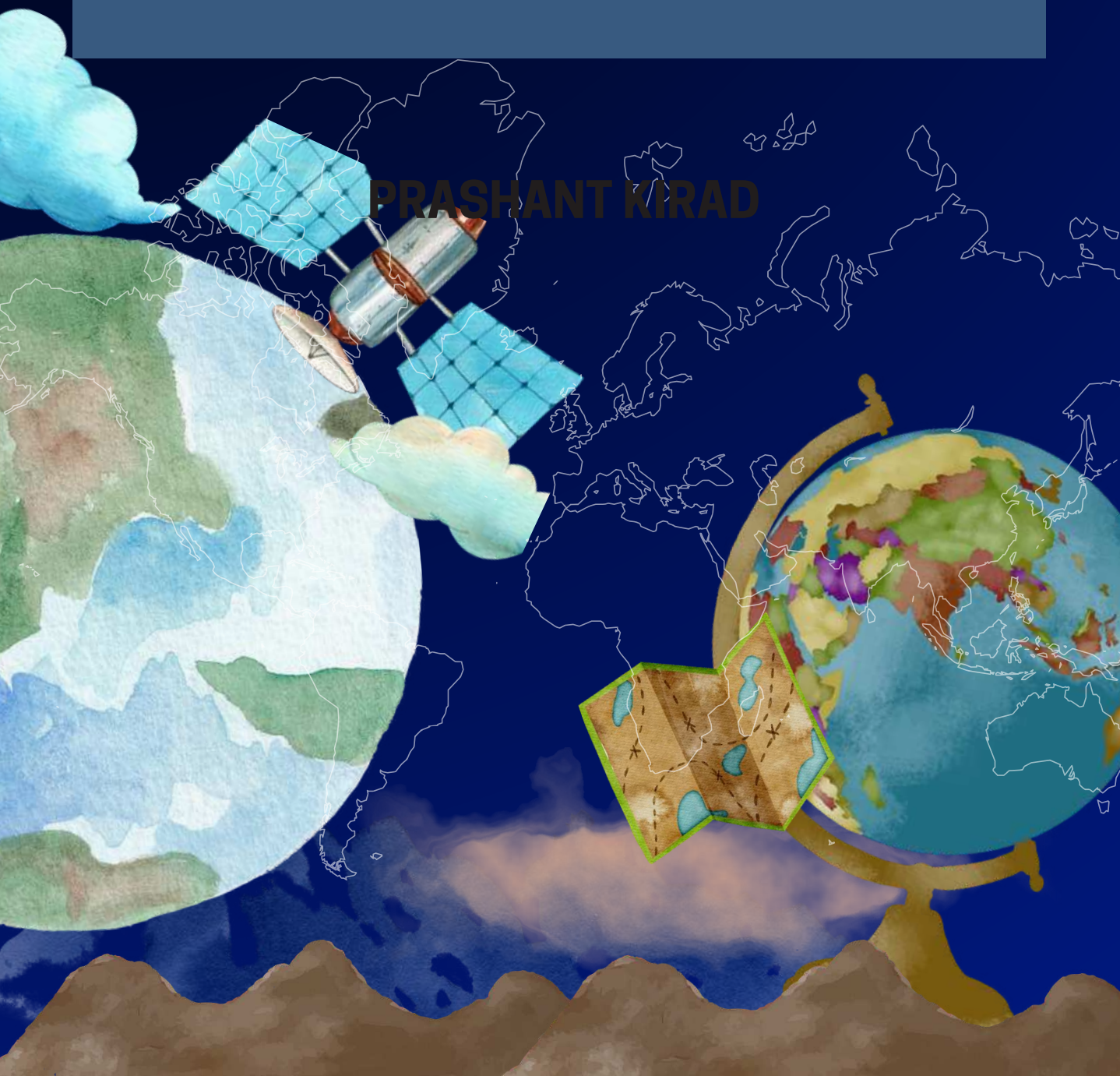
CLASS 10 NOTES

GEOGRAPHY

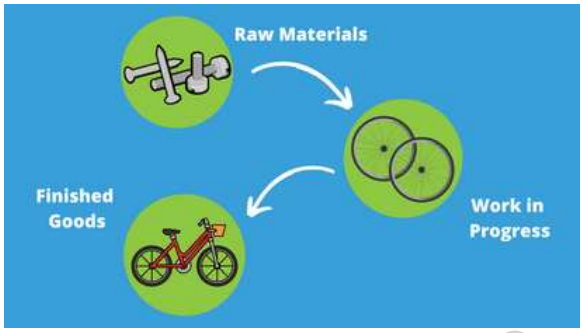
Manufacturing Industries



#MANUFACTURING INDUSTRIES

Introduction:

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



- Manufacturing industries fall in the secondary sector.
- The economic strength of a country is measured by the development of manufacturing industries.

Importance of Manufacturing:

- The manufacturing sector is considered as the backbone of development.
- Manufacturing industries help in modernizing agriculture as it provides jobs in secondary and tertiary sectors.
- It helps in the eradication of unemployment and poverty.
- The export of manufactured goods expands trade and commerce and brings in much-needed foreign exchange.
- It helps in prospering the country by giving a boost to the economy.
- With globalization, global competition is increasing. Hence self-sufficiency alone is not enough.
- Our goods must be on par with the international market.

Agriculture and Industries

- Agriculture and industry are dependent on each other.
- Industries give a major boost to agriculture by raising its productivity by providing their tools and products such as fertilizers etc.
- Industry depends on agriculture for raw materials and sells their products such as irrigation pumps, fertilizers, insecticides, pesticides, plastic and PVC pipes, machines and tools, etc. to the farmers.

Industrial Location

E.M.A

- Industrial locations are influenced by the availability of raw materials, labour, capital, power and market.
- After an industrial activity starts, urbanization follows.
- Cities provide markets and also provide services such as banking, insurance, transport, labour, consultants and financial advice, etc. to the industry.

Agglomeration economies:

- It refers to the benefits received by the firms and people when they come together to make use of the advantages offered by the urban cities that prove helpful to them.

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- Many industries tend to come together to make use of the advantage offered by the urban centres/agglomeration economics.

