CHAPTER: 6

Manufacturing Industries

- Facts at Your Fingertips
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FACTS AT YOUR FINGERTIPS

➡ **Manufacturing:** Production of goods in large quantities after processing from raw materials to more valuable products is called manufacturing. Manufacturing belongs to **secondary sector** in which the primary materials are processed and converted into finished goods.

Importance of manufacturing industries for India:

(*i*) It helps in modernizing agriculture, reduces heavy dependence on agricultural income by providing jobs in non-agricultural sectors.

(*ii*) Industries help in creating jobs and generating more income.

(*iii*) Export of manufactured goods expands trade and brings in foreign exchange.

(*iv*) Industrial development brings prosperity to the country.

➡ **Agriculture and industry in India are interdependent on each other:** Agro-industry in India has boosted agriculture by raising its productivity. Industries depend on agriculture for their raw materials, *e.g.*, cotton textile industry. Industries provide many agricultural inputs like irrigation pumps, fertilisers, insecticides, PVC pipes, machines and tools, etc. to the farmers. Development of different modes of transport by industrial sector has not only helped farmers to obtain agricultural inputs but has also helped them trade their products.

➡ ***Factors which affect the location of an industry:***

(*i*) **Raw material.** Cheap and abundant availability of raw material.

(*ii*) **Labour.** Availability of cheap labour is necessary for low cost of production.

(*iii*) **Power.** Cheap and continuous supply of power is extremely necessary.

(*iv*) **Capital.** It is necessary for developing infrastructure, for the entire manufacturing process and for meeting manufacturing expenditure.

(*v*) Banking and insurance facilities and favourable government policies.

➡ ***Five bases on which industries are classified:***

(*i*) On the basis of **source of raw materials** used—Agro-based and mineral-based.

(*ii*) According to their **main role**—Basic and Consumer industries.

(*iii*) On the basis of **capital investment**—Small-scale and Large-scale industries.

(*iv*) On the basis of **ownership**—Public Sector, Private Sector, Cooperative Sector, Joint Sector.

(*v*) Based on **the bulk and weight of raw material and finished goods**—Heavy industries, Light industries.

➡ If the investment is more than ten crore rupees in any industry, it is considered as a **large scale**

industry. *For example,* Iron and Steel industry, Cement industry.

If the investment is less than or equal to one crore rupees, it is considered as a **small scale industry**.

Agro-based industries: They obtain their raw materials from agricultural products.

Example: Textiles—cotton, jute, silk and woollen. Rubber, Sugar, Coffee, Tea and Edible Oils, etc.

Mineral-based industries: They obtain their raw materials from minerals.

Example: Iron and steel, cement, machine tools, petro-chemicals, etc.

Four types of industries based on ownership are:

(*i*) **Public Sector industries:** Owned and operated by government agencies, *e.g.,* BHEL, SAIL, etc.

(*ii*) **Private Sector industries** are owned and operated by an individuals or a group of individuals, *e.g.,* TISCO, Bajaj Auto Ltd., Dabur Industries.

(*iii*) **Joint Sector industries** are jointly run by the Public (government) and Private Sector (individuals), *e.g.,* Oil India Ltd.

(*iv*) **Cooperative Sector industries** are owned and operated by the producers or suppliers of raw materials, workers, or both. They pool in their resources and share the profits or losses proportionately, *e.g.,* sugar industry in Maharashtra and coir industry in Kerala.

➡ **The Textile industry occupies a unique position in the Indian Economy because—**It contributes significantly to industrial production (14%). It employs largest number of people after agriculture, *i.e.,* 35 million persons directly. Its share in the foreign exchange earnings is significant at about 24.6%. It contributes 4% towards GDP and is the only industry in the country which is self-reliant and complete in the value chain.

➡ ***Factors for concentration/location of cotton textile industry in Maharashtra and Gujarat:***

(*i*) Availability of raw cotton was abundant and cheap.

(*ii*) Moist climate in these coastal States also helped in the development of cotton textile industry because humid conditions are required for weaving the cloth, else the yarn breaks.

(*iii*) Well-developed transportation system and accessible port facilities in Maharashtra and Gujarat.

(*iv*) Proximity to the market as cotton clothes are ideal to wear in these warm and humid States.

➡ ***Factors responsible for the concentration of jute industry on the banks of Hoogly:***

(*i*) Proximity of the jute producing areas to the Hoogly Basin.

(*ii*) Inexpensive water transport provided by the Hoogly river.

(*iii*) It is well connected by a good network of railways, waterways and roadways.

(*iv*) Abundant water for processing raw jute.

(*v*) Availability of cheap labour from West Bengal, Bihar, Odisha and Uttar Pradesh.

(*vi*) Kolkata as a port and large urban centre, provides banking, insurance and port facilities.

➡ **Reasons for location of sugar mills close to the fields:**

(*i*) The raw material used, sugarcane is bulky and perishable.

(*ii*) It cannot be transported to long distances because its sucrose content dries up fast, so it should be processed within 24 hours of its harvest.

Sugar Industry is shifting towards southern and western States, because—Cane produced here has higher sucrose content, the favourable climatic conditions (cooler climate) ensure a longer growing and crushing season. The Cooperatives are more successful in these States. Sugar industry being seasonal in nature, is ideal for the cooperative sector. Yield per hectare is higher in southern States.

➡ **Iron and steel industry:** It is a basic or key and heavy industry.

Iron and steel industry is concentrated in and around Chhotanagpur Plateau Region because—

(*i*) low cost of iron-ore which is mined here;

(*ii*) high grade raw materials in close proximity;

(*iii*) availability of cheap labour;

(*iv*) vast growth potential in the home market;

(*v*) efficient transport network for their distribution;

(*vi*) availability of power because this region has many thermal and hydel power plants; and

(*vii*) liberalisation and FDI.

➡ **Aluminium:** Characteristics—It is a light metal; resistant to corrosion; good conductor of heat. It is malleable and becomes strong when mixed with other metals.

Uses of aluminium:

(*i*) It is used for manufacturing aircrafts;

(*ii*) It is used for making utensils and packing material;

(*iii*) It is used for making wires;

(iv) It has gained popularity as a substitute of steel, copper, zinc and lead in a number of industries.

➡ **Electronics industry:** It produces a wide range of products from transistor sets to televisions and computers for the masses. It has helped us set up telephone exchanges, telephones, cellular telecom, radios and many other equipments which have application in space technology, aviation, defence, meteorological department etc. It has generated employment for a large number of people. This industry has been a major foreign exchange earner because of its fast growing Business Process Out-sourcing (BPO) Sector. India is one of the leading countries in software development. We have 18 software technology parks which provide high data communication facilities to software experts.

➡ ***Industrial pollution and its types:***

(i) **Air pollution.** Smoke is emitted by chemical and paper factories, brick kilns, refineries and smelting plants, and burning of fossil fuels in factories that ignore pollution norms. Air-borne particulate materials contain both solid and liquid particles like dust, sprays, mist and smoke.

(ii) **Water pollution.** Major water pollutants are dyes, detergents, acids and salts. Heavy metals like lead and mercury, pesticides and fertilizers and synthetic chemicals with carbon, plastics and rubber, etc. discharged in the water bodies without treatment pollute these water bodies.

(iii) **Noise pollution.** The generators, compressors, machines, furnaces, looms, exhaust fans, etc. used by industries create a lot of noise. Noise can raise blood pressure and can have physiological effects as well.

(iv) **Land pollution.** Land and water pollution are closely related. Dumping of industrial wastes especially glass, harmful chemicals, industrial effluents, packing, salts and garbage into the soil.

(v) **Thermal pollution.** Wastes from nuclear power plants, nuclear and weapon production facilities cause cancer and birth defects.

Measures to control air pollution:

(i) Particulate matter in the air can be reduced by fitting smoke stacks to factories with fabric filters, electrostatic precipitators, etc.

(ii) Equipments to control aerosol emissions can be used in industries, *e.g.*, electrostatic precipitators, scrubbers and inertial separators.

(iii) Smoke can be reduced by using oil or gas instead of coal in factories.

Water pollution caused by industries can be controlled by:

(i) Minimising the use of water for processing by reusing and recycling.

(ii) Harvesting of rain-water to meet water requirements of industries and other domestic purposes.

(iii) ***Treating hot water and effluents before releasing them in rivers and ponds in the following ways:***

Primary treatment by mechanical means such as screening, grinding, flocculation and sedimentation.

Secondary treatment by biological process.

Tertiary treatment by biological, chemical and physical processes. This involves recycling of waste water.

➡ **Pro-active approach adopted by the National Thermal Power Corporation (NTPC) for preserving the natural environment and resources.**

(i) Optimum utilisation and upgradation of equipment by adopting latest techniques.

(ii) Minimising waste generation by maximising ash utilisation.

