

Industrial Architecture and the Crystal Palace.

1. A building's age can frequently be read from the materials used. The earliest buildings were built
2. of natural materials. Stone, timber, concrete and brick are basic to traditional architecture. With
3. the end of the eighteenth century and the beginning of the Industrial Age, new manufactured
4. materials or old materials capable of new potential transformed architecture. With iron, an
5. artificial building material appeared for the first time in the history of architecture. The
6. development of the steam engine made increased production of pig, cast and wrought iron
7. possible. Simultaneously the architectonic areas in which glass was employed were extended but
8. it was not until the repeal of tax on glass in 1845 that sheet glass became suddenly available. The
9. structural use of cast and wrought iron in large sections revolutionised our capacity for spatial
10. enclosure.

11. Iron was avoided for private homes but was used for the typical construction tasks of the
12. nineteenth century. These included structures such as factories, department stores, exhibition
13. halls, railway sheds, bridges covering wide distances and were classified as "functional
14. buildings". Cast-iron columns and wrought-iron rails used in conjunction with modular glazing
15. had become the standard technique for the rapid prefabrication of these structures.

16. The main aesthetic features of these iron and glass structures were lightness, transparency and
17. the impression of tension and fragility. In the nineteenth century all these structures which today
18. are described under the heading of industrial architecture were not considered architecture at all
19. with iron and steel being "false" materials. However, the building of Paxton's Crystal Palace in
20. 1851 to house the first world exhibition in Hyde Park, London, made it clear to everybody that
21. iron and architecture were not incompatible. Before submitting his design for the Crystal Palace,
22. Sir Joseph Paxton had worked for the Duke of Devonshire on his Chatsworth estate. He had
23. designed greenhouses for the estate and tried out a new system of glass and metal roof
24. construction in them. Paxton perfected his greenhouse technique in the design of the Crystal
25. Palace. It was an enormous, orthogonal three-tiered glasshouse. The construction was 600 metres
26. long, 120 metres wide and up to 34 metres in height. Its interior volume was organized into
27. galleries, which were alternately 24 feet and 48 feet wide. The roof of these galleries stepped up
28. by 20 feet every 74 feet and culminated in a central nave 72 feet wide. There were three entrance
29. porches and apart from these, its glazed perimeter was uninterrupted. To complement the mass
30. of glass, the building was decorated in red, green and blue, and the iron columns were variegated
31. with yellow stripes.

32. The Crystal Palace was designed in such a way that all its parts could be factory-made and
33. assembled on the site. Like the railway buildings, to which it was related, it was a highly flexible
34. kit of parts, the first ever example of prefabrication and large-scale industrialized building. The
35. Crystal Palace was erected in seventeen weeks and at the end of the exhibition it was dismantled
36. and re-assembled in Sydenham, where it was destroyed by fire in 1936.

37. Because of its great size and its innovative use of glass and iron in pre-fabricated units, it was a
38. milestone in the development of modern architecture.

A) Answer the following questions.

- 1) What transformed architecture at the end of the eighteenth century?
- 2) Give three examples of the types of structures where iron was used.
- 3) Give two features of these iron and glass structures.
- 4) What heading do all these structures come under today?
- 5) Why was Paxton's Crystal Palace built?
- 6) What was the design of the Crystal Palace based on?
- 7) How wide was the Crystal Palace?
- 8) What colours did Paxton use to decorate his Crystal Palace?
- 9) How long did it take to erect the Crystal Palace?
- 10) Why was the Crystal Palace a milestone in the development of modern architecture?

B. What or who do the following words refer to?

1. "his" in line 21 refers to.....
2. "its" in line 26 refers to
3. "these" in line 29 refers to
4. "in which" in line 7 refers to.....
5. "its" in line 29 refers to.....

C. Write true or false next to the following statements.

1. The use of cast and wrought iron in architecture meant that greater spaces could be enclosed. _____
2. Iron and glass structures gave the impression of weight and solidity. _____
3. The glazed perimeter of the Crystal Palace was uninterrupted. _____
4. The Crystal Palace had a flat roof. _____
5. The component parts of the Crystal Palace were made in factories and could be assembled and dismantled. _____