Classification of Industry

1.On the basis of source of raw materials used:

- Agro-based industries: Cotton, woolen , jute, silk, rubber and sugar, etc.
- Mineral-based industries: Iron and steel, cement, aluminium machines, tools and petrochemicals.

2.According to their main role:

- Basic or key industries: Which supply their products or raw materials to manufacture other goods e.g. iron and copper smelting.
- Consumer industries: Produce goods for direct use by consumers - sugar toothpaste.

3.On the basis of Capital Investment:

- Small scale industry: Such industry which requires a maximum investment up to rupees one crore It employs a small number of labouresrs.
- Large scale industry: If investment is more than one crore on any industry then it is known as a large-scale industry.

4.On the basis of ownership:

- Public Sector: Owned and operated by government agencies. e.g. BHEL, SAIL
- Private Sector: Owned and operated by Individuals or a group of Individuals. e.g. TISCO, Bajaj Auto Ltd.
- Joint sector: Jointly run by the state and individuals or group of individuals. e.g. Oil India Ltd.
- Cooperative Sector: Owned and operated by producers and suppliers of Raw materials. e.g. Sugar industries in Maharashtra, AMUL.

5. Based on the bulk and weight of raw materials and finished goods:

- Heavy Industries: Such as iron and steel
- Light Industries: That use light raw materials and produce light goods such as electrical industries.

Agro-based Industry

E.M.A

Textile Industry

Textile industry is the only industry in the country which is self-reliant and complete in the value chain. It occupies a unique position in the Indian economy.

Fig. 6.1: Value addition in the textile industry

- It contributes 4% towards towards GDP.
- It is the only industry in the country, which is self-reliant and complete in the value chain i.e., from raw materials to the highest value-added products.
- It is the second-largest employment-generating sector in India after agriculture (directly employing 35 million persons.)