(iii) Providing green belts for nurturing ecological balance.

(iv) Reducing environmental pollution through ash pond management, ash water recycling system and liquid waste management.

(v) Ecological monitoring, reviews and online data base management for all its power stations.

➡ **Steps to minimize the environmental degradation caused by industrial development:**

(i) Minimizing use of water for processing by re-using and recycling in two or more successive stages. Harvesting of rain-water to meet domestic and industrial water requirements.

(ii) Treating hot water and effluents before releasing them in rivers and ponds.

(iii) Particulate matter in the air can be reduced by fitting smoke stacks to factories with electrostatic precipitators, fabric filters, scrubbers and inertial separators. Smoke can be reduced by using oil or gas instead of coal in factories.

(iv) Machinery and equipments can be fitted with silencers to prevent noise pollution.

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NCERT Exercise

GEOGRAPHY

1. Multiple Choice Questions.

(i) Which *one* of the following industries uses bauxite as a raw material?

(a) Aluminium smelting
(b) Cement
(c) Paper
(d) Steel

(ii) Which *one* of the following industries manufactures telephones, computers, etc.?

(a) Steel
(b) Electronic
(c) Aluminium smelting
(d) Information Technology

Ans. **(i)** (d); **(ii)** (b)

2. Answer the following briefly in not more than *30 words*.

(i) What is manufacturing?
(ii) What are basic industries? Give *an* example.

Ans. **(i)** Production of goods in large quantities after processing from raw materials to more valuable products is called **manufacturing**.

(ii) Key or Basic industries supply their products or raw materials to manufacture other goods. ***Example:*** Iron and steel and Copper smelting

3. Write the answers of the following questions in *120 words*.

(i) How do industries pollute the environment?
(ii) Discuss the steps to be taken to minimise environmental degradation by industry?

Ans. **(i)** ***The five types of industrial pollution are:***

(a) Air pollution. Smoke is emitted by chemical and paper factories, brick kilns, refineries and smelting plants, and burning of fossil fuels in factories that ignore pollution norms. Air-borne particulate materials contain both solid and liquid particles like dust, sprays, mist and smoke.

(b) Water pollution. Major water pollutants are dyes, detergents, acids and salts. Heavy metals like lead and mercury, pesticides and fertilizers and synthetic chemicals with carbon, plastics and rubber etc. discharged in the water bodies without treatment pollute these water bodies.

(c) Noise pollution. The generators, compressors, machines, furnaces, looms, exhaust fans, etc. used by industries create a lot of noise. Noise can raise blood pressure and can have physiological effects as well.

(d) Land pollution. Land and water pollution are closely related. Dumping of industrial wastes especially glass, harmful chemicals, industrial effluents, packing, salts and garbage renders the soil useless.

(e) Thermal pollution. Wastes from nuclear power plants, nuclear and weapon production facilities cause cancer and birth defects.

(ii) ***Steps to minimize the environmental degradation caused by industrial development in India are:***

(a) Minimizing use of water for processing by reusing and recycling in two or more successive stages. Harvesting of rain water to meet water requirements of industries and other domestic purposes.

(b) Treating hot water and effluents before releasing them in rivers and ponds.

(c) Particulate matter in the air can be reduced by fitting smoke stacks to factories with electrostatic precipitators, fabric filters, scrubbers and inertial separators. Smoke can be reduced by using oil or gas instead of coal in factories.

(d) Machinery and equipments can be redesigned to improve their efficiency and reduce noise and generators can be fitted with silencers to prevent noise pollution.

Related Concept

Energy sector is the most polluting industry on the planet. The generation of energy using fossil fuels accounts for the emission of billion tonnes of carbon dioxide into the earth's atmosphere. According to the UN, the energy sector alone is responsible for around two-thirds of all human-activity-related greenhouse gases.

SUBJECTIVE TOPIC-1
Importance of Manufacturing

Short Answer Type Questions (SA-II) (Average) (2-3 Marks)

1. What is manufacturing? To which sector of economy does it belong?

***Or,* "The economic strength of a country is measured by the development of manufacturing industries." Support the statement with arguments.** (2016 *D*)

Ans. Manufacturing. Production of goods in large quantities after processing from raw materials to more valuable products is called manufacturing.

Manufacturing belongs to secondary sector in which the primary materials are processed and converted into finished goods. The economic strength of a country is measured by the development of manufacturing industries.

Long Answer Type Questions (LA) (Difficult) (5 Marks)

2. Write the importance of 'manufacturing sector' for our nation.

***Or,* "Manufacturing industry is considered the backbone of economic development of India." Give reasons.** (2015 *OD*, 2011 *D*)

***Or,* Why is the economic strength of a country measured by the development of manufacturing industries? Explain with examples.** (2018)

***Or,* "The economic strength of a country is measured by the development of manufacturing industries." Explain with examples.** (2023)

Ans. Production of goods in large quantities after processing from raw materials to more valuable products is called manufacturing.

Manufacturing belongs to the secondary sector in which the primary materials are processed and converted into finished goods. The economic strength of a country is measured by the development of manufacturing industries.

Importance of manufacturing industries for India:

(*i*) It helps in modernizing agriculture, which is the base of our economy.

(*ii*) It reduces heavy dependence on agricultural income by providing jobs in non-agricultural sectors.

(*iii*) Industrial development is necessary for eradication of poverty and unemployment because people get jobs and generate more income.

(*iv*) Export of manufactured goods expands trade and brings in much needed foreign exchange.

(*v*) Industries bring riches faster to a nation because manufacturing changes raw materials into finished goods of a higher value, so industrial development brings prosperity to the country.

3. "Agriculture and industry are not exclusive of each other, but move hand in hand." Give arguments in favour of this statement. (2013 *D*)

***Or,* Explain with examples how industries in India have given a major boost to agriculture.** (2015 *D*, 2012 *OD*)

***Or,* "Agriculture and industry move hand in hand." Support the statement with examples.** (2023)

Ans. *Agriculture and industry in India are inseparable or interdependent on each other:*

(*i*) Agro-industries in India have boosted agriculture by raising its productivity.

(*ii*) Industries depend on agriculture for their raw materials, *e.g.* cotton textile industry.

(*iii*) Industries provide many agricultural inputs like irrigation pumps, fertilisers, insecticides, PVC pipes, machines, tools etc. to the farmers.

(*iv*) Manufacturing industries have assisted agriculturists to increase their production and also made the production processes very efficient.

(*v*) Development of different modes of transport by industrial sector has not only helped farmers to obtain agricultural inputs but has also helped them trade their products.

Related Concept

The relationship between agriculture and industries is vital for the overall economic development of a nation. Both sectors complement each other, with agriculture providing raw materials and industries transforming them into finished goods.

SUBJECTIVE TOPIC-2
Industrial Location

Short Answer Type Questions (SA-II) (Average) (2-3 Marks)

4. "Industrialisation and urbanisation go hand in hand." Explain. (2023)

Ans. After an industrial activity starts, urbanisation follows. Some industries are located in and around

the cities. Thus industrialisation and urbanisation go hand in hand. Cities provide markets, services such as banking, insurance, transport, labour, consultancy and financial advice, etc. to industries.

5. What are 'agglomeration economies' in the industrial context?

Ans. Many industries tend to come together to make use of the advantages offered by the urban centres known as 'agglomeration economies'. Gradually, a large industrial agglomeration or clustering takes place around an urban centre.

Long Answer Type Questions (LA) (Difficult) (5 Marks)

6. List the major factors which affect the location of an industry at a place. What is the key to the decision of 'factory location'?
(2011 *D*, 2011 *OD*, 2015 *D*, 2020 *Series: JBB*/3)

***Or,* Explain with examples any *five* factors that are responsible for industrial location.**
(2019 *Series: JMS*/1)

Ans. (*i*) **Raw material.** Cheap and abundant availability of raw material. Industries which use heavy and perishable raw material have to be located close to the source of raw material.

(*ii*) **Labour.** Availability of cheap labour is necessary for keeping the cost of production low.

(*iii*) **Power.** Cheap and continuous supply of power is extremely necessary for continuity in the production process.

(*iv*) **Capital.** It is necessary for developing infrastructure, for the entire manufacturing process and for meeting manufacturing expenditure.

(*v*) Banking and insurance facilities, favourable government policies are other factors which affect location of an industry.

The 'key' to the decision of a factory location is **least cost** so that the venture is profitable.

SUBJECTIVE TOPIC-3
Classification of Industries

Short Answer Type Questions (SA-II) (Average) (2-3 Marks)

7. State any *five* basis on which industries are classified.

Ans. (*i*) On the basis of **source of raw materials** used—Agro-based and Mineral-based.

(*ii*) According to their **main role**—Basic and Consumer industries.

(*iii*) On the basis of **capital investment**—Small-scale and Large-scale industries.

