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Question Paper Code : 10935

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2025.

Third/Sixth/Seventh Semester

Mechanical Engineering

ME 8792 — POWER PLANT ENGINEERING

(Common to: Electrical and Electronics Engineering/Safety and Fire Engineering)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. Name the different types of coal transforming equipments.
2. What are the advantages of forced draught system?
3. Write about the type of cycle used in the gas turbine power plant.
4. Classify oil injection system.
5. Mention the advantages of pressurized water reactor.
6. What are the desirable properties of a good moderator?
7. How water hammer is formed?
8. What is an aerobic digestion process?
9. Write the significance of load curve.
10. How pollution can be controlled in an coal base power plant?

PART B — ($5 \times 13 = 65$ marks)

11. (a) With neat sketches, explain the construction and working of modern coal power plant.

Or

- (b) Discuss the different types of cooling towers and explain any one with a neat sketch.

12. (a) Discuss the types of fuel injection system in a Diesel power plant with neat sketches.

Or

- (b) What are combined power plants? Explain the working of integrated gasifier based combined cycle systems with a neat sketch.
13. (a) With neat sketches explain the layout of boiler water reactor and pressurized water reactor.

Or

- (b) Explain in detail the difference between controlled and uncontrolled nuclear chain reaction.
14. (a) Explain the working of hybrid OTEC system with a neat illustration.

Or

- (b) With neat diagram explain the working of biogas plant and solar photovoltaic system and list its advantages and disadvantages.
15. (a) Describe about power plant economics. Explain the fixed costs and operating costs of a power station.

Or

- (b) With a neat sketch explain in detail about the concept of nuclear waste disposal in nuclear power plants.

PART C — (1 × 15 = 15 marks)

16. (a) Draw the layout and explain the construction and working of a hydroelectric power plant.

Or

- (b) Show that how the efficiency of the Diesel cycle is always lower than the efficiency of Otto cycle for the same compression ratio.