Textile Industry → Cotton Textile
Textile Industry → Jute Textile

Cotton Textile

E.M.A

- India producing cotton textiles since ancient times with hand shipping and handloom weaving techniques.
- After the 18th century, powerlooms came into use and traditional industries suffered a setback.
- They could not compete with the mill-made cloth from England.
- The first successful textile mill was established in Mumbai in 1854.
- In the early years, the cotton textile industry was concentrated in the cotton-growing belt of Maharashtra and Gujarat.
- This was due to the availability of raw cotton, market, transport including accessible port facilities, labour, moist climate, etc.

Cotton Textile

Closely linked with agriculture and farmers	Supported other industries chemicals and dyes, packaging materials and engineering works.

Spinning vs Weaving

- Spinning continues to be centralized in Maharashtra, Gujarat and Tamil Nadu however, weaving is highly decentralized to provide scope for incorporating traditional skills and designs of weaving in cotton, silk, zari, embroidery, etc.
- India has world-class production in spinning, but weaving supplies low-quality fabric as it cannot use much of the high-quality yarn produced in the country.

- Impact : We export yarn, but import fabric.
- India have a large share in the world trade of cotton yarn, about one-fourth of the total trade. However, our trade in garments is only 4% of the world's total.
- Spinning Mills are competitive but weaving, knitting and processing unit cannot use much high-quality yarn.

Problems that cotton textiles industry facing nowadays:

- Irregular supply of electricity
- Old and outdated machinery
- Low output of labour
- Tough competition with the synthetic fibre industry

Jute Textiles

E.M.A

- Largest producer of raw jute and second largest exporter after Bangladesh.
- After partition in 1947, the jute mills remained in India but three-fourth of the jute producing area went to Bangladesh (erstwhile East Pakistan).
- The first jute mill was set up near Kolkata in 1859 at Rishra.
- Most of the Indian jute mills are located in West Bengal, near the Hugli River.

Factors responsible for their location in the Hugli basin are:

- Proximity to jute producing areas
- Inexpensive water transport
- Supported by a good network of railways, roadways and waterways to facilitate the movement of raw materials to the mills.
- Abundant water for processing raw jute

- Cheap labour from West Bengal and adjoining states of Bihar, Orissa and Uttar Pradesh.
- Kolkata as a large urban centre provides banking insurance and port facilities for export of jute goods.

Challenges faced by the jute industry :

- Stiff competition in the international market from synthetic substitutes and from other competitors like Bangladesh, Brazil, Philippines, Egypt and Thailand.
- High cost.

National Jute Policy

E.M.A

- National Jute Policy was formulated in 2005.
- It had increased international demand for jute.
- The government had made it mandatory to use jute for packaging.
- The objective was to increase productivity/cultivation of jute, improving quality and ensure good prices for the jute farmers.

> The growing global concern for environment-friendly, biodegradable materials, has once again opened the opportunity for jute products.

Sugar Industry:

- India is the second-largest producer of sugar in the world and the largest producer of Gur and Khandsari.
- The raw material used in the sugar industry is heavy and bulky. Due to this, transportation becomes difficult and the sucrose content keeps on decreasing with time.
- 60% mills are in Uttar Pradesh and Bihar.

In recent years, mills are shifted to the southern and western states, especially in Maharashtra because:

- The cane produced here has a higher sucrose content.
- The cooler climate also ensures a long crushing season.
- The cooperatives are more successful in these states.

Challenges faced by the sugar industry:

- Seasonal nature of industry.
- Old and inefficient methods of production.
- Transportation delays.
- Need to maximize the use of baggase.

Mineral-Based Industry

E.M.A

Iron and Steel Industry:

- Iron and Steel is the basic industry as all the other industries – heavy, medium and light, depend on it for their machinery.

