



HISTORY

10

INDUSTRIAL
REVOLUTION

I. CHOOSE THE CORRECT ANSWER:

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1. Who established the first steam boat service?

- a) Arkwright
- b) Samuel Crompton
- c) Robert Fulton
- d) James Watt

Ans: c)

2. Why was Manchester considered ideal for textile production?

- a) Availability of land
- b) Rich human resources
- c) Better living condition
- d) Cool climate

Ans: d)

3. Who invented the sewing machine?

- a) Elias Howe
- b) Eli-Whitney
- c) Samuel Crompton
- d) Humphrey Davy

Ans: a)

4. Which family introduced steam engine in France?

- a) de Wendel
- b) de Hindal
- c) de Arman
- d) de Renault

Ans: a)

5. Who called Slater, the father of American Industrial Revolution?

- a) F.D. Roosevelt
- b) Andrew Jackson
- c) Winston Churchill
- d) Woodrow Wilson

Ans: b)

6. Which of the following is observed to commemorate the Hay Market Massacre?

- a) Independence Day
- b) Farmers Day
- c) Labour Day
- d) Martyrs Day

Ans: c)

7. Where was Zollverein Customs Union formed?

- a) England
- b) Germany
- c) France
- d) America

Ans: b)

8. Who produced the first batch of automobiles in France?

- a) Louis Renault
- b) Armand Peugeot
- c) Thomas Alva Edison
- d) Mc Adam

Ans: b)

9. What was the invention that removed seeds from cotton?

- a) Rolling Mill
- b) Cotton Gin
- c) Spinning Mule
- d) Spinning Jenny

Ans: b)

10. Which of the following was used as fuel in olden days to smelt iron?

- a) Coke
- b) Charcoal
- c) Firewood
- d) Paper

Ans: b)

10 ADDITIONAL

HISTORY

11. The Industrial Revolution began in
 a) France b) America c) England d) India **Ans: c)**
12. invented contrives to pump the water out of the mines.
 a) James Watt b) Thomas Newcomen
 c) John Kay d) Eli Whitney **Ans: b)**
13. Iron and steel helped quicken the process of
 a) Industrial Revolution b) Transportation
 c) Trade d) Agriculture **Ans: a)**
14. The Safety Lamp was invented in the year
 a) 1815 b) 1915 c) 1600 d) 1415 **Ans: a)**
15. Industrial Revolution was dependent on good
 a) Market b) Labours c) Owners d) Transport **Ans: a)**
16. John Loudon McAdam was a Engineer who introduced Macadamised roads.
 a) British b) French c) Scottish d) American **Ans: c)**
17. became the textile capital of the world.
 a) Liverpool b) Manchester c) Lancashire d) London **Ans: b)**
18. Combination Laws prohibited the formation of associations of
 a) Lawyers b) Farmers c) People d) Workers **Ans. d)**
19. did not possess as much natural resources as England.
 a) France b) Germany c) United Kingdom d) America **Ans: a)**
20. The two biggest automobile companies of today's France were stated in
 a) 1600 b) 1891 c) 1789 d) 1664 **Ans: b)**
21. In Germany, served well its industrial development as well as its unification.
 a) Political condition b) Railways c) Economy d) Rulers **Ans: b)**
22. In Prussia finally united as Germany.
 a) 1600 b) 1891 c) 1789 d) 1871 **Ans: d)**
23. Samuel Slater, a citizen of England departed to illegally in 1789.
 a) New York b) Washington c) California d) Chicago **Ans: a)**
24. Robert Fulton established the Steamboat service on the River.
 a) Thames b) Volga c) Hudson d) Ohio **Ans: c)**
25. Andrew Carnegie established the first steel mill in
 a) England b) France c) Germany d) United States **Ans: d)**

