6 CHAPTER

Manufacturing Industries

Level - 1   CORE SUBJECTIVE QUESTIONS

MULTIPLE CHOICE QUESTIONS (MCQs)

1. **Option (A) is correct**

   Explanation: The first iron and steel industry in India was set up by Jamsetji Tata, the founder of Tata Iron and Steel Company (TISCO) in 1907 at Jamshedpur, Jharkhand.

2. **Option (C) is correct**

   Explanation: The industrial sectors are classified into public and private sectors on the basis of ownership of enterprises.

3. **Option (A) is correct**

   Explanation: National Manufacturing Competitiveness Council (NMCC) has been set up with the objectives of improving productivity through proper policy interventions by the government and renewed efforts by the industry.

4. **Option (A) is correct**

   Explanation: Basic or key industries are those that provide raw materials to other industries for further manufacturing. These industries play a crucial role in economic development as they form the foundation for other industries.

5. **Option (D) is correct.**

   Explanation: Availability of raw materials, labour and availability of power supply influence the location of the industries.

MATCH THE FOLLOWING QUESTIONS

1. **Option (D) is correct**

   Explanation: (a) Bauxite—(iii) Used in smelters as raw material (Bauxite is the primary ore of aluminum, used in smelting.)

   (b) Public sector industries—(i) Owned and operated by the government (Public sector industries are managed by the government.)

   (c) Cancers—(iv) Caused by Nuclear power (Exposure to radiation from nuclear power can lead to cancer.)

   (d) Automobile industry—(ii) Manufacture vehicles for quick transportation (The automobile industry produces vehicles for transportation.)

2. **Option (C) is correct**

   Explanation: aIron and Steel Industry → Jamshedpur

   Jamshedpur, often called the "Steel City of India," is home to Tata Steel, one of the largest steel plants in India.

   Textile Industry → Surat

   Surat, in Gujarat, is known as the "Silk City" and "Diamond City" of India. It is a major hub for synthetic textiles and is one of the largest producers of fabrics and garments in the country.

   Automobile Industry → Chennai

   Chennai is often called the "Detroit of India" because it houses many automobile manufacturers like Hyundai, Ford, BMW, and Renault.

   Information Technology (IT) Industry → Bengaluru

   Bengaluru, the "Silicon Valley of India," is the leading IT hub of the country. It is home to major software companies like Infosys, Wipro, and TCS, along with numerous tech startups.

3. **Option (B) is correct**

   Explanation: (a) Key industries—(ii) Iron and steel industry (Key industries are fundamental to the economy, like iron and steel.)

   (b) Consumer industry—(iii) Food processing (Consumer industries produce goods directly used by people, like food processing.)

   (c) Agro-based industry—(i) Jute (Agro-based industries depend on agricultural products, like jute and cotton.)

   (d) Mineral-based industry—(iv) Aluminium (Mineral-based industries use minerals as raw materials, like aluminium production.)

ASSERTION-REASON QUESTIONS

1. **Option (B) is correct**

   Explanation: Manufacturing industries help in modernising agriculture. This sector also transforms raw materials into finished products creating more choices for the consumers and making it more prosperous.

2. **Option (A) is correct**

   Explanation: Manufacturing sector plays a crucial role in economic development by generating employment, improving infrastructure, and boosting industrial growth. It contributes significantly to GDP and overall progress.

   Exporting manufactured goods helps expand international trade, increases foreign exchange reserves, and strengthens the economy. Reason correctly explains assertion by highlighting how manufacturing supports economic growth through trade.

3. **Option (A) is correct**

   Explanation: Industries often cluster together in urban centres to share resources such as transportation, skilled labour, markets, and infrastructure. This clustering is called agglomeration economies, which helps industries reduce costs and increase efficiency.

   Industrialisation leads to urbanisation by attracting workers and businesses to cities, creating economic hubs. More industries result in more employment, which in turn leads to urban growth. Since industrialisation directly leads to urbanisation, which supports agglomeration economies, Reason correctly explains Assertion.

VERY SHORT ANSWER TYPE QUESTIONS

1. (i) Industrialisation provided employment opportunities that helped people move away from agriculture.

   (ii) Establishing industries in tribal and backward areas would increase employment and reduce poverty.

2.

