Summary:
Manufacturing: Production of goods in large quantities after processing the raw materials into more valuable products is called manufacturing.

Cotton Textiles: At present, there are 1600 cotton and synthetic textile mills in India. Almost 80% of them are in the private sector. The rest are in the public sector and cooperative sector. Additionally, there are several thousand small factories with four to ten looms.

Aluminium Smelting
Aluminium smelting is the second most important metallurgical industry in India. Aluminium is often turned into alloy and then used for making various products.

Chemical Industries
The chemical industry contributes about 3% to the GDP. The chemical industry of India is the third largest in Asia and is at twelfth position in the world.

Fertiliser Industry
India is the third largest producer of nitrogenous fertilisers. There are 57 fertiliser units which manufacture nitrogenous and complex nitrogenous fertilisers.

Cement Industry
Cement industry requires bulky raw materials like limestone, silica, alumina and gypsum. There are many cement plants in Gujarat because of proximity to ports. There are 128 large and 323 mini cement plants in India.

Automobile Industry
Almost all types of vehicles are manufactured in India. After liberalization in 1991, many automobile manufacturers set up their base in India. With the launch of contemporary models, India became an attractive market for automobiles. At present, there are 15 manufacturers of cars and multi-utility vehicles, 9 of commercial vehicles, 14 of two and three-wheelers.

Information Technology and Electronics Industry
Bangalore is often termed as the electronic capital of India. Mumbai, Pune, Delhi, Hyderabad, Chennai, Kolkata, Lucknow and Coimbatore are the other important centres. There are 18 software technology parks in the country and they provide single window service and high data communication to software experts.

Industrial Pollution and Environmental Degradation
Air Pollution: High proportion of carbon dioxide, sulphur dioxide and carbon monoxide create air pollution.
Water Pollution: Organic and inorganic industrial wastes and effluents cause water pollution. Paper, pulp, chemical, textile, dyeing, petroleum refineries, tanneries, etc. are the main culprits of water pollution.

Thermal Pollution of water: It occurs when hot water from factories or thermal plants is drained into rivers and ponds before cooling.

Noise Pollution: Noise pollution can result in constant irritation, hypertension and hearing impairment. Factory equipments, generators, electric drills, etc. are the major sources of noise pollution.

Preventing Environmental Degradation by Industry:
Water should be reused and recycled in the industry. Rainwater harvesting should be promoted. Hot water and effluents should be treated before being released in rivers and ponds.

Q1. What is manufacturing? Give four examples of manufacturing. (1+2)

Ans.

a) Processing of goods in large quantities after processing from raw materials to more valuable products is called manufacturing. (1)

b) Paper manufactured from wood, sugar from sugarcane, iron and steel from iron ore and aluminium from bauxite. (4X½)

Q2. What are secondary activities? Give four examples. (1+2)

Ans. I) People employed in the secondary activities manufacture the primary materials into finished goods. (1)

II) The workers employed in steel factories, car, breweries, textile industries, bakeries etc. (4X½)

Q3. “Manufacturing sector is considered the backbone of development in general and economic development in particular.” Justify the statement giving four examples.

Ans. a) Manufacturing industries not only help in modernizing agriculture, which forms the backbone of our economy.

b) They also reduce the heavy dependence of people on agriculture income by providing them jobs in secondary and tertiary sectors.

c) 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. It was also aimed at bringing down regional disparities by establishing industries in tribal and backward areas.

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

e) 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.

Q4. ‘Agriculture and industry are not exclusive of each other, they move hand in hand.’ Explain the statement with three examples.

Ans. I) The agro-industries in India have given a major boost to agriculture by raising its productivity.

II) They depend on the latter for raw materials and sell their products such as irrigation pumps, fertilizers, insecticides, pesticides, plastic and PVC pipes, machines and tools to the farmers.

III) Development and competitiveness of manufacturing industry has not only assisted agriculturalists in increasing their production but also made the production processes very efficient.

