogenous fertilizers. There are 57 fertilizer industries in India producing nitrogenous and complex nitrogenous fertilizers in which 29 industries produce urea.
- iv. Phosphatic fertilizers and ammonium phosphate: There are 9 ammonium sulphate plants as a by-product and 68 other small plants produce single super phosphate in India.
- iii. Complex fertilizers, which have the combination of nitrogen, phosphate, and potash .
As a result of Green Revolution the demand for fertilizers increased thus the industry spread to several parts of India.
Gujarat, Tamil Nadu, Uttar Pradesh, Punjab and Kerala produce more than half of the total fertilizer production in India.

25. Why is cement a raw material oriented industry? Where and when was the first cement industry set up in India?

Manufacturing of cement requires heavy materials like limestone, silica. Alumina and gypsum. Hence it is a raw material oriented industry.

The first cement plant was set up at Chennai in Tamil Nadu in 1904. There are 128 large and over 332 mini cement industries in India at present.

26. State any two reasons for the rapid growth of cement industries in India.

- i. Decontrol of price and distribution since 1989 and other policy reforms by the government helped its growth in India.
- ii. Large demand of good quality cement produced in India by the countries of East Asia, Middle East, Africa and South Asia apart from the domestic demand boosted this industry.

27. Write a short note on the automobile industry in India.

- i. Trucks, buses, cars, motor cycles, scooters, three wheelers, and multi utility vehicles are produced in India.
- ii. This industry had experienced a quantum jump in less than 15 years. Foreign Direct Investment brought new technology to India and aligned the industry with global developments.
- iii. At present, there are 15 passenger car and multi utility vehicle industries, 9 commercial vehicle industries and 14 two and three wheelers industries in India.
- iv. The industries are located at Delhi, Gurgaon, Mumbai, Pune, Chennai, Kolkatta, Lucknow, Indore, Hyderabad, Jamshedpur and Bangalore.

28. Describe about information technology and the electronics industries in India.

Products :

- (1) India produces a wide range of electronics ranging from a small transistor set to television sets.
- (2) India produces telephone exchanges, cellular phones, pagers, computers and various other equipments, which are used in various fields of life.

Importance:

- (1) This industry looks after the needs of defence equipments, railways, airways, space and meteorological equipments.
- (2) The IT industry provided employment to one million persons by March 2005 out of which 30 % are women.

(3) It has revolutionized the life of people and changed country's economy and the quality of human life.

(4) The electronic goods bring a fair amount of foreign exchange to India.

29. Which is the electronic capital of India? Name the major electronics goods producing centres in India.

(a) Bangalore is the electronic capital of India.

(b) Other electronic good producing centres are Hyderabad, Delhi, Mumbai, Chennai, Kolkata, Kanpur, Pune, Lucknow and Coimbatore.

30. How does industrial pollution degrade environment? OR How do manufacturing industries contribute to polluting and environmental degradation?

Manufacturing industries are responsible for environmental degradation and pollution.

There are four types of pollution created by these industries.

(a) **Air pollution:** It is caused by the smoke or gases emitted by industries which contain poisonous gases like carbon monoxide and sulphur dioxide. Air-borne particulate materials consist of both solid and liquid particles. Dust, fume, mist, spray and smoke contain both types of particles. Air pollution affects human health, animals, plants, materials and the atmosphere.

(b) **Water pollution:** The industrial effluents are discharged into rivers. They contain both organic and inorganic materials. Coal, dyes, soaps, pesticides, fertilizers, plastics and rubber are the common pollutants of water. The principal industries, which create water pollution are paper pulp, textiles, chemical, petroleum, refining, tannery and electroplating. Fly ash, phospo-gypsum and iron and steel stags are the major solid wastes in India. **Thermal pollution** of water occurs when hot water from factories and thermal power plants is drained into rivers and ponds before cooling

(c) **Land and soil pollution:** Industrial wastes containing toxic metal, glass, and harmful chemicals pollute land and soil. Unscientific processing in many industries like ceramic industry and cement industry create a lot of dust containing chemicals, settle down the land which causes pollution. Industrial effluents even cause acid rain, which degrade the land.

(d) **Noise pollution:** Unwanted noise arise from industry and transport vehicles create a lot of problems. The noise from mechanical saws and pneumatic drills is unbearable and it may cause impairment of hearing (deafness)

31. Suggest a few measures to control environmental degradation and pollution that is caused by industries. Or Discuss the steps to be taken to minimize environmental degradation by industries.