2. i) Trade Unions were formed by labourers to get their rights. (T)
 ii) Germany's political setup was the most significant challenge for the industrial revolution. (T)
 iii) To protect capitalists Karl Marx advocated socialism. (F)
 iv) There were no natural resources in Germany. (F)
 a) (i) and (ii) are correct b) (ii) and (iii) are correct
 c) (i) and (iv) are correct d) iii) is correct **Ans: a)**
3. Assertion (A) : Workers had rights to get holidays.
 Reason (R) : There were laws to protect the workers.
 a) A is correct R is wrong b) Both A & R are wrong
 c) Both A and R are correct d) A is correct R is not correct explanation of A
Ans: b)
4. Assertion (A) : Slater was called the Father of the American Industrial Revolution.
 Reason (R) : His spinning textile mill was duplicated and his techniques became popular.
 a) A is correct and R is the correct explanation of A
 b) A is wrong and R is the correct explanation of A
 c) Both A and R are wrong
 d) Both A and R are correct **Ans: a)**

ADDITIONAL

5. i) In the latter half of the 20th century, major changes occurred in the method of production. (F)
 ii) The method of production changed the history of humankind. (T)
 iii) This profound transformation is described as the Industrial Revolution. (T)
 iv) Goods began to be produced not by hand but by machines. (T)
 a) (i) is correct. b) (ii) and (iii) are correct.
 c) (ii), (iii) and (iv) are correct d) (i) and (iii) are correct **Ans: c)**
6. i) Iron and steel helped quicken the process of Industrialisation. (T)
 ii) In olden days, iron ore was smelted in brick furnaces. (T)
 iii) Charcoal was used as fuel. (T)
 iv) The iron produced by the above process was sturdy and strong. (F)
 a) (i) is wrong. b) (ii) is wrong
 c) (iii) is wrong d) (iv) is wrong **Ans: d)**
7. i) After the Civil War, industrialization in America went on a frantic pace. (T)
 ii) In 1869, the first transcontinental railroad was completed. (T)
 iii) There was unprecedented urbanisation and territorial expansion in the US. (T)
 iv) As a result, fourteen million people migrated from America to other countries. (F)
 a) (i) is correct b) (ii) and (iii) are correct
 c) (i), (ii) and (iii) are correct d) (iii) and (iv) are correct **Ans: c)**



8. i) France did not possess as much natural resources as England.
 ii) The Economic instability wrecked the country.
 iii) So, many of the French businessmen sought refuge in Britain.
 iv) But, they were not allowed by the British government.

(T)
(F)
(T)
(F)

- a) (i) is correct
 b) (ii) and (iii) are correct
 c) (i), (ii) and (iii) are correct
 d) (i) and (iii) are correct

Ans: d)

9. Assertion (A) : After the Industrial Revolution, coal mines became deeper and deeper.
 Reason (R) : As Industrialization gained pace, more and more coal needed to fuel steam engines and furnaces.

- a) A is correct R is wrong
 b) A is correct and R is correct explanation of A
 c) Both A and R are correct
 d) A is correct R is not correct explanation of A

Ans: b)

10. Assertion (A) : The Industrial Revolution created employment opportunities.
 Reason (R) : Safety was very poor in early industrial factories and mines.

- a) A is correct R is wrong
 b) A is correct and R is correct explanation of A
 c) Both A and R are correct
 d) Both A and R are correct.

Ans: d)

11. Assertion (A) : Manchester became the Textile capital of the world.
 Reason (R) : It's cool climate, close to the port of Liverpool and the coal fields of Lancashire were ideal for textile production

- a) A is correct R is wrong
 b) A is correct and R is correct explanation of A
 c) Both A and R are correct
 d) Both A and R are correct.

Ans: b)

IV. MATCH THE FOLLOWING.

- | | |
|--------------------|------------------------|
| 1. Benz | - a) U.S.A |
| 2. Safety Lamp | - b) Louis Renault |
| 3. Quadricycle | - c) Humphrey Davy |
| 4. Great Rail road | - d) Lancashire Strike |
| 5. Coalfield | - e) Germany |

Ans: 1-e 2-c 3-b 4-a 5-d

ADDITIONAL

- | | |
|-------------------|----------------------------|
| 6. Steam Engine | - a) Alexander Graham Bell |
| 7. Flying shuttle | - b) Eli Whitney |
| 8. Spinning Jenny | - c) Samuel Crompton |
| 9. Cotton Gin | - d) John Kay |
| 10. Telephone | - e) Thomas Newcomer |