Q5. Explain how our industry in the present day world of globalization will be able to compete in the international market.

Ans. a) Industry needs to be more efficient and competitive.

b) 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.

Q6. Explain the growth of industry and its contribution to the national economy.

Ans.

a) Over the last two decades, the share of manufacturing sector has stagnated at 17% of GDP-out of a total of 27% for the industry, which includes 10% for mining, quarrying, electricity and gas.

b) The trend of growth rate in manufacturing over the last decade has been around 7% per annum.

c) Since 2003, manufacturing is once again growing at the rate 9-10% per annum.

d) With appropriate policy interventions by the govt. and renewed efforts by the industry to improve productivity, economists predict that manufacturing can achieve its target over the next decade.

Q7. Mention any four factors that influence the industrial location.


Q8. Where were the industrial units located in the pre-independence period? Give two examples of such centres. Also state what emerged consequently around such centres?

Ans.
In the pre-independence period, most manufacturing units were located in places from the point of view of overseas trade. Centres- Mumbai, Kolkata. Consequently, there emerged certain pockets of industrially developed urban centres surrounded by a huge agricultural rural hinterland.

**Q9.** Name the four **factors that influence the ideal location of a factory.**

**Ans.**
- a) Cost of production at site
- b) Cost of obtaining raw materials at site
- c) Cost of distribution of production
- d) Decision to locate factory at site

**Q10.** Classify industries on the basis of the following: (With two points in each)

I) **Source of raw material**
- Agro-based: Cotton, woollen, jute, silk textile, rubber and sugar, tea, coffee, edible oil etc.

II) **According to their main role**
- a) Basic or key industries which supply their products or raw materials to manufacture other goods e.g. iron and steel and copper smelting, aluminium smelting.
- b) Consumer industries that produce goods for direct use by consumers- sugar, toothpaste, paper, sewing machines, fans etc.

**Q11.** Classify industry on the basis of the following: (With two points in each)

A) **On the basis of capital investment**
- i) Small Scale industry: A small-scale industry is defined with reference to the maximum investment allowed on the assets of a unit. This limit at present has changed over a period of time. At present the maximum investment allowed is rupees one crore.
- ii) Large Scale industry: If investment is more than one crore on any industry then it is known as a large-scale industry.

B) **On the basis of ownership**
- i) Public Sector industry: Public sector, owned and operated by govt. agencies. Examples- BHEL, SAIL etc.
- ii) Private Sector industry: Private sector industries owned and operated by individuals or a group of individuals. Examples- TISCO, Bajaj Auto Ltd. Dabur Industries.
- iii) Joint Sector industry: Joint sector industries which are jointly run by the state and individuals or a group of individuals. Example- Oil India Ltd. (OIL) is jointly owned by public and private sector.
- iv) Cooperative Sector industry: Cooperative sector industries are owned and operated by the producers or suppliers of raw materials, workers or both. They pool in the resources and share the profits or losses. Example- Sugar industry in
### Maharashtra and the coir industry in Kerala.

#### Q12
How are industries classified on the basis of the **bulk and weight of raw materials and finished goods**? (1+2)

**Ans.**
1) Heavy industries such as iron and steel.
2) Light industries- industries that use light raw materials and produce light goods such as electrical industries.

#### Q13
Why does the **textile industry** occupy a unique position in the Indian economy?

**Ans.**
1) It contributes significantly to industrial production (14%).
2) Contributes to employment generation (35 million persons- directly- the second largest after agriculture)
3) Source of foreign exchange earnings. (About 24.6%)
4) It contributes 4% towards GDP.
5) 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.

#### Q14
Give reasons why the **cotton textile industry** was concentrated in Maharashtra and **Gujarat** in the early years.

**Ans.**
I) Availability of raw cotton II) Market III) Transport including accessible port facilities IV) Labour V) Climate

#### Q15
Name the **country that buys Indian yarn**. Also name the four other cotton goods importing countries. (1+2)

**Ans.**
1. India exports yarn to Japan.
2. Cotton importing countries- USA, UK, Russia, France, East European countries, Nepal, Singapore, Sri Lanka etc.