(*iv*) On the basis of **ownership**—Public Sector, Private Sector, Cooperative Sector, Joint Sector.

(*v*) Based on the **bulk and weight of raw material and finished goods**—Heavy industries, Light industries.

8. Classify industries on the basis of capital investment. How are they different from one another? Explain with examples. (2016 *D*)

Ans. ***On the basis of capital investment industries can be classified as*—**(*i*) Small-scale industry and (*ii*) Large-scale industry.

Difference. If the investment is more than ten crore rupees in any industry, it is considered as a large scale industry. *For example*, Iron and Steel industry, Cement industry.

If the investment is less than or equal to one crore rupees in any industry, it is considered as a small scale industry. *For example*, Plastic industry, Toy industry.

9. Explain the types of industries on the basis of ownership and give *one* example of each.

Ans. ***Four types of industries based on ownership are:***

(*i*) **Public Sector industries.** They are owned and operated by government agencies, *for example,* BHEL.

(*ii*) **Private Sector industries** are owned and operated by an individual or a group of individuals, *for example,* TISCO, Bajaj Auto Ltd., Dabur Industries.

(*iii*) **Joint Sector industries** are jointly owned and run by the Public (government) and Private Sector (individuals), *for example,* Oil India Ltd.

(*iv*) **Cooperative Sector industries** are owned and operated by the producers or suppliers of raw materials, workers, or both. They pool in their resources and share the profits or losses proportionately, *for example,* sugar industry in Maharashtra and coir industry in Kerala.

10. Name *four* agro-based and *four* mineral-based industries.

Ans. ***Four Agro-based industries*** are Cotton textiles, Jute textiles, Sugar industry and Edible oils industry.
Four Mineral-based industries are Iron and Steel industry, Aluminium industry, Copper smelting industry and Cement industry.

11. Classify industries on the basis of source of raw material. How are they different from each other? (2016 *Outside Delhi*)

Ans. On the basis of sources of raw material industries are classified as: (*i*) Agro-based industries and (*ii*) Mineral based industries.

Difference between Agro-based industries and Mineral-based industries

Agro-based industries	*Mineral-based industries*
They obtain their raw materials from agricultural products. *Example:* Textiles—cotton, jute, silk and woolen. Rubber, Sugar, Coffee, Tea and Edible Oil, etc.	They obtain their raw materials from minerals. *Example:* Iron and steel, Cement, Machine tools, Petro-chemicals, etc.

SUBJECTIVE TOPIC-4
Spatial Distribution

Long Answer Type Questions (LA) (Difficult) (5 Marks)

A. AGRO BASED, TEXTILE AND COTTON TEXTILE INDUSTRIES

12. Explain the role of agro-based industries in Indian economy.

Ans. ***Role of agro-based industries in Indian economy:***

(*i*) The agro-based industries in India have given a major boost to agriculture by raising its productivity as they obtain their raw material from agriculture.

(*ii*) Development and competitiveness of industries has not only assisted agriculturists in increasing their production but also made the production processes very efficient.

(*iii*) The farmers are heading for commercial farming to produce high value crops for industries. This may in turn help improve the economic status of the farmers.

(*iv*) These agro-based industries, by creating demand, support the growth of many other industries *for example*, packaging materials and engineering works etc.

13. Explain the significance of textile industry in India. (2011 *Delhi*)

Or, The textile industry is the only industry which is self reliant and complete in the value-chain? Justify this statement? (2016 *Delhi*)

Or, "Textile industry occupies a unique position in the Indian economy." Support the statement with appropriate arguments. (2015 *Delhi*)

Or, Why does the textile industry occupy unique position in the Indian economy? Explain. (2023)

Ans. ***The Textile industry occupies a unique position in the Indian Economy because:***

(*i*) It contributes significantly to industrial production (14%).

(*ii*) It employs largest number of people after agriculture, *i.e.*, 35 million persons directly.

(*iii*) Its share in the foreign exchange earnings is significant at about 24.6%.

(*iv*) It contributes 4% towards GDP.

(*v*) It is the only industry in the country which is self-reliant and complete in the value chain, *i.e.*, from raw material to the highest value added products.

14. Write the stages of the development of cotton textile industry in India from ancient to modern times.

Ans. ***Stages of development of Cotton Textile Industry in India:***

(*i*) In ancient India, cotton textiles were produced with hand spinning and handloom weaving techniques.

(*ii*) After the 18th century, power looms came into use.

(*iii*) Our traditional industries suffered a setback during the colonial period because they could not compete with the mill-made cloth from England.

(*iv*) Today, there are nearly 1600 cotton and human-made fibre textile mills working at various levels and owned by varied sectors. It is a decentralised industry today.

15. List factors which favoured the location and concentration of cotton textile industry in Maharashtra and Gujarat in early years. (2012 *Delhi*, 2015 *Outside Delhi*)

Ans. (*i*) Availability of raw cotton was abundant and cheap because these are the traditional cotton growing States.

(*ii*) Moist climate in these coastal States also helped in the development of cotton textile industry because humid conditions are

required for weaving the cloth, else the yarn breaks.

(*iii*) Well developed transportation system and accessible port facilities in Maharashtra and Gujarat led to their concentration there.

(*iv*) Proximity to the market is yet another factor as cotton clothes are ideal and comfortable to wear in these warm and humid States.

(*v*) Cheap labour was abundantly available.

16. Write *two* major differences between the weaving and spinning sectors of cotton textile industry.

Ans. **Spinning Sector and Weaving Sector**

Spinning Sector	*Weaving Sector*
1. Spinning is a centralised activity mainly done in Maharashtra, Gujarat and Tamil Nadu.	1. Weaving is a highly decentralised activity. It provides scope for incorporating traditional skills with modernity. So weaving is done at various levels, *example,* handlooms, power-looms, etc.
2. India has world class production in spinning.	2. Weaving supplies low quality of fabrics as it cannot use much of the high quality yarn.

B. JUTE TEXTILES

Long Answer Type Questions (LA) (Difficult) (5 Marks)

17. Explain the main factors which are responsible for the concentration of jute mills along the banks of Hugli river. (2014 *D*, 2012 *OD*)

***Or,* Explain any *five* factors that are responsible for the location of the 'jute mills' mainly along the banks of the 'Hugli River'.** (2018 *Comptt.*)

Ans. ***Factors responsible for the concentration of Jute industry on the banks of Hugli:***

(*i*) Proximity of the jute producing areas to the Hugli Basin.

(*ii*) Inexpensive water transport provided by the Hugli river.

(*iii*) It is well connected by a good network of railways, waterways and roadways to facilitate movement of raw materials to the mills.

(*iv*) Abundant water for processing raw jute.

(*v*) Availability of cheap labour from West Bengal and the adjoining States of Bihar, Odisha and Uttar Pradesh.

(*vi*) Kolkata as a port and large urban centre, provides banking, insurance and port facilities for export of jute goods.

18. What are the objectives of formulating National Jute Policy. In which year was this policy formulated? Do you think that the demand for jute products will pick up at global level and why? (2013 *OD*)

Ans. ***National Jute Policy was formulated in 2005 with the following objectives*:**

(*i*) For increasing productivity.

(*ii*) For improving quality.

(*iii*) For ensuring good prices to the jute farmers.

(*iv*) For enhancing the yield per hectare.

Yes, the demand for jute products in the world market will grow. The growing global concern for environment friendly, biodegradable materials, also led to the government policy of mandatory use of jute packing.

C. SUGAR INDUSTRY

Short Answer Type Questions (SA-II) (Average) (2-3 Marks)

19. Why are the sugar mills located close to the sugarcane fields?

***Or,* Why are sugar mills concentrated in sugarcane producing areas?** (2016 *D*)

Ans. (*i*) The raw material used, *i.e.*, sugarcane is bulky and perishable.

(*ii*) It cannot be transported to long distances because its sucrose content dries up fast, so it should be processed within 24 hours of its harvest.

20. Write the distribution of sugar industry in India.

Ans. There are over 460 sugar mills in the country. Out of these, 60% mills are in Uttar Pradesh and Bihar. Rest of the mills are spread over Maharashtra, Tamil Nadu, Andhra Pradesh, Gujarat and Punjab.

21. Why are sugar mills shifting and concentrating in southern and western States of India? Give reasons. (2012 *D*)

Ans. ***Sugar Industry is shifting towards southern and western States, because*:**

(*i*) cane produced here has higher sucrose content.

(*ii*) the favourable climatic conditions (cooler climate) ensure a longer growing and crushing season.

(*iii*) the Cooperatives are more successful in these States and sugar industry being seasonal in nature, is ideally suited to cooperative sector.

(*iv*) yield per hectare is higher in southern States.

Related Concept

Sugar industry is the second most important agro-based industry in the country. India is the second largest producer of sugarcane in the world. Khandsari and gur or jaggery are also prepared from sugarcane. This industry provides employment for more than 4 lakh persons directly and a large number of farmers indirectly.