Public Sector	Private Sector
(i) Government owns most of the assets and provides all the services.	Ownership of assets and delivery of services is in the hands of private individuals or companies.
(ii) Example: Railways or Post office	Example: Tata Iron and Steel Industries or Reliance Industries

3. (i) **Basic or key industries:** These industries supply their products or raw materials to manufacture other goods, for e.g. iron and steel, copper smelting, aluminium smelting etc.

   (ii) **Consumer industries:** These industries produce goods for direct use by consumers – sugar, toothpaste, paper, sewing machines, fans etc.

4. (i) **Small scale industries:** If the invested capital is up to ₹ 1 crore, then the industry is called small scale industry. E.g. plastic industry, toy industry, etc.

   (ii) **Large scale industries:** If the invested capital is more than ₹ 1 crore, then the industry is called a large scale industry. E.g. iron and steel industry, cement industry, etc.

SHORT ANSWER TYPE QUESTIONS

1. (i) Manufacturing industries help in modernising agriculture.

   (ii) They reduce the heavy dependence of people on agricultural income by providing them jobs in secondary and tertiary sectors.

   (iii) Industrial development is a pre-condition for eradication of unemployment and poverty from our country.

   (iv) Public sector industries and joint sector ventures in India also aimed at bringing down regional disparities by establishing industries in tribal and backward areas.

   (v) Export of manufactured goods expands trade and commerce, and brings in much needed foreign exchange.

   (vi) India has increased and diversified its manufacturing industries quickly to be able to transform their raw materials into a wide variety of finished goods of higher value.

   (vii) The agro-industries in India have given a major boost to agriculture by raising its productivity. (Any three)

2. (i) Rapid development of technology has revolutionised production processes, making them more efficient and cost-effective for consumers.

   (ii) Customer oriented products are in the market due to advancement in technology.

   (iii) Telecommunication, infrastructural development and automobile industries are the cause and effect of technological development.

   (iv) Improvement in transportation, technology and communication has made much faster delivery of goods across long distance possible at lower cost.

   (v) The rise of E-commerce and online shopping has reshaped how industries engage with and sell to consumers. (Any three)

3. (i) Manufacturing industries help in modernising agriculture, which forms the backbone of our economy, they also reduce the heavy dependence of people on agricultural income by providing them jobs in secondary and tertiary sectors.

(ii) Industrial development is a precondition for eradication of unemployment and poverty from our country.

(iii) It aims at bringing down regional disparities by establishing industries in tribal and backward areas.

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

(v) Countries that transform their raw materials into a wide variety of finished goods of higher value are prosperous. **(Any three)**

4. (i) Agriculture provides raw material to industries.

(ii) Agriculture provides market for industrial products.

(iii) Agriculture helps boost new industrial products.

(iv) The industries such as cotton, jute, silk, woollen, textiles etc. are based on agricultural raw materials. **(Any three)**

5. Industries are responsible for environmental degradation in India:

(i) Pollution of land, water and air from industries cause environmental degradation.

(ii) Burning of fossil fuels in big and small factories emit 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) Rain water carrying pollutants from wastes dumped by industries percolates and contaminates the ground water. **(Any three)**

LONG ANSWER TYPE QUESTIONS

1. (i) Over the last two decades, GDP of the country has been improved due to the manufacturing sector.

(ii) Helped in the modernisation of agriculture.

(iii) Helped in the reduction of unemployment and poverty.

(iv) Helped in bridging down the regional disparity.

(v) Helped in the expansion of trade and commerce.

(vi) Helped in raising foreign exchange.

2. (i) Manufacturing industries not only help in modernising agriculture, which forms the backbone of our economy, they also reduce the heavy dependence of people on agricultural income by providing them jobs in secondary and tertiary sectors.

(ii) Industrial development is a precondition for eradication of unemployment and poverty from our country. This was the main philosophy behind public sector industries and joint sector ventures in India.

(iii) It was also aimed at bringing down regional disparities by establishing industries in Tribal and Backward areas.

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

(v) Countries that transform their raw materials into a wide variety of furnished goods of higher value are prosperous. India's prosperity lies in increasing and diversifying its manufacturing industries as quickly as possible.

3. (i) Minimising use water for processing by reusing and recycling it in two or more successive stages.

(ii) Harvesting of rain water to meet water requirements

(iii) Treating hot water and effluents before releasing them in rivers and ponds. Treatment of industrial effluents can be done in three phases:

(1) Primary treatment by mechanical means. This involves screening, grinding, flocculation and sedimentation.