(a) There should be proper planning in the selection of industrial sites. It should not be in a congested area.

(b) Equipments used in industries should be designed better to prevent smoke.

(c) Avoid using coal in industries and use of oil as fuel to prevent smoke.

(d) Equipments like inertial separators, fabric filters, smoke stags, electrostatic precipitators and scrubbers should be used to control particulate matter in the air.

(e) Discharge the industrial effluents after proper treatment.

(f) Equipments or generators should be fitted with silencers.

32. Suggest a few measures for reducing industrial pollution of fresh water.

(a) Minimizing the use of water for processing by re using and recycling it in two or more successive stages.

- (b) Harvesting of rainwater to meet water requirements.
- (c) Treating of water and effluents before releasing them in rivers and ponds.

33. How is the treatment of industrial liquids done? Name the three phases of treatment of industrial wastes.

- (1) Primary treatment: It is a mechanical process. It includes screening, grinding, flocculation and sedimentation.
- (2) Secondary treatment: It is a biological process. It involves use of biological methods.
- (3) Tertiary treatment: It is combination of biological, chemical and physical processes. It includes recycling of wastewater.

34. Distinguish between cotton textile and iron and steel industry.

- i. Cotton textile is a light industry, since the raw material used and the finished products are light where as iron and steel is a heavy industry.
- ii. Cotton textile is an agro-based industry since the raw material used is an agricultural product whereas iron and steel is a mineral-based industry.
- iii. The former one is a consumer industry where as the latter is a basic industry.
- iv. The cotton textile is a labour intensive industry where as iron and steel is a capital-intensive industry.
- v. Cotton textile is in decentralized sector where as iron and steel is in centralized sector.

35. Why did Mahatma Gandhi lay emphasize on spinning yarn and weaving khadi?

- i) It supported millions of cotton textile workers and through this Gandhiji wanted to remove their poverty.
- ii) It was a powerful tool to protest against the British since he advocated boycotting foreign clothes.

36. Why is it important for our country to keep the mill sector loomage lower than the power loom and handloom?

- i) Mill sector loomage should be kept lower to avoid competition to the handloom clothes.
- ii) Development of mill sector will not help to solve the problems of millions of population since they are in powerloom and hand loom sector. Development of mill sector helps only a few capitalists where as millions of people are benefited by the development of powerloom and hand loom.

37. Production and consumption of steel is often regarded as an index of a country's development. Why?

- i. The strength of an economy will be depended on the strength of the basic industries. Iron and steel is a basic industry. It supplies raw materials for manufacturing machineries and other industries. Hence production and consumption of steel indicates the development of secondary sector and tertiary sector.
- ii. The profit margin in this industry will be much more than any other industry and it contributes a major share in the GDP.

38. What are the mismatches of textile industry in India?

- i) We have a large share in the world trade of cotton yarn, accounting for ¼ of the total trade. However, our trade in garments is only 4 % of the world total.
- ii) Our spinning mills are competitive at the global level and capable of using all the fabrics we produce. However, the weaving, knitting and processing units cannot use much of the high quality yarn that is produced in the country.
- iii) There are some large and modern factories but most of the production is in fragmented

small units, which cater to the local needs.

39. How did the partition of the country in 1947 affect the jute industry?

- i. Bengal was famous for jute production. It was partitioned into East and West Bengal in 1947 along with the partition of India.. East Bengal became part of Pakistan and later an independent country called Bangladesh. Accordingly, we lost some of the major jute industries like the one in Agarthala.
- ii. Now one of the problems faced by jute industry in India is international competition especially from Bangladesh.

Additional Questions:

1. Name two gases causing air pollution. Sulphur dioxide and carbon monoxide.

2. Name two industries causing water pollution: Tannery, textile industry, electroplating industry.

3. With what objective was The National Manufacturing Competitiveness Council (NMCC) formed?

To improve industrial productivity and achieve the targeted growth rate with appropriate policy interventions by the government the National Manufacturing Competitiveness Council (NMCC) was formed

4. What is the key to decision of the factory location? Least cost.

5. Where were the manufacturing units located in the pre-independence period in India?

These were located in places from the point of view of overseas trade such as Mumbai, Kolkatta and Chennai.

6. Which is the only industry in India, which is self-reliant and complete in the value chain?

Textile Industry.

7. State any two reasons for the success of the IT industry in India.

- i) The continuing growth in the hardware and software is the key to the success of IT industry in India.
- ii) This industry has been a major foreign exchange earner because of the Buisness Processes Outsourcing sector.