India's Position:

- India ranks ninth among the world crude steel producers.
- It is the largest producer of sponge iron.
- But per capita consumption is only 32kg annually.
- Presently there are 10 primary Integrated steel plants and many Mini steel plants.
- In 1950, China and India produced almost the same quantity of steel.

- Chotanagpur plateau region has the maximum concentration of iron and steel industries because of the following factors:

(i) Low-cost iron ore (ii) High-grade raw material
(iii)Cheap labour (iv)Market

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 the following reasons:

- High costs and limited availability of coking coal
- Lower productivity of labour
- Irregular supply of energy
- Poor infrastructure

Aluminium Smelting

E.M.A

- 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.
- Aluminium smelting has gained popularity as a substitute for steel, copper, zinc and lead in a number of industries.
- Bauxite is the raw material used in the smelters.

Bauxite → Alumina → Aluminium

- Major 8 aluminium smelting plants in country are located in Orissa [NALCO & BALCO], West Bengal, Kerela, Uttar Pradesh, Chhattisgarh, Maharashtra and Tamil Nadu.
- Regular supply of electricity and assured source of raw material at Minimum cost.

Chemical Industries

- The chemical industry comprises both large and small-scale manufacturing units.
- Rapid growth has been recorded in both inorganic and organic sectors.
- Inorganic chemicals include sulphuric acid, nitric acid, alkalies, soda ash and caustic soda.
- Organic chemicals include petrochemicals, which are used for manufacturing synthetic fibres, synthetic rubber, plastics, dye-stuffs, drugs and pharmaceuticals.
- The chemical industry is its own largest consumer.

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Basic chemicals undergo processing to further produce other chemicals.

Fertiliser Industry ← E.M.A

- The fertilizer industries are centered around the production of nitrogenous fertilizers (mainly urea), phosphatic fertilizers and ammonium phosphate (DAP) and complex fertilizers, which have a combination of nitrogen, phosphate, and potash.
- Potash is imported in our country because no reserves of commercially usable potash or potassium compounds.
- India is the third largest producer of nitrogenous fertilisers.

Fertiliser Indutry ↑ → Expanded after Green revolution.

- Main states having this industry are Gujarat, Tamil Nadu, Uttar Pradesh, Punjab and Kerela.

Cement Industry

- Cement is essential for construction activities such as building houses, factories, bridges, roads, airports, dams and other commercial establishments.
- This industry requires bulky and heavy raw materials like limestone, silica and gypsum.
- Situated in Gujarat and Coastal area because of accessibility to Gulf Countries.
- The first cement plant was set up in Chennai in 1904.
- Decontrol of price and distribution since 1989 and other policy reforms led the cement industry to make rapid strides in capacity, process, technology and production.
- This industry is doing well in terms of production as well as export.

Automobile Industry

E.M.A

- This industry deals with the manufacturing of trucks, buses, cars, motorcycles, scooters, three-wheelers and multi-utility vehicles.
- With the increase in competition, this industry also experienced a rapid growth in last 15 years.
- Foreign Direct Investment brought in new technology and aligned the industry with global developments.
- These industries are located around Delhi, Gurugram, Mumbai, Pune, Chennai, Kolkata, Lucknow, Indore, Hyderabad, Jamshedpur and Bengaluru.

Information Technology and Electronics Industry

E.M.A

- The electronics industry covers a wide range of products, from transistor sets to television, telephones, cellular telecom, telephone exchange, radars, computers.
- Bengaluru is known as the electronic capital of India.
- Other important centres for electronic goods are Mumbai, Delhi, Hyderabad, Pune, Chennai, Kolkata, Lucknow and Coimbatore.
- 18 software technology park - Single window service and High Data Communication facility.
- Contribution in Employment is very satisfactory.
- 30% people employed in this sector are women.
- This industry has been a major foreign exchange earner in the last two or three years because of its fast growing Buisness Processes Outsourcing (BPO) sector.

Industrial Pollution and Environmental Degradation

Industries contribute significantly to India's economic growth and development but also causes pollution of land, water, air, noise, and resulting degradation of the environment.