(2) Secondary treatment by biological process.

(3) Tertiary treatment by biological, chemical and physical processes. This involves recycling of wastewater.

(iv) Overdrawing of ground water reserves by industry where there is a threat to ground water resources also needs to be regulated legally.

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

(vi) Machinery and equipment can be used and generators should be fitted with silencers.

(vii) Almost all machinery can be redesigned to increase energy efficiency and reduce noises.

(Any five)

4. The location of industries is influenced by various factors that determine their efficiency and profitability. The five key factors are:

(i) **Availability of Raw Materials:** Industries are often located near raw material sources to reduce transportation costs.Example: Iron and steel plants are set up near iron ore mines (e.g., TISCO in Jamshedpur).

(ii) **Availability of Power:** Industries require continuous electricity for production. Example: Aluminum industries are located near hydroelectric power stations.

(iii) **Availability of Labour:** Skilled and unskilled labour is essential for industrial activities. Example: Textile industries in Mumbai and Gujarat due to abundant labour.

(iv) **Availability of Transport and Communication:** Good connectivity via roads, railways, ports, and telecommunication reduces production costs and improves distribution.Example: Ports help industries export and import goods (e.g., Chennai and Kolkata have major industries).

(v) **Availability of Market:** Industries prefer locations close to large markets for easy selling of products.Example: Automobile industries are set up near metropolitan cities to cater to high demand.

5. (i) The contribution of manufacturing sector to GDP over the last two decades has been about 17 percent.

(ii) Since 2003 the growth rate of the manufacturing sector has been about 9-10 percent.

(iii) It helps in the modernizing agriculture.

(iv) It helps in the eradication of unemployment and poverty.

(v) Export of manufactured goods has expanded trade.

(vi) It brings in foreign exchange.

(vii) Agro industries have given boost to agriculture.

(viii) The national manufacturing competitiveness council (NMCC) has been set up with the objective of increasing the growth rate of manufacturing industries.   (Any five)

Level - 2   ADVANCED COMPETENCY FOCUSED QUESTIONS

MULTIPLE CHOICE QUESTIONS (MCQs)

1. Option (C) is correct

   Explanation: Manufacturing industries support agriculture by producing tools, fertilisers, and machinery. They help reduce dependence on imports by producing goods domestically. They create jobs across rural and urban areas, promoting economic development. Thus, manufacturing is central to balanced and inclusive economic growth.

2. Option (C) is correct

   Explanation: Maharashtra and Gujarat are major cotton-growing states in India. The availability of raw material, along with factors like climate, skilled labour, ports, and transportation, has led to the concentration of cotton textile industries in these regions. This shows that industrial location is influenced by the availability of local resources, especially raw materials.

3. Option (B) is correct

   Explanation: Under-utilisation of capacity means industries are not producing to their full potential, often due to irregular supply of raw materials, poor logistics, or inadequate planning. This reflects inefficiencies in operation and weak coordination in the industrial supply chain, rather than a lack of demand or full development. Hence, better planning and efficient resource management are needed to improve productivity.

4. Option (C) is correct

   Explanation: While industries are vital for economic development, they also cause air, water, and land pollution if not properly regulated. The solution lies in making industries more sustainable by using eco-friendly technologies, proper waste disposal systems, and strict enforcement of environmental laws. This balances economic growth with environmental protection, which is essential for sustainable development.

5. Option (C) is correct

   Explanation: The National Manufacturing Policy (NMP) was introduced to enhance the share of manufacturing in GDP, generate employment, and promote inclusive and sustainable growth. It reflects the government's commitment to strengthening the industrial base, especially through innovation, investment, and skill development. Therefore, the policy underlines the critical role of manufacturing in India's overall economic and social progress.

ASSERTION-REASON QUESTIONS

1. **Option (A) is correct**

   Explanation: Assertion is true: Manufacturing industries are vital for economic growth as they contribute to GDP, enhance exports, and stimulate growth in allied sectors.

   Reason is also true because these industries generate jobs, convert raw materials into valuable finished goods, and help in self-reliance by reducing import needs.

   Both assertion and reason are true and the reason correctly explains the assertion.

2. **Option (C) is correct**

   Explanation: Assertion is true because the cotton textile industry in India is self-reliant and complete, meaning it covers all stages from production of raw cotton to manufacturing of finished garments.

