Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 71865

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Sixth/Seventh Semester

Mechanical Engineering

ME 2403/ME 73/ME 1353/10122 ME 704 — POWER PLANT ENGINEERING

(Regulation 2008/2010)

(Common to PTME 2403/10122 ME 704 — Power Plant Engineering for B.E. (Part– Time) Seventh Semester – Mechanical Engineering Regulation 2009/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What are the two basic parameters to decide while planning a power plant?

2. What do you understand by load duration curves?

3. What is meant by surface condenser?

4. How are pulverizers classified?

5. What are the methods of governing turbines?

6. What are the functions of surge tank?

7. List out the advantage of the combined power cycle.

8. What are the different types of lubrication system in diesel power plant?

9. Define flat rate tariffs

10. What is a solar pond?

PART B — (5 × 16 = 80 marks)

11. (a) Explain with a neat sketch, the operation of combined Megneto Hydro Dynamic steam power plant.

Or

(b) Explain the construction and working of circulating fluidized bed boilers.

12. (a) Explain the working principle of different type of cooling tower with a neat sketch.

Or

(b) Explain the working principle of electrostatic precipitator.

13. (a) Explain the working of a nuclear power plant. What are the functions of various parts of a nuclear reactor?

Or

(b) What are all the factors to be considered in selecting the site for the hydel power plant? Explain the pumped storage plant with a neat sketch.

14. (a) How do you select engine for a diesel power plant? Describe the auxiliary equipments of a diesel engine power plant.

Or

(b) Explain the working and construction of Gas turbine power plant with layout.

15. (a) Discuss the different type of system used for generating power using geothermal energy.

Or

(b) A power plant of 210 MW installed capacity has the following particulars:

capital cost = Rs. 18,000/kW,

installed Interest and depreciation = 12%,

Annual load factor = 60%

Annual capacity factor = 54%

Annual running charges = Rs. 200×10^6

Energy consumed by power plant auxiliaries = 6%

Calculate

(i) the cost of power generation per kWh, and

(ii) the reserve capacity.

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