Industries are responsible for 4 types of pollution:

- Air
- Water
- Thermal
- Noise

Air pollution

- It is caused by the presence of a high proportion of undesirable gases, such as sulphur dioxide and carbon monoxide.
- Dust, spray and smoke are emitted by chemical and paper factories, brick kilns, refineries and smelting plants, and the burning of fossil fuels leads to air pollution.
- It adversely affects human health, animals, plants, buildings and the atmosphere as a whole.

Water pollution

- It is caused by organic and inorganic industrial wastes and effluents discharged into rivers.

→ Main culprits:

- Paper, pulp, chemical, textile and dyeing, petroleum refineries, tanneries and electroplating industries.
- These industries dump substances like dyes, detergents, acids, salts and heavy metals like lead and mercury, pesticides and fertilisers, plastic and rubber.
- Fly-ash, phospo-gypsum and iron and steel slags are the major solid waste.

Thermal pollution

- It occurs when hot water from factories and thermal plants is drained into rivers and ponds before cooling.

→ Impact : Waste dumped is highly toxic and leads to cancers, birth defects and Miscarriages. It harms the aquatic life.

Relation between soil and water pollution:

- Dumping waste on soil [Glass, harmful chemicals, industrial effluents].
- Rainwater percolates them down.
- Ground water gets contaminated.

Noise pollution

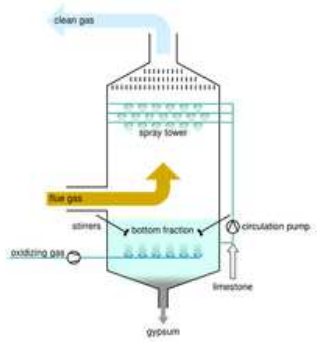
- Noise pollution is the propagation of noise with a harmful impact on the activity of human or animal life.
- It is caused due to industrial and construction activities.
- Machinery, factory equipment, generators, saws and pneumatic and electric drills.
- Impact : It results in irritation, anger, cause hearing impairment, and increased heart rate and blood pressure.

Control of Environmental Degradation

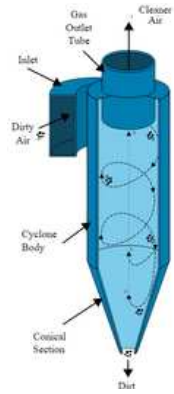
- Minimising the use of water by reusing and recycling it.
- Harvesting rainwater to meet water requirements.
- Treating hot water and effluents before releasing them in rivers and ponds.
- Industrial effluents can be treated in three ways:
  a. Primary treatment by Mechanical means.
  b. Secondary treatment by Biological process.
  c. Tertiary treatment by chemical, physical and biological process.

- Using of groundwater reserves by industries should be regulated legally.
- Particulate matter in the air can be reduced by fitting smoke stacks to factories with electrostatic precipitators, fabric filters, scrubbers and inertial separators.

Scrubbers



Inertial separaters



- Smoke can be reduced by using oil or gas instead of coal in factories.
- Machinery and equipment can be used and generators should be fitted with silencers.
- Noise-absorbing material may be used apart from personal use of earplugs and earphones.

NTPC shows the way:

- National Thermal Power Corporation has ISO certification for Environment Management System (EMS).
- NTPC has taken pro-active approach for preserving the natural environment and resources.

Steps taken :

1. Adopting the latest techniques and upgrading existing equipment.
2. Minimising waste generation by maximise ash utilisation.
3. Providing green belts for nurturing ecological balance (Afforestation).
4. Ash pond management, ash water recycling system and liquid waste management to reduce environmental pollution.
5. Ecological monitoring, reviews and online database management for all its power station.

Top 7 Questions:

3 markers

1. Why is manufacturing sector considered the backbone of economic development of the country? Explain any three reasons with examples.

