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Question Paper Code : 72167

23/05/2017 AN

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Fifth/Seventh Semester

Mechanical Engineering

ME 6701 — POWER PLANT ENGINEERING

(Common to Mechanical Engineering (Sandwich)/Electrical and Electronics Engineering)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define compounding of steam turbines.
2. What is stoker? Classify it.
3. What are the applications of Diesel engine power plants?
4. List down the various processes of the Brayton cycle.
5. What is the function of control rods in nuclear reactor?
6. What is function of pressurizer in PWR?
7. What is fuel cell? State the advantages.
8. What is spillway?
9. What is fixed and operating cost?
10. List down the nuclear waste disposal methods.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the following subsystems of thermal power plant
- (i) Fuel handling system (8)
 - (ii) Ash handling system. (8)

Or

- (b) (i) Explain any one type of cooling tower with neat sketch. (8)
- (ii) Describe with the help of a neat sketch working of induced draught cooling tower. (8)

12. (a) List the types of gas turbine power plant and explain in detail with neat diagram. (16)

Or

- (b) Explain in detail about the construction and working of Integrated Gasifier based Combined Cycle system (IGCC). (16)

13. (a) Explain with neat diagram various components of nuclear reactor with layout of power plant. (16)

Or

- (b) (i) With neat diagram explain boiler water reactor also mention its advantages and disadvantages. (8)
- (ii) Explain nuclear fission and chain reaction. (8)

14. (a) With neat diagram explain the working of biogas plant and solar photovoltaic system with advantages and disadvantages. (16)

Or

- (b) Explain the layout of hydro electric power plant with neat diagram. (16)

15. (a) (i) Mention the objectives and requirements to tariff. (8)
- (ii) Define demand factor, load factor, diversity factor, reserve factor. (8)

Or

- (b) Explain the methods to control pollution in thermal and nuclear power plants. (16)