D. IRON & STEEL INDUSTRY

Long Answer Type Questions (LA) (Difficult) (5 Marks)

22. Why is iron and steel industry called the basic or key industry? Explain. (2012 *OD*)

Ans. (*i*) Since all the other industries—heavy, medium and light, depend on it for their machinery.
(*ii*) Steel is needed to manufacture a variety of engineering goods.
(*iii*) Steel is needed for construction material, defence and medical equipments.
(*iv*) Steel is needed for telephonic, scientific equipment and a variety of consumer goods.
(*v*) Production and consumption of steel is often regarded as the index of a country's development.

23. (*a*) Why is iron and steel industry called a heavy industry? Give reasons. (2012 *OD*)
(*b*) Write *four* raw materials of iron and steel industry and the proportions in which they are required.

Ans. ***(a) Iron and steel industry is a heavy industry because:***
(*i*) All the raw materials used are heavy and bulky.
(*ii*) The finished goods are also very heavy and bulky entailing heavy transportation costs.
(*iv*) Iron-ore, coal, limestone are the major raw materials used in producing iron and steel and they are heavy.
(*v*) Transportation costs of raw materials and finished goods of iron and steel industry are heavy (costly).
(*vi*) Efficient transport network is needed for its distribution.

(b) The raw materials of iron and steel industry:
(*i*) Iron ore, coking coal and limestone are required in the ratio of 4 : 2 : 1.
(*ii*) Manganese is required in some quantity to harden the steel.

24. Why are most of the iron and steel industries concentrated in and around Chhotanagpur Plateau Region? Give reasons. (2015 *OD*, 2014 *D*, 2012 *OD*, 2019 *Series: JMS*/1)

Or, Explain any *five* factors that are responsible for concentration of 'iron and steel' industries mainly in 'Chhotanagpur Plateau Region'. (2018 *Comptt.*)

Ans. (*i*) Low cost of iron-ore which is mined here.
(*ii*) High grade raw materials in close proximity.
(*iii*) Availability of cheap labour.
(*iv*) Vast growth potential in the home market.
(*v*) Efficient transport network for their distribution to the markets and consumers.
(*vi*) Availability of power because this region has many thermal and hydel power plants.
(*vii*) Liberalisation and FDI have also given boost to the industry with efforts of private entrepreneurs.

GEOGRAPHY

SUBJECTIVE TOPIC-5
ALUMINIUM SMELTING

Short Answer Type Questions (SA-II) (Average) (2-3 Marks)

25. Write *four* characteristics and *four* major uses of aluminium.

Ans. ***Four characteristics of aluminium:***
(*i*) It is a light metal.
(*ii*) It is resistant to corrosion.
(*iii*) It is a good conductor of heat.
(*iv*) It is malleable and becomes strong when mixed with other metals.

Four uses (importance) of aluminium:
(*i*) It is used for manufacturing aircrafts.
(*ii*) It is used for making utensils and packing material.
(*iii*) It is used for making wires.
(*iv*) It has gained popularity as a substitute of steel, copper, zinc and lead in a number of industries.

26. How many aluminium smelting plants are set up in India? Write their distribution.

Ans. There are eight aluminium smelting plants in the country. They are located in the states of Odisha (Nalco and Balco), West Bengal, Kerala, Uttar Pradesh, Chhattisgarh, Maharashtra and Tamil Nadu.

27. (a) Name the mineral used for obtaining aluminium. Write its one important characteristic by which it can be identified.
(b) List *two* prime factors required for the location of an aluminium smelting plant.

Ans. **(a) Bauxite** is the raw material used in aluminium industry. It can be identified by its dark reddish colour and bulky nature.

(b) *Two prime factors required for the location of aluminium smelting plant are:*
(*i*) Regular and cheap supply of electricity.
(*ii*) An assured source of raw material at a minimum cost.

SUBJECTIVE TOPIC-6
Chemical Industry

Short Answer Type Questions (SA_II) (Average) (2-3 Marks)

28. Give reasons to highlight the importance of chemical industry in Indian economy.

Ans. ***Importance of chemical industry:***
(*i*) It contributes approximately 3% of the GDP.
(*ii*) It is the 3rd largest in Asia and occupies 12th position in the world in terms of its size.
(*iii*) It comprises both large and small-scale manufacturing units producing a variety of items, ranging from plastic, rubber, soaps, chemical fertilizers to pharmaceuticals.
(*iv*) The chemical industry is its own largest consumer. Basic chemicals undergo processing to further produce other chemicals that are used for industrial application, agriculture or directly for consumer markets.
(*v*) The chemical industry in India is fast growing and diversifying in both organic and inorganic chemicals, thereby generating lot of employment.

29. Name *two* groups into which the chemical industry is usually classified. What is the main difference in their locations over space and why?

Ans. ***The two groups are*—**(*i*) Inorganic chemical industry and (*ii*) Organic chemical industry.
Inorganic chemical industries are widely spread over the country because they use inorganic chemicals like sulphuric acid, nitric acid, alkalies, soda ash and caustic soda which can be transported anywhere.
Organic chemical plants are located near oil refineries or petrochemical plants so these are located at specific locations.

30. List *five* products each of inorganic and organic chemical industry.

Ans.

Organic Chemical Industry	*Inorganic Chemical Industry*
1. Synthetic fibres	1. Fertilisers
2. Synthetic rubber	2. Adhesives and paints
3. Plastics	3. Glass
4. Dye-stuffs	4. Soaps and detergents
5. Drugs and pharmaceuticals	5. Synthetic fibres and plastics

SUBJECTIVE TOPIC-7
Fertilizer Industry

Short Answer Type Questions (SA-II) (Average) (2-3 Marks)

31. Name *four* major groups of fertilizers produced in India.

Ans. ***Main groups of fertilizers produced in India are*:**
(*i*) Nitrogenous fertilizers (mainly urea).
(*ii*) Phosphatic fertilizers.
(*iii*) Ammonium phosphate (DAP).
(*iv*) Complex fertilizers which have a combination of nitrogen, phosphate and potash.

32. Name the fertilizers which India needs to import and why?

Ans. Potash is entirely imported as India does not have any reserves of commercially usable potash or potassium compounds in any form.

33. What is India's position in the world with regard to the production of nitrogenous fertilizers?

Ans. ***India is the 3rd largest producer of nitrogenous fertilizers, because*:**
(*i*) There are 57 fertilizer units manufacturing nitrogenous and complex nitrogenous fertilizers—29 for urea and 9 for producing ammonium sulphate as a by-product.
(*ii*) There are 68 other small units which produce single super-phosphate.
(*iii*) At present there are 10 Public Sector undertakings.
(*iv*) One unit is in the Cooperative Sector at Hazira in Gujarat under the Fertilizer Corporation of India (FCI).

34. What is the main reason for the fertilizer industry to expand in several parts of the country? Name the states which together produce about 50% of the country's fertilizers.

Ans. After the Green Revolution, the fertilizer industry expanded to several parts because natural gas could be transported by pipelines to any desired location.

States which produce about 50% of the fertilizers are—(*i*) Gujarat, (*ii*) Tamil Nadu, (*iii*) Uttar Pradesh, (*iv*) Punjab and (*v*) Kerala.

SUBJECTIVE TOPIC-8
Cement Industry

Short Answer Type Questions (SA-II) (Average) (2-3 Marks)

35. Name the important raw materials used in the manufacturing of cement.

Ans. ***Raw materials used in cement industry are***— (i) lime-stone, (*ii*) silica, (*iii*) alumina and (*iv*) gypsum.

36. Write down the locational factors of cement industry.

Ans. ***Factors which affect location of cement industry:***

(*i*) Availability of raw materials which are heavy and bulky, *e.g.*, limestone, silica, etc.

(*ii*) Availability of coal and electric power.

(*iii*) Rail transportation.

37. What factors led to the rapid expansion of cement industry in India?

Ans. ***Factors that led to rapid expansion of cement industry are:***

(*i*) Decontrol of cement price since 1989.

(*ii*) Decontrol of distribution of cement since 1989.

(*iii*) Many other policy reforms led the cement industry to expand in capacity, process, technology and production. Today, there are 128 large plants and 332 mini cement plants in the country, producing variety of cement.

Related Concept

Cement is an important industry in the infrastructure sector. It is one of the main industries necessary for sustainable development. It can be considered as the backbone for development. The demand for residential construction has increased as the population has grown.

SUBJECTIVE TOPIC-9
Automobile, Information Technology & Electronic Industry

Short Answer Type Questions (SA-II) (Average) (2-3 Marks)

38. Why has the automobile industry of India witnessed fast growth? Give reasons.

Ans. ***Reasons for fast growth in automobile industry:***

(*i*) After liberalisation, the coming in of new and contemporary models stimulated the demand for vehicles in the market.