Ans. Due to following importance or reasons manufacturing sector is considered the backbone of economic development of the country:
(i) Manufacturing industries help in modernising agriculture. For example, industries providing fertilisers, machinery have given a major boost to agriculture by raising its productivity.
(ii) Manufacturing also reduces the heavy dependence of people on agricultural income by providing them jobs in secondary and tertiary sectors.
(iii) Export of manufactured goods expands trade and commerce, and brings foreign exchange.

2. Why was the cotton textile industry concentrated in the cotton growing belt in the early years? Explain.

Ans. In the early years, the cotton textile industry was concentrated in the cotton growing belt of Maharashtra and Gujarat. Availability of raw corton, market, transport including accessible port facilities, labour, moist climate, etc contributed towards its localisation.
This industry has close links with agriculture and provides a living to farmers, cotton ball pluckers and workers engaged in ginning, spinning, weaving, dyeing, designing, packaging, tailoring and sewing.

The industry by creating demands supports many other industries, such as, chemicals and dyes, mill stores, packaging materials and engineering works. All these factors determine location of cotton mill in early years.

3. Explain any three problems faced by cotton textile industries in India.

Ans. Three problems faced by cotton textile industries in India are:
(i) Power supply is erratic. Regular power supply without breaks is essential for this industry.
(ii) Output of labour is low because the machinery is outdated. Particularly in the weaving and processing sectors, the machinery needs to be upgraded.
(iii) This industry faces stiff competition from the synthetic fibre industry in terms of cost and convenience of use.

4. "Agriculture and industry are not exclusive of each other." Support your answer by giving any three arguments.

Ans. Agriculture and industry are not exclusive of each other. They move hand in hand.
The role of industries in the development of agriculture can be seen through the following points:
(i)The agro-based industries have given a major boost to agriculture by raising productivity of those crops which are used as raw material in industries.
(ii) The agro-based industries provide industrial products such as fertilisers, insecticides, irrigation pumps, PVC pipes, machines and tools, etc to the farmers to increase agriculture productivity..

(iii) The industrial sector provides employment to the excess labour (labours who are actually disguised unemployed) in the agriculture sector.

Thus, development and competitiveness of manufacturing industry has not only assisted agriculturists in increasing their production but also made production process very efficient.

5. Classify industries on the basis of raw material. How are they different from each other?

Ans. On the basis of source of raw material, industries are dassified into agro-based industries and mineral-based industries.
The differences between agro-based and mineral-based industries are:

Agro-based Industries	Mineral-based Industries
• Industries which are dependent on agriculture to obtain their raw material are called gro-based industries. • These industries provide employment in rural Areas • These produce consumer pods For example, cotton miles, jute textiles, gar industry, etc.	• Industries which are dependent on mineral resources to obtain their raw material are called • mineral-based industries. These industries provide employment both in rural and the urban areas. • These produce both consumer and value based goods. For example, iron and steel industry, cement industry, aluminium industry, etc

5 markers

1. Explain any three physical factors and two human factors for the industrial location.

Ans. The factors affecting the location of industry are grouped into physical and human factors. These are:

Physical Factors

(i) **Availability of Raw Materials:** The factory needs to be close to the location of raw material if they are heavy and bulky to transport. For example, iron and steel industry is located near the source of raw material.

(i) **Water Source:** Water is an important factor that determines the location of industries. industries. Water is required for various industrial processes. River water and waterfalls can also be used to generate hydroelectricity.

(iii) **Climate:** It plays a significant role in establishment of industries. Harsh climate is not much suitable for industries. Extremely hot, humid, dry or cold climate is not very conducive for industries. For example, cotton textile industry requires humid climate because thread breaks in dry climate.

Human Factors

(i) **Labour:** A large and cheap labour force is required for labour-intensive and manufacturing industries. High-tech industries have to be located where suitable skilled workers are available.

(ii) **Capital:** This is the money that is invested to start a business. The amount of capital will determine the size and location of the factor.

(iii) **Government Policies:** Industrial development is encouraged in some areas and restricted in others. Industries that are located in backward areas may receive financial incentives and assistence from the government in the form of low rent and tax rates.