8. Mention any two solid wastes in India, which cause pollution. Fly ash, phospo-gypsum and iron and steel stags

9. Which are the 3 major sectors of fabric production in India? Mention the share of each sector. Mill sector (3.5%) Power loom (84.1) Handloom (11.1) Others (1.3) 2010-11

1. Why is cotton textile industries located in Maharashtra and Gujarat?
2. Why is iron and steel industries concentrated in Chotanagpur region?
3. Account for the fact that iron and steels industry is mainly in public sector in India.
4. Whys is jute industry declining in India? What measures would you suggest to improve it?
5. Why is there a growing concern for shifting industry from urban areas?
6. Compare and contrast cotton textile industries and jute textile industries in India.
7. Compare and contrast cotton textile and iron and steel industries in India.
8. In which sector does the Jamshedpur steel plant fall with reference to ownership? Why is it located in Jamshedpur.
9. What is the importance of sugar industry? Explain the development of sugar industry in India
10. The jute industry in India has been passing through difficult times. Explain.
11. Name any two iron and steel industries established with foreign collaboration in India.

Chapter- 7- LIFELINES OF NATIONAL ECONOMY

1. Why is 'transport and communication' called the lifelines of an economy? Or Why is transport a necessity? (Why is it considered a pre requisite for economic development?)

- i. Transport helps in the movement of people goods and materials. It helps in the production and distribution of goods and services.
- ii. It is the basic arteries of an economy. It provides link between producers and consumers of goods.
- iii. The pace of development of a country depends on the production of goods and services as well as their movement over space. (Continue...)

2. How are transport, communication and trade complementary to each other?

- i. With the development of science and technology the area of influence of trade and transport expanded far and wide.
- ii. Today the world has been converted into a large village with the help of efficient and fast moving transport.
- iii. Transport has been able to achieve this with the help of equally developed communication system.

3. Name the four means of transportation covering the three domains.

- (a) Roadways and railways are the means of transportation that covers land.
- (b) Waterways through ships and boats cover water.
- (c) Airways through planes and helicopters cover air.
- (d) Pipelines cover both land and water.

4. What are the advantages of roads over railways? Or (How does road transport score over railways?) What are the problems faced by the road transportation in India?

- (a) Roads are important for transport of goods and passengers for short and medium distances.
- (b) Road transport is relatively cheap and easy both in construction and maintenance.
- (c) It can be constructed even in mountainous terrain where as railways are not possible in these areas. Railways require levelled ground.
- (d) Roads connect areas of production with market, factories with farms and provide door-to-door service.
- (e) Road transport is used as a feeder to other modes of transport such as they provide a link between railway stations, air port and seaports.
- (f) For easy transportation of perishable goods, roads provide better service than the railways.

The problems faced by road transportation are the following:

- (a) The road network in India is inadequate keeping in view of the number of passengers and volume of traffic.
- (b) About half of the roads in India are un-surfaced which becomes muddy during the rainy season.
- (c) The National Highways are inadequate and highly congested in the cities and their bridges and culverts are narrow.
- (d) The road side amenities like telephone ,books ,emergency health services and police protection on the national highways are very poor and need improvement.

5. Name the different types of roads in India.

- (a) Super Highways: (Express ways) The Golden Quadrilateral connecting Delhi, Mumbai, Chennai, Kolkatta and Delhi is a six lane super highway. North South Corridor connecting Srinagar and Kanyakumari and East West Corridor connecting Silcher in Assam and Porbandhar in Gujarat are also super highways. Theses are maintained by the National Highway Authority of India.
- (b) National Highways: These connect one state with another and are of national importance. These are constructed and maintained by the Central Public Works Department. There are about 52,000 Km of National Highways in India. e.g. N.H. 17, N.H..47 etc.
- (c) State Highways: These roads are constructed and maintained by state Governments. It connects state capital with district head quarters and with other important cities of the states. There are about 1.3 lakh Km of state highways in India.
- (d) The District Roads: These roads connect district headquarters with cities and other places of the district. These roads are constructed and maintained by the District administration.
- (e) Other Roads : Village roads connect villages with neighboring towns and cities. These roads receive special impetus under the Pradhan Mantri Grameen Sadak Yojana.
- (f) Border Roads: The border roads link the frontiers of the country. The border roads are constructed and maintained by the Border Roads Organization (BRO).