(*ii*) This led to the healthy growth of the industry including passenger cars, two and three-wheelers.

(*iii*) Foreign Direct Investment (FDI) brought in new technology and aligned the industry with global developments.

(*iv*) Trucks, buses, cars, motorcycles, scooters, three-wheelers and multi-utility vehicles and commercial vehicles are manufactured in India at various centres such as Delhi, Gurgaon, Mumbai, Pune, Chennai, Lucknow, Indore, Hyderabad, Jamshedpur and Bangalore etc.

This industry has experienced a quantum jump in less than 30 years.

39. India has emerged as a software giant at the International level. Suggest any *one* way to enhance the export of information technology. (2020 *Series: JBB*/3)

Ans. Information technology has also played an important role in spreading out production of services across countries. Export of Information technology can be facilitated (done) by promoting it all over the world through planned and synchronized social media and digital media marketing techniques.

40. What is a software technology park? How many such parks do we have? Name the technology park which is closest to Delhi.

Ans. **Software technology parks** provide single window service and high data communication facility to software experts.

We have 18 software technology parks. **Noida Software Technology Park** is the closest to Delhi.

41. Write the distribution of the electronics industry.

Ans. Bengaluru has emerged as the electronic capital of India. Other important centres for electronic

goods are mega cities of Hyderabad, Pune, Bengaluru, NOIDA, Mumbai and Chennai.

Related Concept

Bengaluru, sometimes known as the 'Silicon Valley of India', is India's largest Information Technology (IT) hub.

42. "Electronic industry has revolutionized the life of the masses and the country's economy." Justify the statement with suitable arguments.

Ans. (*i*) It produces a wide range of products from transistor sets to televisions and computers for the masses.

(*ii*) It has helped us set up telephone exchanges, telephones, cellular telecom, radios and many other equipments which have application in space technology, aviation, defence, meteorological departments, etc.

(*iii*) It has generated employment for a large number of people.

(*iv*) This industry has been a major foreign exchange earner because of its fast growing Business Process Outsourcing (BPO) Sector.

(*v*) India is one of the leading countries in software development. We have 18 software technology parks which provide high data communication facility to software experts.

SUBJECTIVE TOPIC-10
Industrial Pollution & Environmental Degradation

Short Answer Type Questions (SA-II) (Average) (2-3 Marks)

43. Write down the adverse effects of air pollution.

Ans. Air pollution adversely affects: (*i*) human health, (*ii*) animals and plants, (*iii*) buildings and (*iv*) atmosphere as a whole resulting in climate change.

44. Suggest measures to control air pollution caused by industries.

Ans. ***Measures to control air pollution*:**

(*i*) Particulate matter in the air can be reduced by fitting smoke stacks to factories with fabric filters, electrostatic precipitators etc.

(*ii*) Equipments to control aerosol emissions can be used in industries, *e.g.*, electrostatic precipitators, scrubbers and inertial separators.

(*iii*) Smoke can be reduced by using oil or gas instead of coal in factories.

Long Answer Type Questions (LA) (Difficult) (5 Marks)

45. Explain how do industries cause air pollution.

Ans. ***Air pollution is caused by the industries in the following ways*:**

(*i*) The presence of high proportion of undesirable gases, such as sulphur dioxide and carbon monoxide in the smoke emitted from the industries causes air pollution.

(*ii*) Smoke is emitted by chemical and paper factories, brick kilns, refineries and smelting plants, and burning of fossil fuels in factories that ignore pollution norms.

(*iii*) Air-borne particulate materials contain both solid and liquid particles like dust, sprays, mist and smoke.

(*iv*) Toxic gas leaks can be very hazardous with long-term effects, *e.g.*, Bhopal gas leak tragedy.

46. (*a*) How are water bodies polluted by industries?
(*b*) Give examples of industries which cause a lot of water pollution. (2013 *D*)

Ans. **(*a*)** (*i*) Water pollution is caused by organic and inorganic industrial wastes and affluents discharged into rivers.

(*ii*) Major water pollutants are dyes, detergents, acids and salts.

(*iii*) Heavy metals like lead and mercury, pesticides and fertilizers and synthetic chemicals with carbon, plastics and rubber etc. discharged in the water bodies without treatment pollute these water bodies.

(*iv*) Solid wastes, *e.g.*, fly ash, phosphogypsum and iron and steel slags, etc. and wastes from nuclear power plants cause water pollution.

(*v*) Dumping of harmful chemicals and industrial effluents etc. on the land causes rainwater to percolate. As a result, these pollutants contaminate ground water.

(*b*) *Major water polluting industries are*:

(*i*) Paper and pulp industries
(*ii*) Petroleum refineries
(*iii*) Chemical industry
(*iv*) Tanneries
(*v*) Textile and dyeing industries
(*vi*) Electroplating industries.

47. What is noise pollution? Write its effects on human health and suggest ways to reduce industrial noise pollution.

Ans. ***Noise pollution*:** Unwanted loud noise is an irritant and a source of stress.

Effects of noise pollution on human health:

(*i*) Noise pollution results in irritation and anger.
(*ii*) It can cause hearing impairment.
(*iii*) It can increase heart rate.
(*iv*) It can raise blood pressure.
(*v*) There can be physiological effects as well.

***Ways to reduce industrial noise pollution*:**

(i) Machinery and equipment can be fitted with silencers.
(*ii*) Almost all machinery can be redesigned to increase energy efficiency and reduce noise.
(*iii*) Noise absorbing material may be used apart from personal use of earplugs and earphones.

48. Explain *five* types of 'industrial pollution'. (2019 *Series: JMS*/1)

***Or*, How do industries pollute environment? Explain with *five* examples.** (2013 *D*)

Ans. ***The five types of industrial pollution are:***

(*i*) **Air pollution.** Smoke is emitted by chemical and paper factories, brick kilns, refineries and smelting plants, and burning of fossil fuels in factories that ignore pollution norms. Air-borne particulate materials contain both solid and liquid particles like dust, sprays, mist and smoke.

(*ii*) **Water pollution.** Major water pollutants are dyes, detergents, acids and salts. Heavy metals like lead and mercury, pesticides and fertilizers and synthetic chemicals with carbon, plastics and rubber etc. discharged in the water bodies without treatment pollute these water bodies.

(*iii*) **Noise pollution.** The generators, compressors, machines, furnaces, looms, exhaust fans, etc. used by industries create a lot of noise. Noise can raise blood pressure and can have physiological effects as well.

(*iv*) **Land pollution.** Land and water pollution are closely related. Dumping of industrial wastes especially glass, harmful chemicals, industrial effluents, packing, salts and garbage renders the soil useless.

(*v*) **Thermal pollution.** Wastes from nuclear power plants, nuclear and weapon production facilities cause cancer and birth defects.

Related Concept

Industrial pollution is a pressing threat to nature and human well-being, with dire consequences for the environment, biodiversity, and public health.

49. How are industries responsible for environmental degradation in India? Explain with examples. (2019 *Series: JMS*/1)

Ans. ***Industries are responsible for environmental degradation in India in the following ways:***

(*i*) Pollution of land, water and air from industries causes environmental degradation.
(*ii*) Burning of fossil fuels in big and small factories emits smoke in the air.
(*iii*) Organic and inorganic industrial wastes and effluents are discharged into rivers.
(*iv*) Dumping of wastes from industries renders the soil useless.
(*v*) Rainwater carrying pollutants from wastes dumped by industries percolates and contaminates the ground water.

GEOGRAPHY

SUBJECTIVE TOPIC-11
Control of Environmental Degradation

Long Answer Type Questions (LA) (Difficult) (5 Marks)

50. Suggest measures to control water pollution caused by industries. (2013 *D*)

***Or*, Explain the ways through which the industrial pollution of fresh water can be reduced.** (2020 *Series: JBB*/3)

***Or*, How can the industrial pollution of fresh water be reduced? Explain with examples.** (2023)

Ans. ***Measures to control water pollution caused by industries:***

(*i*) Minimising the use of water for processing by reusing and recycling it in two or more successive stages.
(*ii*) Harvesting of rain-water to meet water requirements of industries and other domestic purposes.
(*iii*) ***Treating hot water and effluents before releasing them in rivers and ponds in the following ways:***
— **Primary treatment** by mechanical means such as screening, grinding, flocculation and sedimentation.
— **Secondary treatment** by biological process.
— **Tertiary treatment** by biological, chemical and physical processes. This involves recycling of waste water.

51. Explain any *five* measures to control industrial pollution in India.

Ans. *Five measures to control industrial pollution*:

(*i*) Particulate matter in the air can be reduced by fitting smoke stacks to factories with fabric filters, electrostatic precipitators, etc.