#### Q16
What is the **major drawback for the cotton textile industry** in India? State its result.

**Ans.**
A) The weaving, knitting and processing units cannot use much of the high quality yarn that is produced in the country.
B) There are some large and modern factories in these segments, but most of the production is in fragmented small units, which cater to the local market. This is mismatch is a major drawback for the industry.
C) Result: - many of our spinners export cotton yarn while apparel/garment manufacturers have to import fabric.

#### Q17
What are the **problems of cotton textile industry**?
<table>
<thead>
<tr>
<th>Q18</th>
<th>When and where was the first jute mill set up in India? What was the major challenge jute industry faced after partition in 1947?</th>
</tr>
</thead>
</table>
| Ans. | a) First jute mill was set up near Kolkata in 1859 at Rishra.  
b) The jute mills remained in India but three-fourth of the producing area went to Bangladesh. |

<table>
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<tr>
<th>Q19</th>
<th>Explain the factors responsible for location of jute industry in Hugli basin.</th>
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</table>
| Ans. | a) Proximity of the jute producing areas  
b) In expensive water transport  
c) Support by a good network of railways, roadways and waterways to facilitate movement of raw material to the mills  
d) Cheap labour from West Bengal and adjoining states of Bihar, Orissa and Uttar Pradesh. |

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<tr>
<th>Q20</th>
<th>What are the challenges faced by the jute industry?</th>
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</table>
| Ans. | I) Stiff competition in the international market from synthetic substitutes.  
II) Competition from other competitors like Bangladesh, Brazil, Philippines, Egypt & Thailand. |

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<th>Q21</th>
<th>When was the National Jute Policy formulated? What were its objectives? (1+3)</th>
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</table>
| Ans. | a) In 2005 National Jute Policy was formulated.  
Objectives:  
a) Increasing productivity  
b) Improving quality  
c) Ensuring good prices to the jute farmers  
d) Enhancing the yield per hectare |

<table>
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<tr>
<th>Q22</th>
<th>Name the four important countries that buy Indian jute products. Also state the reasons that have opened the opportunity for Indian jute products. (2+2)</th>
</tr>
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</table>
| Ans. | 1) The main buyers are USA, UK, Canada, Russia, United Arab Republic and Australia.  
2) Reason-The growing global concern for environment friendly, biodegradable materials has once again opened the opportunity for jute products. |

<table>
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<th>Q23</th>
<th>Where should the sugar mills be ideally located?</th>
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<td>Ans.</td>
<td>The raw material used in this industry is bulky, and in haulage its sucrose</td>
</tr>
</tbody>
</table>
content reduces. Therefore the sugar mills are ideally located closer to the sugarcane fields.

Q24. 'In recent years, there is a tendency for the mills to shift and concentrate in the southern and western states.' Justify the statement giving three examples.

Ans. Reasons:
- a) The cane produced here has higher sucrose content.
- b) The cooler climate ensures a longer crushing season.
- c) The cooperatives are more successful in these states.

Q25. Explain the major challenges faced by sugar industry.

Ans. Challenges faced by sugar industry:
- a) Seasonal nature of industry
- b) Old and inefficient methods of production.
- c) Transport delay in reaching cane to factories.
- d) The need to maximize the use of bagasse.

Q26. Why is the iron and steel industry called the basic industry?

Ans.
- i) The iron and steel industry is the basic industry 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, construction material, defence, medical, telephonic, scientific equipment and a variety of consumer goods.

Q27. Give two reasons why iron and steel industry is considered a heavy industry.

Ans. 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.

Q28. Where should the steel plants be ideally located?

Ans. * Since the raw material and the finished products are heavy, hence the iron & steel industry should be located near the sources of raw materials.
   * The finished products also need an efficient transport network for their distribution to the markets and consumers.