6. State the characteristics of the North –South Corridor.

- a) It connects Srinagar in Jammu Kashmir and Kanyakumari in Tamil Nadu.
- b) It is the longest express way in India.
- c) It is a four to six lane road.
- d) It is meant for fast movement of traffic.
- e) Much roundabouts or junctions are not seen
- f) Roads are not cut at right angles and no fear of vehicles crossing- accidents are less.

State the characteristics of Golden Quadrilateral OR East West corridor.

Write the connecting cities and add points c to f above.

7. What is road density?

The length of road per 100 sq. km of area is known as density of roads. It is 10.04 km in Jammu & Kashmir and 532.27 km in Uttar Pradesh. The national average is 125.02 km.

8. Why are the railways so important in India?

- i. Railways are the principal mode of transportation for freight and passengers in India. Railways also make it possible to conduct a number of activities like business, sightseeing, pilgrimage along with transportation of goods over long distances.
- ii. It binds the economic life of the country and as well as accelerate the development of industry and agriculture. Thus it has been an integrating force for more than 150 years.

9. How do physiographic and economic factors influence the distribution pattern of Indian railway network? Explain with suitable examples.

Physiographic factors:

- (a) Railways require level land for its construction. It is not possible to construct a railway line in the mountains terrains . Flood plains of Bihar and Assam and rugged topography of the Himalayan region are not good for railway service.
- (b) Sparsely populated areas like sandy deserts of Rajasthan are not good for railway network. It requires high density of population for its growth.
- (c) Northern plains of India have dense network of railway, because their vast level land , high density of population and rich agricultural resources.

(d) Economic factors.

- a) Rich agriculture ensures the development of railways for easy and cheap transportation of agricultural goods.
- b) Greater industrial activity is required in areas where development of railways is expected. Movements of goods and passengers support the railways.

10. Why are Himalayan mountainous regions unfavourable for construction of railway network?

This region has high relief, sparse population and lack of economic opportunities.

11. What are the problems faced by the Indian Railways?

- i) Theft and damaging of railway property.
- ii) Passengers pull chains unnecessarily, which causes late running of the trains.
- iii) Passengers travel without proper tickets.
- iv) Introduction of long route bus services and the resulted competition.

12. Name the railway zones with their Headquarters. (Additional information)

- (a) Northern Railway- New Delhi
- (b) Southern Railway- Chennai
- (c) Eastern Railway- Kolkata
- (d) Western Railway – Mumbai
- (e) Central Railway -Mumbai
- (f) North-Eastern Railway – Gorakhpur
- (g) South Eastern Railway– Kolkata
- (h) South Central Railway – Secunderabad
- (i) North Eastern Frontier Railway- Maligoan (Guwahati)
- (j) East Coast Rail way-Bhubaneshwar
- (k) North Central Railway- Allahabad
- (l) North Western Railway Jaipur
- (m) South East Central Railway- Bilaspur
- (n) South Western Railway –Hubli
- (o) West Central Railway- Jabalpur
- (p) East Central Railway-Hajipur

13. What are pipelines used for? Describe two important network of pipeline transportation in India.

- (a) In the past pipelines are used for transporting water to cities and industries.
- (b) Now pipelines are used also for transportation of crude oil, petroleum products and natural gas from oil and natural gas fields to refineries, fertilizer factories and to big thermal power plants. Solids also can be transported through a pipeline when converted into slurry.
- (c) Though initial cost of laying pipeline is high, the running and maintenance cost is very low. It saves transshipment losses and delays.
- (a) Assam to Kanpur : There is a pipeline transportation from oil fields in upper Assam to Kanpur in Uttar Pradesh via Guwahati, Barauni and Allahabad for the transportation of petroleum. It has branches from Barauni to Haldia via Rajbandh to Maurigram and Guwahati to Siliguri.
- (b) HBJ pipeline (HVJ) : It is a gas pipeline from Hazira in Gujarat to Jagdishpur in Uttar Pradesh via Bijaipur(Vijaypur) in Madhya Pradesh. It has branches to Kota in Rajasthan, Shahjahanpur, Babrala and other places in Uttar Pradesh. It is also connected with Mumbai High and South Bassein in Maharashtra.

14. What are the advantages of the pipeline transportation for petroleum and natural gas?

- i. Pipeline transportation is fast, safe, clean and free from transshipment loss and delays.
- ii. Maintenance cost is very less though initial expenditure will be higher.

15. State the importance of Kandla seaport.

It was the first port developed soon after the independence to ease the volume of trade on Mumbai port.

It is a tidal port. It caters to the convenient handling of exports and imports of highly productive granary and industrial belt stretching across the states of Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Rajasthan and Gujarat.