(*ii*) Equipments to control aerosol emissions can be used in industries, *e.g.*, electrostatic precipitators, scrubbers and inertial separators. Smoke can be reduced by using oil or gas instead of coal in factories.

(*iii*) Harvesting of rainwater to meet water requirements of industries and other domestic purposes.

(*iv*) Treating hot water and effluents before releasing them in rivers and ponds.

(*v*) Machinery and equipment can be fitted with silencers.

(*vi*) Noise absorbing material may be used apart from personal use of earplugs and earphones.

52. Explain the pro-active approach adopted by the National Thermal Power Corporation (NTPC) for preserving the natural environment and resources? (2011 *OD*, 2015 *OD*)

Ans. *NTPC is taking the following measures in places where it is setting up power plants*:

(*i*) Optimum utilisation of equipment by adopting latest techniques and upgrading existing equipment.

(*ii*) Minimising waste generation by maximising ash utilisation.

(*iii*) Providing green belts for nurturing ecological balance.

(*iv*) Reducing environmental pollution through ash pond management, ash water recycling system and liquid waste management.

(*v*) Ecological monitoring, reviews and online data base management for all its power stations.

53. Suggest any *three* steps to minimise the environmental degradation caused by the industrial develop-ment in India. (2016 *OD*)

Ans. *Steps to minimize the environmental degradation caused by industrial development in India are:*

(*i*) Minimizing use of water for processing by reusing and recycling in two or more successive stages. Harvesting of rain water to meet water requirements of industries and other domestic purposes.

(*ii*) Treating hot water and effluents before releasing them in rivers and ponds.

(*iii*) Particulate matter in the air can be reduced by fitting smoke to factories with electrostatic precipitators, fabric filters, scrubbers and inertial separators. Smoke can be reduced by using oil or gas instead of coal in factories.

(*iv*) Machinery and equipments can be fitted with silencers to prevent noise pollution.

2024 CBSE BOARD EXAMINATION

Questions

SCAN ME! FOR ANSWERS

— 2024 (Series: AB3CD/1) Set-I —

Q.26. 'Manufacturing industries are considered the backbone of economic development.' Justify the statement. 3

2024 (Series: AB3CD/1) Set-II

Q.26. "The industries have undergone significant changes due to advancement in technology and shifts in consumer preferences." Justify the statement. 3

2024 (Series: AB3CD/1) Set-III

Q.26. Suggest any ***three*** ways to protect fresh water from industrial pollution. 3

Competency Based Questions

Stand Alone Multiple Choice Questions

1 mark

1. **The processing of raw material into more valuable products falls under the category of:**
   (a) Secondary activities (b) Tertiary activities
   (c) Primary activities (d) None of the above
2. **Cotton textile industry is a:**
   (a) Forest-based industry
   (b) Key industry
   (c) Agro-based industry
   (d) None of the above
3. **Which of the following statements is not correct regarding spinning sector in India?**
   (a) Spinning mills are mostly located in Maharashtra, Gujarat and Tamil Nadu.
   (b) India has world class production in spinning.
   (c) Our spinning mills are capable of using all the fibres we produce.
   (d) Most of the yarn we produce is used by our local weavers.
4. **Which of the following statements regarding manufacturing is not true?**
   (a) Manufacturing helps in modernising agriculture.
   (b) Development of manufacturing industries is a precondition for eradication of unemployment and poverty.
   (c) Export of manufactured goods expands trade and commerce and brings in much needed foreign exchange.
   (d) Manufactruring puts the country into a debt trap.
5. **Which are the two prime factors for the location of aluminium industry?**
   (a) Market and labour
   (b) Transport network and water supply
   (c) Cheap and regular supply of electricity and raw materials
   (d) None of the above
6. **The first cement plant was set up in India in 1904 in:**
   (a) Jamshedpur (b) Hyderabad
   (c) Nagpur (d) Chennai
7. **Most of the integrated iron and steel plants in India are located in:**
   (a) Malwa Plateau
   (b) Bundelkhand Plateau
   (c) Meghalaya Plateau
   (d) Chhotanagpur Plateau
8. **Which one of the following industries manufactures telephones, computers, etc.?**
   (a) Steel
   (b) Electronic
   (c) Aluminium
   (d) Information Technology
9. **The industries that produce goods for direct use by consumers are called:**
   (a) Key industry (b) Small-scale industry
   (c) Consumer industry (d) Heavy industry
10. **Which country is the major importer of Indian yarn?**
    (a) Indonesia (b) Bhutan
    (c) Japan (d) Spain
11. **Which two states are more famous for their cotton textile industry?**
    (a) Jammu & Kashmir and Punjab
    (b) Maharashtra and Gujarat
    (c) Kerala and Tamil Nadu
    (d) Assam and West Bengal
12. **Which one of the following does not influence industrial location?**
    (a) Raw material
    (b) Capital and power
    (c) Market and labour
    (d) Underground railway line
13. **Industries that use minerals as raw material are called:**
    (a) Agro-based industries
    (b) Forest-based industries
    (c) Basic industries
    (d) Mineral-based industries
14. **The first cotton mill of India was set up in:**
    (a) Ahmedabad (b) Kolkata
    (c) Mumbai (d) Coimbatore

Related Concept

Cotton remains the most popular and widely used natural fibre in the world. The fibre grows inside the capsules in the cotton bolls and is exposed once the capsules ripen and burst open.

15. **Most of India's jute mills are located on the banks of:**
    (a) Alaknanda river (b) Son river
    (c) Hugli river (d) Yamuna river

GEOGRAPHY

Assertion-Reason Questions — 1 mark

DIRECTION: There are two statements marked as **Assertion (A)** and **Reason (R)**. Read the statements and choose the correct option:

(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(c) Assertion is true but Reason is false.
(d) Both Assertion and Reason are false.

1. **Assertion.** Consumer industries produce goods for direct use by consumers.
   Reason. Consumer industries are Agro-based.
2. **Assertion.** Agro based industries give boost to the agricultural sector.
   Reason. Competitiveness of manufacturing industry has helped agriculturists in increasing their production and also made production process efficient.
3. **Assertion.** Aluminum is a universally accepted metal for a large number of industries.
   Reason. Aluminum is flexible and a good conductor of heat and electricity.
4. **Assertion.** Chemical industries are lagging behind in India.
   Reason. Only small scale industries are present in chemical industry and growth of this industry is very less comparatively.
5. **Assertion.** Harvesting of rainwater reduces Industrial pollution of fresh water.
   Reason. Rainwater helps industry to meet water requirements.
6. **Assertion.** Industrial development cannot minimize environmental degradation.
   Reason. Environmental degradation depends on the raw material used.
7. **Assertion.** Textile industry occupies a unique position in Indian economy.
   Reason. It contributes significantly to employment generation directly.
8. **Assertion.** Air pollution does not affect human health, animals, plants and the atmosphere as a whole.
   Reason. Air pollution is caused by the presence of high proportion of desirable gases.
9. **Assertion.** Most of the jute mills of India are located in West Bengal.
   Reason. Port facility is available to export the manufactured goods.
10. **Assertion.** India's prosperity lies in diversifying its manufacturing industries.
    Reason. The economic strength of the country is measured by the development of manufacturing industries.

Match the Columns — 1 mark

1.

Column-A	Column-B
(a) NTPC	(i) Public sector industry owned and operated by Government agencies.
(b) FCI	(ii) National Thermal Power Corporation Limited
(c) TISCO	(iii) Food Corporation of India
(d) BHEL	(iv) Private sector industry owned and operated by individuals.

2.

On the basis of sources	Industries
(a) Agro-based	(i) Bajaj Auto
(b) Capital investment	(ii) Iron and Steel
(c) Ownership	(iii) Cotton
(d) Bulk Weight of raw material	(iv) Small Scale

BE AWARE !!

While matching the columns, students should establish a relationship between the two items written in the columns and see how the item written in one column matches with the item written in the other column. For this, students will have to pay special attention to the tables and pictures given in their chapter.

Case/Source Based Questions

4-5 marks

I. Automobiles provide vehicle for quick transport of goods, services and passengers. Trucks, buses, cars motor cycles, scooters, three-wheelers and multi-utility vehicles are manufactured in India at various centres. After the liberalisation, the coming in of new and contemporary models stimulated the demand for vehicles in the market, which led to the healthy growth of the industry including passenger cars, two and three-wheelers. The industry is located around Delhi, Gurugram, Mumbai, Pune, Chennai, Kolkata, Lucknow, Indore, Hyderabad, Jamshedpur and Bengaluru.

Answer the following questions by choosing the most appropriate option:

1. **The coming in of the new and contemporary models after liberalisation has led to:**
   - **(a)** Quick transport of goods, services and passengers.
   - **(b)** Effective utilisation of resources.
   - **(c)** Adequate domestic demand of vehicles.
   - **(d)** Global development in industry.