Ans: 6-e 7-d 8-c 9-b 10-a

- | | |
|---------------------|-------------------------|
| 11. Telegraph | - a) Edmund Cartwright |
| 12. Safety Lamp | - b) Elias Howe |
| 13. Electrical bulb | - c) Samuel Morse |
| 14. Power Loom | - d) Humphrey Davy |
| 15. Sewing Machine | - e) Thomas Alva Edison |

Ans: 11-c 12-d 13-e 14-a 15-b

V. ANSWER THE FOLLOWING QUESTIONS BRIEFLY.

1. What was the condition of labourers' houses during Industrial Revolution?

- During the time of Industrial Revolution, the houses were tiny, dirty and sickly for the labouring class.
- Workers had to time to clean or change their own atmosphere.
- This environment led to the outbreak of typhoid, cholera and smallpox.

2. Account for urbanisation in England.

- The Industrial Revolution resulted in the flow of population from villages to industrial towns.
- Before the Industrial Revolution, 80% of the people lived in rural areas. Slowly, the situation changed. Small towns became large cities.
- The city of London grew from a population of two million in 1840 to five million in forty years.
- Like the same, the population of Manchester was only 22,000 in 1771. The population exploded to 180,000 in the next fifty years.

3. Attempt a note on Haymarket Massacre.

- Labour protest took place on 4 May 1886, at Haymarket Square in Chicago.
- People organised a peaceful rally in support of workers striking for an eight hour day resulted in the killing of several workers by the police.
- To commemorate the Haymarket Affair 1 May 1887 is observed as the Labour Day or May Day or International Worker's Day.

4. What do you know of Louis Renault?

- Louis Renault was a French industrialist, one of the founders of Renault and a pioneer of the automobile industry.
- Renault built one of France's largest automobile manufacturing concerns, which bears his name to this day.
- In 1898, Louis Renault built the quadricycle, from which he began to produce in large quantities under his company, the Societe Renault Freres (Company Renault Brothers)

5. Highlight any two important results of Industrial Revolution.

- Industrial Revolution led to the expansion of trade, the production of finished goods, emergence of factory workers as a new class.



- It led to the rise and growth of cities resulting in rapid urbanisation and organised working class movements.

ADDITIONAL

6. Name the cities that emerged as the major factory centres in England.

Derbyshire, Lancashire, Cheshire, Staffordshire, Nottinghamshire and Yorkshire became the major factory centres in England.

7. Why was the Safety lamp invented?

- Due to industrial revolution, the demand for coal increased.
- As a result, coal mines became deeper and deeper, making it more and more dangerous.
- As miners used oil lamps in the mines, the risk of explosion was high leading to the death of miners.
- This was the reason to invent Safety lamp.

8. What was the condition of labours at the time of Industrial Revolution?

- Children were employed in textile mills because they worked for lower wages.
- Older girls carried baskets of coal which causes deformities.
- Safety was very poor in early industrial factories and mines
- Working conditions were harsh with no weekly holidays or leave for sickness.

9. Write about Combination Laws of 1799.

- Combination of Laws was passed in the year 1799.
- It prohibited the formation of association of workers.
- In the early decades of 19th century, there were Luddites.
- Fearing the loss of jobs due to the introduction of machines, Luddites protested by wrecking machines.
- At last, the Combination Laws were repealed in 1824.

10. How did the Industrial Revolution spread to France?

- The political instability caused by the French Revolution and the prolonged Napoleonic Wars wrecked the country.
- During the French Revolution, a number of French businessmen migrated to Britain and sought refuge.
- After the revolution, on their return to France after Napoleonic Wars, used British technology and started industries in France.
- This helped to accomplish industrial revolution in their country.

11. What is Cartel?

- Cartel is an association of manufacturers or suppliers with the purpose of maintaining prices at a higher level and of restricting competition.

- It helped the industrial growth of Prussia and the other German states.
- Banks provided capital and investments to new companies. Cartels on the other hand provided protection and stability.
- In other countries like Great Britain and the United States, Cartels were resented for their anti-competitive and unfair business practices.

12. Write about the emergence of Germany in the industrial field.

- In 1871, Prussia finally united Germany. Germany emerged as the most industrialised country by the end of the 19th century.
- In chemicals, Germany excelled in the production of potassium salt, dyes, pharmaceutical products, and synthetics. Companies like Bayer and Hoechst led the chemical industry of Germany.
- Germany became a leader in automobile industry. Daimler and Benz became the most popular brands of automobiles in Germany and the world.