Q29. ‘Chotanagpur plateau region has the maximum concentration of iron and steel industry.’ Justify the statement giving four examples.

Ans. Reasons: Mainly due to the relative advantages this region has for the development of the industry. These include:
1. Low cost iron ore
2. Cheap labour
3. High grade raw materials in proximity
4. Vast growth potential in the home market.

Q30. ‘Though, India is an important iron and steel producing country in the world yet, we are not able to perform to our full potential.’ Explain the statement giving four reasons.

Ans. Reasons:
- a) High costs and limited availability of coking coal
- b) Irregular supply of energy
- c) Lower productivity of labour.
- d) Poor infrastructure

Q31. What has given a boost to iron and steel industry in India? What more is needed to produce steel more competitively?

Ans. a) Liberalisation and Foreign direct Investment have given a boost to the
industry with the efforts of private entrepreneurs.  
b) There is a need to allocate resources for research and development to  
produce steel more competitively.

Q32. Describe the **two prime factors that influence the location of aluminium smelting industry.**  
Ans. Factors:  
a) Regular supply of electricity  
b) Assured source of raw material at minimum cost.

Q33. Differentiate between the inorganic chemicals and organic chemicals on the  
basis of the following:  
Ans.  

<table>
<thead>
<tr>
<th>Basis</th>
<th>Inorganic Chemical</th>
<th>Organic Chemical</th>
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<tbody>
<tr>
<td>1. Chemicals included</td>
<td>Sulphuric acid and nitric acid, alkalis, soda ash</td>
<td>Petrochemicals</td>
</tr>
<tr>
<td>2. Any four uses</td>
<td>Sulphuric acid: Manufacture fertilizers, synthetic fibres, plastics, adhesives, paints Nitric acid, alkalis, and soda ash: to make glass, soaps and detergents, paper and caustic soda.</td>
<td>Used for manufacturing of synthetic fibres, synthetic rubber, plastics, dye-stuffs, drugs and pharmaceuticals.</td>
</tr>
<tr>
<td>3. Location of industry</td>
<td>These industries are widely spread over the country.</td>
<td>Organic chemical plants are located near oil refineries or petrochemical plants.</td>
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</table>

Q34. ‘The chemical industry is its own largest consumer industry.’ Justify the statement giving three examples.  
Ans. Basic chemicals undergo processing to further produce other chemicals that are used for:* Industrial application * Agriculture * Directly for consumer market

Q35. Mention the **four important raw materials required for cement industry.** Also two other requirements of cement industry. (2+1)  
Ans. a) Raw materials- Industry requires bulky and heavy raw materials like limestone, silica, alumina and gypsum.  
b) Other requirements- Coal and electric power and rail transportation.