   Reason is false because the industry mostly uses domestically produced machinery and Indian labour, and does not rely heavily on foreign sources.

3. **Option (A) is correct**

   Explanation: Assertion is true. The iron and steel industry is called a basic or key industry because it provides the foundation for the development of other industries.

   Reason is also true: Industries such as automobiles, construction, defence, railways, machinery, etc., depend on steel for tools, equipment, and infrastructure.

   Both assertion and reason are true and reason is the correct explanation of assertion.

4. **Option (C) is correct**

   Explanation: Assertion is true. Chemical industries in India are largely concentrated in urban and industrial regions (e.g., Gujarat, Maharashtra, Tamil Nadu) due to better connectivity, availability of skilled labour, and infrastructure.

   Reason is false because chemical industries often require highly skilled labour, strict safety protocols, and advanced infrastructure, especially in sectors like pharmaceuticals, petrochemicals, and specialty chemicals.

VERY SHORT ANSWER TYPE QUESTIONS

1. Manufacturing industries, when established in underdeveloped or backward regions, create employment opportunities, improve infrastructure, and attract investment. This leads to balanced regional development by reducing the gap between industrially developed and less developed areas. For example, setting up industries in tribal or rural regions brings economic activities and improves the standard of living

2. The cotton textile industry is considered labour-intensive because it requires a large workforce at various stages like spinning, weaving, dyeing, and finishing, which involves considerable manual work.

   The cotton textile industry is prominently located is Maharashtra.

3. Two key factors that affect the location of industries are:
   (i) Availability of raw materials, and
   (ii) Access to transport and market.

   Example: The iron and steel industry in Jamshedpur (Jharkhand) is located near iron ore mines, coal fields, and has good rail connectivity, making it ideal for heavy industry.

4. The iron and steel industry is called a basic industry because it provides raw materials and machinery for the development of other industries such as engineering, construction, automobile, and shipbuilding.

   One of its key raw materials is iron ore.

5. (i) Industries release harmful gases and particulate matter into the air through chimneys, contributing to smog and respiratory problems.

   (ii) Water Pollution: Discharge of untreated industrial waste into rivers and water bodies contaminates water, harming aquatic life and affecting human health.

SHORT ANSWER TYPE QUESTIONS

1. (i) **Employment Generation:** Manufacturing industries provide jobs to a large number of skilled and unskilled workers, helping reduce unemployment and poverty.

   (ii) **Value Addition:** They convert raw materials into finished goods, increasing the value of products and contributing to national income.

   (iii) **Export and Foreign Exchange:** Manufactured goods are exported, earning foreign exchange and improving the trade balance, which strengthens the economy.

2. The two agro-based industries in India are:
   (i) Cotton textile industry, and
   (ii) Sugar industry

   These industries have helped improve rural livelihoods by:
   (i) Creating employment for farmers, labourers, and artisans in processing, transport, and marketing.

(ii) Providing a steady market for agricultural produce, ensuring better income for farmers.

(iii) Supporting allied activities like ginning, pressing, and packaging, which enhance rural industrial growth.

3. (i) **Availability of Raw Materials:** Industries are often located near sources of raw materials to reduce transport costs. Example: The iron and steel industry in Jamshedpur is near iron ore and coal mines.

(ii) **Access to Transport and Market:** Good connectivity through roads, railways, or ports helps in transporting raw materials and finished goods efficiently. Example: Mumbai is a hub for various industries due to its port and market access.

(iii) **Availability of Labour and Capital:** Skilled and unskilled labour, along with financial investment opportunities, influence industrial location. Example: The textile industry in Ludhiana benefits from a large pool of skilled workers and financial institutions.

4. (i) **Growing Domestic Market:** Rising income levels and urbanisation have increased the demand for vehicles among Indian consumers.

(ii) **Foreign Direct Investment (FDI):** Liberalisation policies and FDI inflows have encouraged global automobile companies to set up manufacturing units in India.

(iii) **Improved Infrastructure:** Development of roads, highways, and transport facilities has boosted the demand and feasibility of automobile manufacturing.

5. (i) **Air pollution** – due to emission of smoke, gases, and particulate matter from factories.

(ii) **Water pollution** – caused by dumping of industrial waste and chemicals into rivers and lakes.