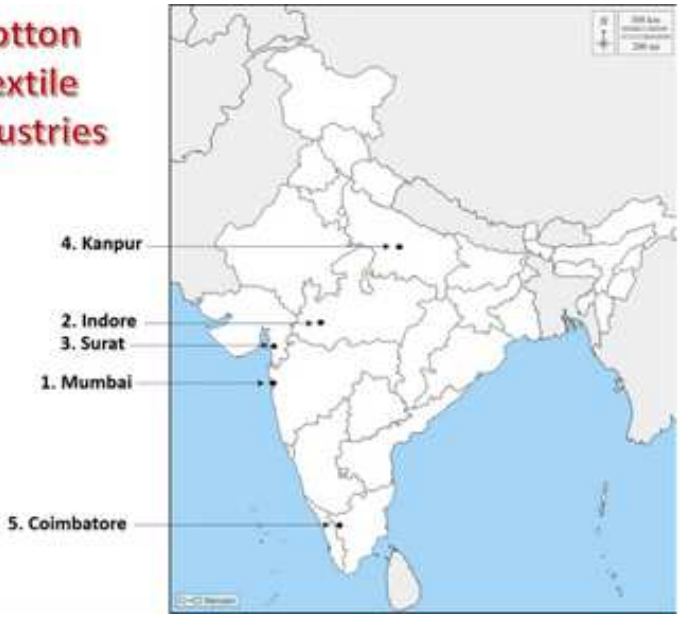
2. Why does the 'Chota Nagpur Plateau region' have the maximum concentration of iron and steel industries?

Ans. The reasons responsible for the concentration of iron and steel industries in and around the 'Chotanagpur Plateau Region' are as follows:

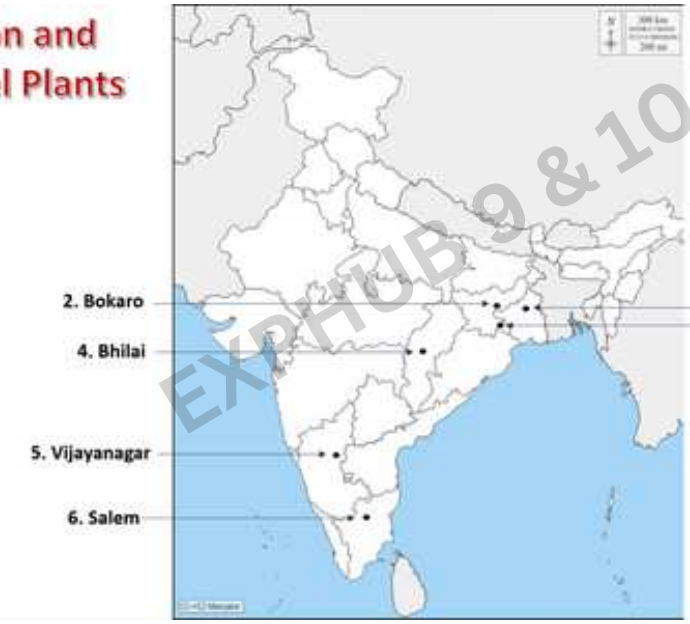
(i) **Low Cost of Iron Ore:** Iron mines are located in the nearby areas. It helps to reduce the transportation cost of iron ore to the industries.
(ii) **High Grade Raw Materials in Proximity:** Other bulky raw materials like, coking coal, limestone are also available in proximity.
(iii) **Availability of Cheap Labour:** From the adjoining areas of Bihar, Jharkhand and Odisha cheap labour is available in abundance.
(iv) **Dense Transport Network:** This region is w connected with roadways and railways that help in the swift movement of raw materials and finished goods to the industry and market areas, respectively.
(v) **Port Facilities:** Kolkata is a well developed port that is near to this area.

Map Work:

Cotton Textile Industries



Iron and Steel Plants



Software Technology Parks