13. What were the effects of Industrial Revolution in England?

- Industrial Revolution led to the expansion of trade, the production of more food, emergence of factory workers as a new class.
- The revolution led to rapid urbanization and organized working class movements, seeking voting rights and regulation of their service conditions and brought about a new dynamic in politics.

VI. ANSWER THE QUESTIONS GIVEN UNDER EACH CAPTION.

1. Labour Movement :

a) When was the reform bill introduced?

1832.

b) To whom did it grant voting right?

The propertied middle class.

c) Why it was known as chartism?

The frustrated working class prepared a charter of demands and obtained signatures from millions of fellow workers. This charter was presented to the house of commons. England. This charter is known as chartism.

d) What were the demands of the Chartists?

They demanded i) Voting right ii) Annual parliamentary elections iii) Equal representation.

2. Transportation and Communication :

a) Which was the first railway line opened in England?

Railway line From Stockton and Dalington.

b) How were the produced goods transported to markets?

Networks of canals, roads and railroads.



- c) **How was the steamboat invented in the US called?**
Clermont.
- d) **Who sailed from New York to Albany?**
Robert Fulton of US.

ADDITIONAL

3. Industrial Revolution in America :

- a) **Who was Moses Brown?**
A leading Rhode Island Industrialist of America.
- b) **Who stated that Samuel Slater as 'Father of the American Industrial Revolution'?**
Andrew Jackson, the U.S President.
- c) **Who invented the telegraph system?**
F.B.Morse.
- d) **When was sewing machine invented?**
Before the American Civil War (1869-1865).

4. Railway service in Germany :

- a) **When was the first railroad line opened in Germany?**
December 1835.
- b) **Name the centres connected by the railroad line.**
Nuremberg and Furth.
- c) **Who took the initiative in constructing railroads.**
Private sector.
- d) **Name the city that became a centre of the railroad network.**
Berlin.

5. Urbanization:

- a) **Name the country that became the 'Workshop of the world'.**
England.
- b) **What was the result of Industrial Revolution?**
The result was the flow of the population from villages to industrial towns.
- c) **What percentage of the people lived in the rural area during the pre-industrial period?**
Around 80% of the people lived in rural area.
- d) **What was the result of migration?**
Small towns became large cities.

10

HISTORY

6. Labour Day

- a) **When was Labour Day first celebrated in India?**
May 1, 1923.
- b) **Where was it celebrated?**
Chennai.
- c) **Who organised the Labour Day?**
Labour Kisan Party of Hindustan.
- d) **Name the founder of the Party.**
M.Singaravelu.

VII. ANSWER IN DETAIL.**1. Enumerate the causes for the Second Industrialization in the USA.**

Many causes are responsible for the Second Industrialisation in the USA. Among them, a few are given below-

- The shift from manual labour-based to more technical and machine-based manufacturing industry marked the Industrial Revolution in the United States.
- Samuel Slater, a citizen of England went New York in 1789. There, he offered his services to Moses Brown, a leading Rhode Island textile industrialist. In 1793, His mill became first water-powered roller spinning textile mill in America. His techniques influenced more and became popular.
- After the Civil War, industrialisation went on at a frantic pace. In 1869, the first trans-continental railroad was completed to transport people, raw materials and products.
- There was unprecedented urbanisation and territorial expansion in the US. As a result, between 1860 and 1900, fourteen million immigrants came to the country, providing workers for a variety of industries.
- The U.S. government supported the industrial growth by providing land for construction of railroads and protected the American industry from foreign competition.
- The Industrial Revolution quickened the process of the transition of the United States from a rural to an urban society.
- Young people raised on farms saw greater opportunities in the cities and moved there, as did millions of immigrants from Europe.

2. What were the effects of Industrial Revolution of England on India?

- The weavers of Bengal suffered at the hands of the Company's officials and their agents when the British established their foothold in Bengal.
- The Britishers also insisted on payment of a transit duty for the commodities they carried from one place to another and later for cultivation of commercial crops required for British industries in England.
- The English deliberately destroyed Indian industry by dumping the Indian markets with their machine-made cheap cotton piece goods.