Q36. Name the state that has strategically located plants.  
Ans. a) The industry has strategically located plants in Gujarat  
b) Suitable access to the market in the Gulf countries.
| Q37 | **What led to the expansion of cement industry after independence?** State the number of large and mini cement plants in the country.  
   - a) Decontrol of price and distribution since 1989 and other policy reforms led to cement industry to make rapid strides in capacity, process, technology and production.  
   - b) 128- Large plants and 332 Mini cement plants. | 3 |
| Q38 | Where and what has made a readily available market for cement?  
   - Ans. 1. Readily available market in East Asia, Middle East, Africa and South Asia apart from large demand within the country.  
   - 2. Improvement in the quality. | 3 |
| Q39 | ‘The automobile industry had experienced a quantum jump in less than 15 years.’ State two reasons.  
   - Ans. Reasons:  
     - a) Foreign Direct Investment brought in new technology  
     - b) Aligned the industry with global developments. | 2 |
| Q40 | How is the software industry a major foreign exchange earner? What is the key to the success of IT industry in India?  
   - Ans. a) This industry has been a major foreign exchange earner in the last two or three years because of its fast growing Business Processes Outsourcing (BPO) sector.  
   - b) The continuing growth in the hardware and software is the key to the success of IT industry in India. | 2 |
| Q41 | Explain **air pollution** under the following: (4x1)  
   - Ans.  
     - a) **Causes** - By the presence of high proportion of undesirable gases, such as sulphur dioxide and carbon monoxide.  
     - b) **Particulate materials** - Contain both solid and liquid particles like dust, sprays mist and smoke.  
     - c) **Sources of smoke** - Smoke is emitted by chemical and paper factories, brick kilns, refineries and smelting plants and burning of fossil fuels in big and small factories that ignore pollution norms.  
     - d) **Effects** - Air pollution adversely affects human health, animals, plants, buildings and the atmosphere as a whole. | 4 |
| Q42 | Explain **water pollution** under the following headings: (4x1)  
   - Ans.  
     - a) **Causes**: Caused by organic and inorganic industrial wastes and affluent discharged into rivers.  
     - b) **Main source of water pollution**: Paper, pulp, chemical, textile and dyeing, petroleum refineries, tanneries and electroplating industries  
     - c) **Pollutants in the water bodies**: dyes, detergents, acids, salts and heavy metals like lead and mercury pesticides, fertilizers, synthetic chemicals with carbon, plastics and rubber.  
     - d) **Major solid wastes**: Fly ash, phospho-gypsum and iron and steel slags | 4 |
| Q43 | How does the **thermal pollution of water** occur?  
   - Ans. Thermal pollution of water occurs when hot water from factories and thermal plants is drained into rivers and ponds before cooling. | 1 |
<p>| Q44 | What are the effects of waste from nuclear power plants, nuclear and weapon | 3 |</p>
<table>
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<tr>
<th>Question</th>
<th>Text</th>
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</table>
| Q45 | What renders the soil useless? How does the ground and under ground water gets contaminated?  
   Ans. The following renders the soil useless:  
   1. Dumping of wastes specially glass  
   2. Industrial effluents  
   3. Salts  
   4. Harmful chemicals  
   5. Packaging  
   6. Garbage  
   b) Rain water percolates to the soil carrying the pollutants to the ground. |
| Q46 | What are the results of noise pollution? Also state the sources that lead to noise pollution?  
   Ans. Results:  
   a) Irritation and anger  
   b) Hearing impairment  
   c) Increased heart rate and blood pressure  
   d) Other psychological effects- stress etc.  
   Sources of noise pollution:  
   1. Industrial and construction activities  
   2. Machinery  
   3. Factory equipment  
   4. Generators  
   5. Saws  
   6. Pneumatic and electric drills |
| Q47 | How can the industrial pollution of fresh water be reduced? (1+1+2)  
   Ans. Some suggestions:  
   A) Minimising use of water for processing by reusing and recycling it in two or more successive stages.  
   B) Harvesting of rainwater to meet water requirements.  
   C) Treating hot water and effluents before releasing them in rivers and ponds.  
   Treatment of industrial effluents can be done in three phases:  
   - Primary treatment by mechanical means- This involves screening, grinding, flocculation and sedimentation  
   - Secondary treatment by biological process  
   - Tertiary treatment by biological, chemical and physical processes. This involves recycling of wastewater. |
| Q48 | Suggest ways: A) to reduce particulate matter in the air and B) to reduce smoke. (2+1)  
   Ans.  
   a) To reduce particulate matter in the air:  
      i) Fitting smoke stacks to factories with electrostatic precipitators  
      ii) Fabric filters  
      iii) Scrubbers  
      iv) Inertial separators  
   b) To reduce smoke:  
      a) Using oil or gas instead of coal in factories. |
| Q49 | Suggest four measures to reduce noise pollution.  
   Ans. Suggestions:  
   a) Machinery and equipment can be reduced and generators should be fitted with
b) All machinery can be redesigned to increase energy efficiency and reduce noise.

c) Noise absorbing material may be used.

d) Personal use of earplugs and earphones.