2. **Automobile industry has experienced a quantum jump in:**
   - **(a)** 10 years **(b)** Less than 5 years
   - **(c)** Less than 15 years **(d)** Less than 2 years

3. **Number of manufactures of different vehicles are given. Identify the correct option:**

Vehicles	*No. of Manufacturers (at present)*
(A) Passengers cars	(*i*) 15
(B) Commercial vehicles	(*ii*) 14
(C) Multi-utility vehicles	(*iii*) 15
(D) Two and three wheelers	(*iv*) 9

   - **(a)** (A)–(*i*); (B)–(*ii*); (C)–(*iii*); (D)–(*iv*)
   - **(b)** (A)–(*i*); (B)–(*iv*), (C)–(*iii*); (D)–(*ii*)
   - **(c)** (A)–(*ii*), (B)–(*iii*), (C)–(*iv*); (D)–(*i*)
   - **(d)** (A)–(*iv*), (B)–(*ii*), (C)–(*iii*); (D)–(*i*)

4. **After liberalisation and opening of foreign direct investment, there is increase in demand for:**
   - **(a)** Buses
   - **(b)** Passenger cars
   - **(c)** Multi-utility vehicles
   - **(d)** Commercial vehicles

II. Industrial locations are complex in nature. These are influenced by availability of raw material, labour, capital power and market, etc. It is rarely possible to find all these factors available at one place. Consequently manufacturing activity tends to locate at the most appropriate place where all the factors of industrial location are either available or can be arranged at lower cost. After an industrial activity starts, urbanisation follows. Sometimes, industries are located in or near the cities. Thus industrialisation and urbanisation go hand in hand. Cities provide markets and also provide services such as banking insurance, transport, labour, consultants and financial advice, etc. to the industry. Many industries tend to come together to make use of the advantages offered by the urban centres known as agglomeration economies. Gradually, a large industrial agglomeration takes place. In the pre-Independence period, most manufacturing units were located in places from the point of view of overseas trade such as Mumbai, Kolkata, Chennai, etc. Consequently, there emerged certain pockets of industrially developed urban centres surrounded by a huge agricultural rural hinterland.

Answer the following questions by choosing the most appropriate option:

5. **What do you understand by agglomeration economies?**
   - **(a)** Many industries tend to come together to make use of the advantages offered by the urban centres.
   - **(b)** Subsidies by Government
   - **(c)** Benefits of FDI
   - **(d)** Lots of consumers

6. **Which facilities are provided by the cities?**
   - **(a)** Banking **(b)** Insurance
   - **(c)** Transport **(d)** All of these

7. **Name the places where most of the manufacturing units were located from the point of view overseas trade.**
   - **(a)** Kanpur and Gorakhpur
   - **(b)** Mumbai, Kolkata and Chennai
   - **(c)** Trivandrum
   - **(d)** Kochi

8. **Which factors influence the choice of industrial location?**
   - **(a)** Infrastructure
   - **(b)** Technological advancements
   - **(c)** Shopping complexes and malls
   - **(d)** Availability of raw material, labour, capital, power and market, etc.

9. **Which of the following developments usually follows industrial activity?**
   - **(a)** Agriculture **(b)** Urbanisation
   - **(c)** Electrification **(d)** Mining

III. Chhotanagpur plateau region has the maximum concentration of iron and steel industries. It is largely, because of the relative advantages this region has for the development of industry. These include, low cost of iron ore, high grade raw materials in proximity, cheap labour and vast growth potential in the home market. Though, India is an important iron and steel producing country in the world yet, we are not able to perform to our full potential largely due to: (*a*) High costs and limited availability of cooking coal, (*b*) Lower productivity of labour, (*c*) Irregular supply of energy and (*d*) Poor infrastructure.

Answer the following questions by choosing the most appropriate option:

10. In which region maximum iron and steel industries are concentrated?
- (*a*) Chhotanagpur plateau
- (*b*) Panjab
- (*c*) Haryana
- (*d*) Uttarakhand

11. Why cheap labour is available in this region?
- (*a*) Large population and poverty in this area.
- (*b*) Big infrastructure
- (*c*) Rich People
- (*d*) Availability of natural resources

12. Why are we not able to perform to our full potential largely?
- (*a*) High costs and limited availability of coking coal
- (*b*) Lower productivity of labour
- (*c*) Irregular supply of energy and poor infrastructure
- (*d*) All of these

13. Why most of iron and steel industries are located in this region?
- (*a*) Maximum resources
- (*b*) Minimum wages
- (*c*) More transportation
- (*d*) Low cost of iron ore and high grade raw materials

Related Concept

Chhotanagpur plateau is a store house of mineral resources such as mica, bauxite, copper, limestone, iron ore and coal. The Damodar valley is rich in coal, and it is considered as the prime centre of coking coal in the country.

IV. Aluminium smelting is the second most important metallurgical industry in India. It is light, resistant to corrosion, a good conductor of heat, malleable and becomes strong when it is mixed with other metals. It is used to manufacture aircraft, utensils and wires. It has gained popularity as a substitute of steel, copper, zinc and lead in a number of industries.

Answer the following questions by choosing the most appropriate option:

14. How many aluminium smelting plants are set up in India?
- (*a*) 7
- (*b*) 8
- (*c*) 9
- (*d*) 10

15. Which of the following factors are not required for the location of aluminium smelting plants?
- **I. Regular and cheap supply of electricity.**
- **II. Assured sources of raw material at a minimum cost.**
- **III. Vast growth potential in the home market.**
- **IV. Efficient transport network for their distribution to the market and consumers.**

Choose the correct option:
- (*a*) Only I
- (*b*) II and III
- (*c*) Both III and IV
- (*d*) Only IV

16. ..... is the mineral used for obtaining aluminium. It can be easily identified by its ..... colour and ..... nature.
- (*a*) Alumina; Dark Reddish; Soft
- (*b*) Bauxite; Dark Reddish; Bulky
- (*c*) Bauxite; Dark Blue; Bulky
- (*d*) Alumina; Dark Reddish; Bulky

17. Arrange the following in the correct sequence:
- **I. Aluminium refinery**
- **II. Aluminium smelter**
- **III. Bauxite Quarry**
- **IV. Pitch from a Colliery**

(*a*) I → II → III → IV (*b*) IV → III → II → I
(*c*) III → I → II → IV (*d*) III → IV → I → II

V. Production of goods in large quantities after processing from raw materials to more valuable products is called manufacturing. *For example,* paper is manufactured from wood, sugar from sugarcane, iron and steel from iron ore and aluminium from Bauxite. People employed in the secondary activities manufacture the primary materials into finished goods. The workers employed in steel factories, car, breweries, textile industries, bakeries etc. fall into this category. The economic strength of a country is measured by the development of manufacturing industries.

Answer the following questions by choosing the most appropriate option:

18. Manufacturing Industries are placed in:
- (*a*) Primary sector
- (*b*) Secondary sector
- (*c*) Tertiary sector
- (*d*) Service sector

19. **The processing of raw material into more valuable products falls under the category of:**
(a) Secondary activities (b) Tertiary activities
(c) Primary activities (d) None of the above

20. **The economic strength of the country is measured by which of the following developments?**
(a) The development of the manufacturing industries.
(b) The development of the literacy ratio.
(c) The development of the health status.
(d) The development of the population growth.

21. **Which one of the following industries uses bauxite as a raw material?**
(a) Aluminium (b) Cement
(c) Jute (d) Steel

22. **Production of goods in large quantities after processing from raw materials to valuable product is called:**
(a) Finishing (b) Completing
(c) Manufacturing (d) None of the above

Related Concept

Bauxite refineries produce alumina (aluminum oxide), which is used to create aluminum metal. Bauxite is also used to manufacture other industrial products, such as abrasives, cement and chemicals.

VI. Although industries contribute significantly to India's economic growth and development, the increase in pollution of land, water, air, noise and resulting degradation of environment that they have caused, cannot be overlooked. Industries are responsible for four types of pollution: (a) Air, (b) Water, (c) Land, (d) Noise. The polluting industries also include thermal power plants. The challenge of sustainable development requires integration of economic development with environmental concerns.

Answer the following questions by choosing the most appropriate option:

23. **Air pollution is caused by:**
(a) Organic and inorganic industrial effluents discharged into rivers.
(b) Presence of high proportion of sulphur dioxide, carbon monoxide and air-borne particulate materials.
(c) Unwanted sounds from industries, generators, saws and pneumatic and electric drills.
(d) Overdrawing of groundwater.