- Due to loss of market for hand-woven cotton goods, India lost her old industrial position and became an exporter of raw material.
- By the first quarter of nineteenth century, the export of Dacca muslin to England stopped. Even the export of raw cotton from India had steadily dwindled owing to the competition from USA and Egypt.
- Indian weavers were thrown out of employment because of flooding of British factory-made cheap cotton fabrics in Indian markets.
- Collector of Madurai reported that families of about 5000 weavers did not have the means to take more than one meal of rice a day.
- Millions died of starvation in famines. To escape starvation deaths, peasants and artisans had to move out of the country opting to work on plantations in the colonies of the British Empire.

ADDITIONAL

3. What are the main attributes of Industrial Revolution?

The main attributes of the Industrial Revolution were technological, socio-economic and cultural. The others are-

- Use of new basic materials: iron and steel
- Use of new energy sources: coal, electricity, petroleum
- Invention of new machines such as the spinning jenny and the power loom that increased the production with a minimum expending of human energy
- Emergence of a new organization known as the factory system, which entailed increased division of labour and specialisation of work
- Development in transportation and communication
- Increasing application of science to industry
- The use of new technology

4. Industrial Revolution began in England. Why?

The Industrial Revolution began in England first because, it had certain objective conditions. They were:

- England had abundant resources and possessed colonies, with India being “the brightest jewel in the British Crown”.
- Access to coal, iron and raw cotton from the colonies.
- England possessed the required infrastructure for textiles, developed by immigrant artisans from the Netherlands.
- England had a developed banking system, a growing entrepreneurial class, and potential investors.
- Encouragement of the Royal Society of England for scientific discoveries and inventions.
- Political stability of England to bestow its full attention to industrial growth.

5. Industrial Revolution took place in the textile field. Justify.

Before the Industrial Revolution, the spinning and weaving of cloth were undertaken for domestic and local consumption. It was done at home or in a small hired place. A few inventions revolutionised the textile field. They are-

- In 1733, John Kay invented the 'Flying Shuttle' which, when operated by hand, increased the speed of the weaving of cloth. In 1767
- James Hargreaves invented 'the spinning jenny'. This machine spun eight threads at one and the same time.
- Two years later Richard Arkwright invented the 'water frame'. This spinning frame used water power in the place of manpower. The 'water frame' was too big to be run at home. Thus was born the factory.
- In 1779, Samuel Crompton invented his 'spinning mule' which included a combination of both the 'spinning jenny' and the 'water frame'. It spun hundreds of threads simultaneously and produced eight fine and coarse threads.
- Eli Whitney invented the cotton gin in 1793. Removing the seed from the cotton increased the productivity manifold.
- Cotton spinning powered by steam increased the output of a worker by a factor of around 500.

Over a span of fifty years, the textile manufacturing industry in Britain witnessed a transformation in the method of production from handmade to machine-made goods. The newly invented machines enabled factories to produce textile goods in large quantities.

