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Question Paper Code : 21045

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2012.

Sixth Semester

Mechanical Engineering

080120036 — POWER PLANT ENGINEERING

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why is a surge tank important in a hydro-plant?
2. Define supercritical boilers.
3. What are the requirements of good coal handling plant?
4. What are the different types of draught systems used in steam power plants?
5. What are fission fragments and fission products?
6. What is a nuclear reactor?
7. What are the applications of diesel power plant?
8. What are the disadvantages of gas turbine plant?
9. How is the load duration curve constructed?
10. What are the fixed costs of power plants?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe the pumped storage power plant. What are the advantages of it? (8)
- (ii) Draw the layout of a high pressure boiler. (8)

Or

- (b) (i) Describe the principle of bubbling fluidized bed boilers. (8)
- (ii) What are the advantages of combined cycle power plant? (8)
12. (a) (i) Draw a line diagram of hydraulic ash handling system used for modern capacity power plant. Discuss its merits with other systems. (8)
- (ii) Explain the working of electrostatic precipitator with neat diagram and list out its outstanding features over other collectors. (8)

Or

- (b) (i) With the help of neat sketches, explain the working of different types of cooling towers. (8)
- (ii) Discuss the various pollutants from steam power plants. (8)
13. (a) (i) Describe with the help of a neat sketch the working of a pressurised water reactor. What are the advantages and disadvantages of it? (8)
- (ii) Explain the safety measures and waste disposal methods of nuclear power plant. (8)

Or

- (b) (i) Draw the layout of nuclear power plant. What are the advantages of it? (8)
- (ii) Explain with a neat sketch the principle of fast breeder reactor. (8)

14. (a) (i) Draw the layout of a diesel engine power plant. (8)
- (ii) What are the factors to be considered while selecting the site for diesel engine power plant? (8)

Or

- (b) (i) Describe a closed cycle gas turbine plant. What are the applications of closed cycle? (8)
- (ii) What are the advantages and disadvantages of gas turbine power plant? (8)

15. (a) (i) Explain the various load curves terms applied to power system. (8)
- (ii) What do you understand by power plant economics? Explain the fixed and operating cost of a power station. (8)

Or

- (b) (i) Describe the different types of load curves. (8)
- (ii) What are the requirements of a tariff? Explain the two part tariff. (8)