16. Name the two seaports developed to ease the volume of trade on the Mumbai port.

Jawaharlal Nehru seaport near Mumbai in Maharashtra. And Kandla seaport in Gujarat.

17. Name the oldest artificial ports of India. (Chennai)

18. Name the deepest landlocked port in India. (Vishakapatnam)

19. Why are inland waterways significant? Mention any four National Water ways.

- (a) Waterways are the cheapest means of transport, most suitable for carrying heavy and bulky goods.
- (b) It is a fuel efficient and environment friendly mode of transport.
- (c) India has inland navigable waterways of 14,500 km in length. Out of these 3700 km are navigable by mechanized boats.

(d) The Government has declared the following waterways as National Waterways.

- (1) The Ganga river between Allahabad and Haldia covering 1620 Km. (NW.1)
- (2) The Brahmaputra river between Sadia and Dhubri covering 891 km. (NW. 2)
- (3) The West Coast canal between Kollam and Kottayam in Kerala with 168 km. The Champakara canal with 14 km and the Udyogmandal canal with 22 km in Kerala. (Total 205 Km in Kerala) All NW No.3
- (4) Specified stretches of Godavari and Krishna rivers along with Kakinada and Puducherry stretches of canals with 1078 km is NW. No.4.
- (5) Specified stretches of river Brahmani along with Matai river, delta channels of Mahandi and Brahmani rivers and East coast canal, all with 588 km is NW No.5.
- (6) There are some other inland waterways like Mandavi, Zuari and Cumberjua, Sunderbans, Barak, backwaters of Kerala and tidal stretches of some other rivers.

20. What are the advantages of airways? Write a short note on the airline services of India.

- (a) Airways are the fastest means of transport. It is used for long distance journeys and international traffic.
- (b) It is used in areas where construction of railways and roads are difficult like mountain terrain, deserts and dense forests.
- (c) Airways play a vital role in the event of natural and human made calamities like floods, famines, earthquakes, epidemics and war.

Airline services of India

- (a) The air transport was nationalized in 1953. Indian Airlines, Alliance Air and Air India are the important airlines in India providing domestic and international services.
- (b) Many private companies provide domestic service connecting major cities of India. .e.g. Jet Airways and Sahara airlines.
- (c) Pawanhans Helicopters Ltd. provides helicopter services to Oil and Natural Gas Commission in its off-shore operations and areas of difficult terrains
- (d) Apart from two private scheduled airlines there are 38 companies holding non-scheduled air taxi operators permit.

21. Why is air travel preferred in northeastern states?

- i. Air transport is the fastest, most comfortable and prestigious mode of transport.
- ii. It can travel very high terrains, vast deserts dense forests, and large oceanic stretches with great ease where other modes of transportation are difficult.
- iii. The northeastern part of India is marked with the presence of big rivers, frequent floods dissected relief, rugged topography, dense forests and international frontiers. Other modes of transportation is impossible especially at times of emergencies.

22. State the significance of seaports in India.

- a] There are 12 major and 181 medium and minor sea ports in India of about 7500 Km long coastline of India.
- b] The major ports handle over 90% of India's foreign trade.
- c] These ports handle about 15,000 cargo vessels per year. 70% of the cargo handled at these ports is for overseas trade.
- d] Mumbai is the biggest port of India deals with the major part of our foreign trade. Hence we call Mumbai the Gate Way of India.

23. Differentiate between personal and mass communication.

- a) Personal communication is meant for communication between two individuals where as mass communication is meant for several people at a time.
- b) Telephone, letter, e-mail etc. are example of personal communication where as newspaper, radio, television, cinema, website etc. are example of mass communication.

24. Write a short note on the telecom network in India.

- a) India has one of the largest telecom networks in Asia. It has about 32,000 telephone exchanges in India.
- b) Besides cities over two third of villages of India have already been covered with telephone facility.
- c) A number of private companies have been entered recently in the area of telecommunications. e.g. BPL, Airtel etc.
- d) Bharat Sanchar Nigam Ltd. is the national telecom network in India.

25. Why is the importance of telecom network increased in India?

- i) It has revolutionized life of masses their quality of life and country's economy along with the processes of globalization..
- ii) This industry looks after the needs of equipments for defense, railways, space and airways.