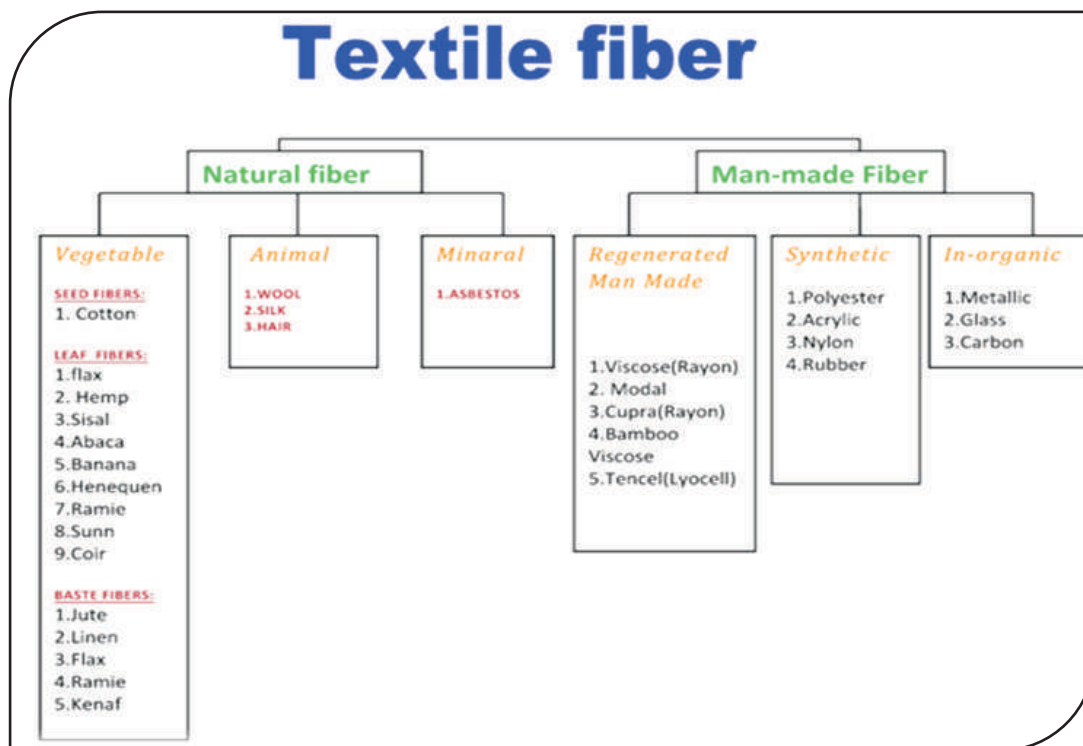
VIII. ACTIVITY.**1. Organize a debate on the positive and negative aspects of Industrial Revolution.****Positive Effects of Industrial Revolution:**

- It developed the economy.
- It led to the emergence of machines.
- It caused the mechanization of agriculture.
- Communication and transportation improved dramatically.
- Telegraphs and railroads emerged.
- Improvements in sanitary conditions and medical care gradually occurred, although they were quite slow.

Negative Effects

- A widening gap emerged between the Bourgeoisie and the working class.
- The pollution of the environment worsened, including urban environments where the majority of the population lived.
- Water in canals, which people used, was contaminated.
- Cities were overcrowded.
- Sanitary conditions were poor because they were unmodified to the massive rural exodus.

2. Prepare a list of fabrics and designs and the places of production in India.



IX. Assignment.

1. Write an assignment on the modern plastic road being made by used plastics.

- Plastic roads are made entirely of plastic or of composites of plastic with other materials.
- Plastic roads are different from standard roads in the respect that standard roads are made from asphalt concrete, which consists of mineral aggregates and asphalt.
- Currently, there are no records of regular roads made purely of plastic.
- Plastic composite roads, however, have existed and demonstrate characteristics superior to regular asphalt concrete roads specifically they show better wear resistance.
- The implementation of plastics in roads also opens a new option for recycling post consumer plastics.
- These roads are made from recycled plastics, and the first step in constructing them is to collect and manage the plastic material. These materials are first sorted from plastic waste.
- After sorting, the material is cleaned, dried, and shredded.
- The shredded plastic is mixed and melted at around 170°C.
- Hot bitumen is then added and mixed with the melted plastic. After mixing the mixture is laid as one would with regular asphalt concrete.

Advantages:

- Heating and power generation can be incorporated into plastic roads. Heating can prevent roads from freezing; it can also help evaporate water from the surface.
- Since plastics come with various chemical and physical properties, roads can be engineered to meet specific requirements (e.g. weather and wear resistance)
- Plastic roads can be made into interlocking pieces that can be quickly assembled or disassembled. This makes on-site construction much faster and convenient.
- Plastic waste mixed into asphalt world-wide may solve the issue of plastics in landfills and oceans world-wide, soon becoming more valuable as a commodity in disadvantaged countries.
- Plastic roads can be built from waste plastic --- the majority of which is usually put into landfill, incinerated, or polluted into the environment.

Constrains:

- Pure plastic roads require use of compatible plastics because, when melted, plastics of different types may phase-separate and cause structural weaknesses, which can lead to premature failure.
- Plastics in the road can break down into micro plastics and can find their way into the soil and waterways. These micro plastics can also absorb other pollutants.

2. Collect the pictures of the inventions made at the time of Industrial Revolution.