24. **Which of the following is a negative effect of industrialisation?**
(a) Economic growth
(b) Pollution
(c) Foreign exchange earnings
(d) Rapid urbanisation

25. **Wastes from nuclear power plants, nuclear and weapon production facilities cause .....?**
(a) Cancers, birth defects
(b) Skin diseases
(c) Viral diseases
(d) Bacterial diseases

26. **Which is a major solid waste that pollutes water?**
(a) Fly ash (b) Pulp
(c) Plastic (d) Synthetic

27. **By which gas is air pollution caused?**
(a) Sulphur oxide (b) Carbon monodioxide
(c) Nitrogen oxide (d) All of the above

VII. The iron and steel industry is the basic industry since all the other industries—heavy, medium and light, depend on it for their machinery. Steel is needed to manufacture a variety of engineering goods, construction material, defence, medical, telephonic, scientific equipment and a variety of consumer goods. Production and consumption of steel is often regarded as the index of a country's development. Iron and steel is a heavy industry because all the raw materials as well as finished goods are heavy and bulky entailing heavy transportation costs.

Answer the following questions by choosing the most appropriate option:

28. **Which one of the following is not true regarding the Iron and Steel industry in India?**
(a) India is the largest producer of sponge iron.
(b) Most of the public sector undertakings market their steel through the Steel Authority of India.
(c) Chhotanagpur Plateau region has the maximum concentration of iron and steel industries.
(d) As a leading iron and steel producing country, India does not need to import steel from other countries.

29. **Which one of the following steel plants is located in Chhattisgarh?**
(a) Bokaro (b) Durgapur
(c) Bhilai (d) Rourkela

30. **Which one of the following agencies, market steel for the public sector plants?**
(a) HAIL (b) SAIL
(c) TATA STEEL (d) MNCC

31. **Which of the following is the effect of liberalisation and foreign direct investment on iron and steel industry of India?**

(a) Lower productivity of labour
(b) High costs and limited availability of coking coal
(c) Irregular supply of energy
(d) Boost to the industry

32. On the basis of character of raw material and finished product, iron and steel industry belongs to which category?
(a) Heavy industry
(b) Medium industry
(c) Light industry
(d) Perishable goods industry

VIII. In ancient India, cotton textiles were produced with hand spinning and handloom weaving techniques. After the 18th century, power looms came into use. Our traditional industries suffered a setback during the colonial period because they could not compete with the mill-made cloth from England. In the early years, the cotton textile industry was concentrated in the cotton growing belt of Maharashtra and Gujarat. Availability of raw cotton, market, transport including accessible port facilities, labour, moist climate, etc. contributed towards its localisation.

Answer the following questions by choosing the most appropriate option:

33. When and where was the first successful textile mill established in India?
(a) In Ahmedabad in 1858
(b) In Chennai in 1954
(c) In Kolkata in 1816
(d) In Mumbai in 1854

34. Which one of the following groups of states have the largest number of cotton textile centres?
(a) Gujarat and Maharashtra
(b) Karnataka and Tamil Nadu
(c) Maharashtra and Madhya Pradesh
(d) Uttar Pradesh and Gujarat

35. Which is the important spinning centre of the country?
(a) Gujarat (b) Madhya Pradesh
(c) Uttar Pradesh (d) West Bengal

36. India holds ..... place as an exporter of raw jute and jute goods.
(a) First (b) Second
(c) Third (d) Fourth

37. Industrial locations are influenced by:
(a) availability of raw materials
(b) labour and capital
(c) power and market
(d) All of the above

IX. In the present day world of globalisation, our industry needs to be more efficient and competitive. Self-sufficiency alone is not enough. Our manufactured goods must be at par in quality with those in the international market. Only then, will we be able to compete in the international market.

Answer the following questions:

38. What pre-requisite is needed for manufacturing industry to compete in the international market?

39. What do you understand by agglomeration economies?

ANSWER KEY

Competency Based Answers

Stand Alone Multiple Choice Answers

1. (a)	2. (c)	3. (d)	4. (d)
5. (c)	6. (d)	7. (d)	8. (b)
9. (c)	10. (c)	11. (b)	12. (d)
13. (d)	14. (c)	15. (c)	

Assertion-Reason Answers

1. **(a) Both assertion and reason are true and reason is the correct explanation of assertion.**
Consumer industries that produce goods for direct use by consumers like sugar, toothpaste, paper, sewing machines, fans are Agro-based not all the industries.

2. **(a) Both assertion and reason are true and reason is the correct explanation of assertion.**
Agro-based industries give boost to agriculture by raising its productivity. They depend on the latter for raw materials and sell their products such as irrigation pumps, fertilizers, plastic PVC pipes, etc. to farmers.

3. **(a) Both assertion and reason are true and reason is the correct explanation of assertion.**
In India, Aluminum smelting is the second largest industry. It is flexible, good conductor of heat and electricity and hence is a universally accepted metal for a large number of industries. It is widely used as a substitute of copper, zinc, lead and steel.

4. **(d) Both assertion and reason are false.**
Chemical industries in India are fast growing and diversifying. It contributes approximately 3% of the GDP. It is third largest in Asia and occupies twelfth place in the world in terms of size. There is a rapid growth in the manufacturing of organic and inorganic chemicals.

5. **(a) Both assertion and reason are true and reason is the correct explanation of assertion.**
Every litre of waste water discharged by our industry pollutes eight times the quantity of fresh water. Harvesting of rainwater replenishes the water table and thus helps industry to meet its water requirements.

6. **(d) Both assertion and reason are false.**
Industrial development leads to environmental degradation. It can be controlled by proper fuel selection and utilisation. Smoke can also be prevented by the use of oil instead of coal in industries and equipments to control emissions and minimise environmental degradation.

7. **(a) Both assertion and reason are true and reason is the correct explanation of assertion**
It is the only industry in the country, which is self-reliant and complete in the value chain, from raw material to the highest value added products.

8. **(d) Both assertion and reason are false.**
Air pollution is caused by the presence of high proportion of undesirable gases, such as sulphur dioxide and carbon monoxide. Airborne particulate materials contain both solid and liquid particles like dust, sprays mist and smoke and adversely affect human health, plants and animals.

9. **(b) Both assertion and reason are true but reason is not the correct explanation of assertion.**
Most of the Jute mills are located in West Bengal due to:
   - *Jute producing area is close to the jute mill.*
   - *Water is available in plenty.*
   - *Labour is cheap.*
   - *Good network of railways, roadways and water-ways.*

10. **(a) Both assertion and reason are true and reason is the correct explanation of assertion.**
Industries creates a variety of goods and thus reduce the dependence of the people on agriculture. Export of manufactured goods adds value to the economy and thus helps in the economic development of the country.

Match the Columns

1. (a)—(ii); (b)—(iii); (c)—(iv); (d)—(i)
2. (A)—(iii); (B)—(iv); (C)—(i); (D)—(ii)

Case/Source Based Answers

I.	1. (c)	2. (c)	3. (b)	4. (b)	
II.	5. (a)	6. (d)	7. (b)	8. (d)	9. (b)
III.	10. (a)	11. (a)	12. (d)	13. (d)	
IV.	14. (b)	15. (c)	16. (b)	17. (d)	
V.	18. (b)	19. (a)	20. (a)	21. (a)	22. (c)
VI.	23. (b)	24. (b)	25. (a)	26. (c)	27. (d)
VII.	28. (a)	29. (c)	30. (b)	31. (d)	32. (a)
VIII.	33. (d)	34. (a)	35. (a)	36. (b)	37. (d)

IX. 38. Manufactured goods must be at par in quality with those in the international market. Industry needs to be efficient and competitive.

39. When many industries and businesses tend to come together to make use of the advantages offered by the urban centres it is known as agglomeration economies.

DO IT YOURSELF...

Short Answer Type Questions

Q.1. Write any ***one*** factor which is responsible for the concentration of jute mills along the banks of Hugli river. **1**

Q.2. Classify manufacturing industries into two groups on the basis of source of raw materials used. **1**

Q.3. Name the industry which uses limestone as its main raw material. **1**

Q.4. What is manufacturing? **2**

Q.5. Name the woollen textile industrial centres, one each of Punjab and Haryana. **2**

Q.6. Explain the role of agro-based industries. **3**

Q.7. Explain any ***three*** factors that affect the location of industries in a region. **3**

Q.8. Explain the significance of textile industry in India. **3**

Long Answer Type Questions

Q.9. Explain ***five*** points of importance of industries. **5**

Q.10. Why was cotton textile industry concentrated in Maharashtra and Gujarat in the early years? Explain any ***five*** causes. **5**

Q.11. Why are iron and steel industries mainly concentrated in the Chhotanagpur Plateau region? Explain any ***four*** reasons. **5**

Q.12. How do industries pollute air and water? Explain with examples. **5**

Q.13. Which ***two*** States have maximum concentration of cotton textile industries and why? **5**

Q.14. "The challenge of sustainable development requires integraddtion of economic development with environmental concerns." Support the statement by giving measures that can be taken by the industries to protect the environment. **5**

Q.15. 'Agriculture and industry are complementary to each other.' Justify the statement. **5**