26. Describe the Indian postal network.

- (a) Indian postal network is the largest in the world.
- (b) Facilities like cards and envelopes are called first class mail and book packets, registered newspapers and periodicals are called second-class mail.
- (c) The first class mail is air lifted between stations, mail covering both land and connected by air. It is faster than 2nd class mail.
- (d) The second class mail is carried by surface mail covering land and water transport.
- (e) For quick delivery of mails in cities and large towns, six mail channels have been introduced recently. They are Rajdhani channel, Metro channel and Green channel, Business channel, Bulk mail channel and Periodical channel

Differentiate between first class mail and second-class mail. Give examples.

(Write points c,d,e above)

27. Why do we consider international trade as economic barometer? What is meant by favorable balance of trade? Discuss whether India's foreign trade is favorable or not.

Barometer is an instrument used to measure the atmospheric pressure. Similarly, economic development of a country can be measured by looking at its foreign trade especially its exports. If the value of export is more than the value of imports, it is favourable balance of trade. It shows economic prosperity.

- (a) The difference between export and import is known as balance of trade. If the exports are more than the imports it is known as favorable balance of trade.
- (b) India's foreign trade is unfavorable because our imports are more than exports.

28. Describe the volume of India's foreign trade.

- (a) India has trading relations with all the major trading blocks and all Geographical regions of the world.
- (b) Most of the commodities exported from India are Agriculture and allied products (9.9 %), ores and minerals (4 %), gems and jewellery, which constitute 14.7 %, chemical and allied products (24.45%), engineering goods (35.63%) and petroleum products including coal (16.8 %) in 2010-11.
- (b) Commodities imported in India included petroleum and petroleum products with 28.6 %, pearls and precious stones with 9.4 %, chemicals 5.2 % coal, coke and briquettes 2.7 %, and machinery 6.4 %.
- (c) Bulk imports as a group registered a growth accounting for 28.2 % of total imports. This group includes fertilizers (3.4 %), cereals (14.3%), edible oils (17.4 %) and news print (40.3 %) in 2010-11.

29. What are the advantages of tourism in India?

- a) Tourism promote national integration. b) Helps in international understanding. c) Support local handicrafts.
- d) Provide employment opportunities.(15 million directly) e) Earns foreign exchange. (Rs. 64889 crores in 2010)

30. How does international trade contribute to the economic development of a country?

Explain two points.

- i. As the resources are space bound no country can survive with out international trade. India exchanges its surplus goods with those of other countries through international trade.
- ii. International trade helps India in getting advanced technology from developed countries.
- iii. It helps to increase the foreign exchange reserve and per capita income.
- iv. International trade helps India to improve its production of manufactured goods which ensures quality. (Explain any two)

31 . Explain the importance of radio and television as effective means of mass communication.

Radio:

- i) Radio is the cheapest means of communication. It covers more than 95 % of the population.
- ii) There are 200 radio stations and 328 transmitters including the relay stations. So it reaches all cities and villages.
- iii) An illiterate person can't read a news paper but he can listen to a radio even while at work. A number of people can be communicated at a time by a single radio.
- iv) It is a source of social education and entertainment in regional languages in various categories. It reveals the ill effects of a number of social problems.

Television:

- i) Television scores over radio since it gives a visual impact and a first hand information through live telecast.
- ii) Besides the national channel a number of private channels in different languages are available through cable network or through dish antenna.
- iii) Television covers 87% of the country and it is the largest network of the world.
- iv) A wide range of programmes such as educational, entertainment, sports etc. are covered in this media.

32. Explain the improvements made in the Indian Railways in its functioning:

- a) Uni- gauge system: Meter gauge and narrow gauges railway lines are converted in to broad gauge rail lines so that same train can reach the destinations. It saves a lot of time and money. Therefore un-loading and loading at the time of changing the train can be avoided.
- b) Cushioned seating: All compartment except first class had wooden seats before. Now all compartments have cushioned seating that make journey comfortable.
- c) Faster trains: Long route and fast trains were introduced connecting different parts of India, like Samjhoutha Express, Rajdhani Express and Sadabdi Express.
- d) Pantry- Car: All long route trains have pantry-car that provide food to passengers
- e) Double lines: All railway lines in India are converted into double line tracks so that there is no delay in crossing of trains at stations. Now two train can travel at opposite directions at a time.
- f) Electrification : There was a gradual shift from coal engine to Diesel engine and from diesel engine to electric engines which travel both directions. Major railway lines are now electrified.
- g) Modifications of railway stations and platforms- electronic signaling system-avoiding key changes between stations-Computerized ticket booking system etc are other improvements

UNIT III

DEMOCRATIC POLITICS