Chapter 11: Manufacturing Industries

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Exercise 11.1 — Multiple Choice Questions

Q1 Which one of the following industries uses bauxite as a raw material? (a) Aluminium Smelting (b) Cement (c) Paper (d) Steel

SOLUTION

Bauxite is the ore from which aluminium is obtained.

The chapter states that “aluminium (is manufactured) from bauxite”, so the industry that uses bauxite as its raw material is aluminium smelting.

Answer: (a) Aluminium Smelting

Q2 Which one of the following industries manufactures telephones, computer, etc.? (a) Steel (b) Electronic (c) Aluminium Smelting (d) Information Technology

SOLUTION

Telephones, computers and similar devices are electronic goods.

These are the products of the electronic industry.

Answer: (b) Electronic

Exercise 11.2 — Answer the following briefly in not more than 30 words

Q1 What is manufacturing?

SOLUTION

The chapter defines manufacturing as the production of goods in large quantities after processing from raw materials into more valuable products.

For example, paper is manufactured from wood, sugar from sugarcane, iron and steel from iron ore, and aluminium from bauxite.

Answer: Manufacturing is the production of goods in large quantities by processing raw materials into more valuable finished products.

Q2 What are basic industries? Give an example.

SOLUTION

According to their main role, basic or key industries are those which supply their products as raw materials to manufacture other goods.

Examples given in the chapter are iron and steel and copper smelting and aluminium (smelting).

Answer: Basic (key) industries supply their products as raw materials to manufacture other goods, e.g. iron and steel.

Exercise 11.3 — Write the answers of the following questions in 120 words

Q1 How do industries pollute the environment?

SOLUTION

Industries are responsible for four types of pollution: air, water, land and noise. The polluting industries also include thermal power plants.

Air pollution is caused by high proportions of undesirable gases such as sulphur dioxide and carbon monoxide, and by airborne particulate matter like dust, mist and smoke emitted by chemical and paper factories, brick kilns, refineries, smelting plants and the burning of fossil fuels. Toxic gas leaks can be hazardous, as in the Bhopal Gas tragedy.

Water pollution is caused by organic and inorganic industrial wastes and effluents — dyes, detergents, acids, salts and heavy metals like lead and mercury — discharged into rivers by paper, pulp, chemical, textile, dyeing, petroleum refining, tanning and electroplating industries. Fly ash, phospho-gypsum and iron and steel slags are major solid wastes. Thermal pollution occurs when hot water is drained into water bodies before cooling, and wastes from nuclear plants cause cancers and birth defects.

Land is polluted by dumping glass, harmful chemicals, effluents, packaging and garbage, whose pollutants percolate to contaminate ground water. Noise pollution from machinery, generators and drills causes hearing impairment, raised heart rate and stress.

Answer: Industries cause air, water, land and noise pollution through undesirable gases and smoke, effluents and heavy metals in rivers, dumped solid wastes, and loud machinery.

Q2 Discuss the steps to be taken to minimise environmental degradation by industry?

SOLUTION

Water pollution can be reduced by minimising the use of water for processing by reusing and recycling it in two or more successive stages, harvesting rainwater to meet water requirements, and treating hot water and effluents before releasing them into rivers and ponds.

Industrial effluents can be treated in three phases: primary treatment by

mechanical means (screening, grinding, flocculation and sedimentation), secondary treatment by a biological process, and tertiary treatment by biological, chemical and physical processes involving recycling of wastewater.

Overdrawing of ground water by industry should be regulated legally. Air pollution can be reduced by fitting smoke stacks with electrostatic precipitators, fabric filters, scrubbers and inertial separators, and by using oil or gas instead of coal.

Noise pollution can be reduced by fitting generators with silencers, redesigning machinery to increase energy efficiency and reduce noise, using noise-absorbing material, and personal use of earplugs and earphones. Sustainable development requires integrating economic development with environmental concerns.

Answer: Reuse and recycle process water, harvest rainwater, treat effluents in three phases, regulate ground-water use, fit precipitators/filters and silencers, use oil or gas over coal, and redesign machinery to cut noise.