(iii) **Noise pollution** – due to heavy machinery, generators, and industrial processes.

One measure to reduce water pollution: Treating industrial effluents through Effluent Treatment Plants (ETPs) before discharging them into water bodies.

CASE BASED QUESTIONS

1. (i) Bauxite is an ore of aluminium. The flow chart depicts the manufacturing process of aluminium.

(ii) As per the given table, "Bauxite is the raw material for aluminium.

(iii) Cryolite is molten metal act as an electrolyte, through which electricity pass through.

2. (i) There are three types of treatments for industrial effluents.

(ii) Almost all machinery can be redesigned to increase energy efficiency and reduce noise. Noise absorbing material may be used apart from personal use of earplugs and earphones.

(iii) Industrial pollution of fresh water can be reduced by:
(1) Minimising the use of water for processing by reusing and recycling it in two or more successive stages.
(2) Harvesting of rainwater to meet water

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

(Any two)

3. (i) The iron and steel industry is called a basic industry because it provides raw materials (like steel) for the development of other industries such as construction, engineering, automobiles, and defence.

(ii) Availability of raw cotton and well-developed transportation and port facilities.

(iii) **Challenges:**
(1) Cotton textile industry faces competition from synthetic fibres.
(2) Iron and steel industry suffers from high production costs.

Solution: To overcome high production costs in the iron and steel industry, the government can invest in modern technologies and improve transport infrastructure to reduce input costs.

LONG ANSWER TYPE QUESTIONS

1. (i) The contributions of manufacturing industries to the economy are:

(1) Employment Generation: Manufacturing industries create job opportunities for both skilled and unskilled workers, thus helping to reduce unemployment and poverty.

(2) Value Addition to Raw Materials: They transform raw materials into finished goods, increasing their value and boosting the economy.

(3) Foreign Exchange Earnings: By producing goods for export, these industries contribute to foreign trade and bring in valuable foreign exchange.

(ii) The environmental concerns associated with manufacturing industries are:

(1) Air and Water Pollution: Industrial emissions contribute to air pollution, while untreated industrial waste is often released into rivers and lakes, causing water pollution.

(2) Land Degradation: The disposal of industrial waste and use of heavy machinery leads to soil contamination and degradation of land quality.

2. (i) The features that make this industry self-reliant are:

(1) Complete Value Chain in India: The cotton textile industry covers all stages of production — from the availability of raw cotton to spinning, weaving, dyeing, and finishing — within the country.

(2) Domestic Availability of Raw Material and Labour: India grows large quantities of cotton and has abundant cheap labour, which reduces dependence on imports.

(ii) The major centres of cotton textile production are Mumbai (Maharashtra), and Ahmedabad (Gujarat)

(iii) One challenge faced by the cotton textile industry today is competition from synthetic fibres — The growing popularity and affordability of synthetic fibres like polyester have reduced the demand for cotton textiles, posing a significant challenge to the industry.

3. (i) The iron and steel industry is called a basic industry because it provides raw materials such as steel to other industries including construction, engineering, defence, transportation, and manufacturing. It forms the backbone of industrial development by supporting infrastructure and machinery production.

(ii) The two raw materials required for this industry are:

(1) Iron ore – the main raw material used to extract iron.

(2) Coking coal – used as a fuel and reducing agent in the smelting process.

(iii) The problems faced by the iron and steel industry in India are:

(1) High cost and limited availability of coking coal: Most of India's coking coal is of poor quality or imported at high cost.

(2) Obsolete technology and low productivity: Many plants still use outdated machinery, leading to inefficiency and high production costs.

4. (i) Two physical factors:

(1) Availability of Raw Materials: Industries like iron and steel, cement, and sugar are located near raw material sources to reduce transport costs.

(2) Water Supply: Water is essential for processing, cooling, and cleaning in many industries (e.g., textile and chemical industries).

(ii) Two human factors:

(1) Labour Supply: Availability of skilled and unskilled workers is necessary for production processes.

(2) Transport and Market Access: Good transportation facilities and proximity to markets help reduce cost and time in moving goods and selling products.

(iii) Example: Iron and Steel Industry in Jamshedpur (Jharkhand)

Physical factors: Proximity to iron ore (from Odisha), coal (from Jharia), and water (from Subarnarekha River).

Human factors: Availability of labour, good railway connectivity, and support from Tata Group for infrastructure.