

Reg. No.

Question Paper Code

11842

B.E. / B.Tech. - DEGREE EXAMINATIONS, APR/MAY 2023

Seventh Semester

Mechanical Engineering**ME8792 - POWER PLANT ENGINEERING**

(Regulations 2017)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|---|-------------------------------|
| 1. List out the various steps involved in coal handling system of a thermal power plant. | 2,K1,CO1 |
| 2. What is the function of cooling tower? | 2,K1,CO1 |
| 3. What are the applications of diesel engine power plant? | 2,K1,CO2 |
| 4. Draw the p-V and T-s diagram of Brayton cycle. | 2,K1,CO2 |
| 5. List the types of fuels used in nuclear power plants. | 2,K1,CO3 |
| 6. Why liquid metal preferred in fast breeder reactor? | 2,K1,CO3 |
| 7. What is Surge Tank? | 2,K1,CO4 |
| 8. Name the different types of fuel cells. | 2,K1,CO4 |
| 9. What are the various operating costs of steam power plant? | 2,K1,CO5 |
| 10. Mention the name of any two pollutants from a thermal power plant with its effect on environment. | 2,K2,CO6 |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Explain the following systems with neat sketches:
- (i) Mechanical ash handling system, 6,K2,CO1
- (ii) Hydraulic ash handling system. 7,K2,CO1
- OR**
- b) Explain in detail about the working of different types of Fluidized Bed Combustion (FBC) boiler. 13,K2,CO1
12. a) Explain about the working process of Diesel power plant with a neat layout of all systems. 13,K2,CO2
- OR**
- b) (i) Explain the use of coal in a combined cycle plant in comparison with conventional plant. 6,K2,CO2
- (ii) Elaborate the environmental impact of a combined cycle plant. 7,K2,CO2

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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13. a) Explain the main features of CANDU reactor and elaborate the arrangement of calandria in a CANDU reactor with a neat sketch. *13,K3,CO3*

OR

- b) (i) Discuss the various factors to be considered while selecting the site for nuclear power station. *6,K2,CO3*
(ii) Elaborate various possible nuclear hazards and its effects on human being. *7,K2,CO3*

14. a) Explain about the working process of hydel power plant with a neat layout of all systems. *13,K2,CO4*

OR

- b) Describe the working of single basin and double basin type Tidal power plant. State the advantages and limitations of each. *13,K2,CO4*

15. a) Why waste disposal is important in Nuclear power plants? Describe the waste disposal methods of different types of Nuclear Wastes. *13,K2,CO5*

OR

- b) Compare the different elements of costs involved in analysis of economics of various types of power plants. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Based on present environmental issues, recommend suitable methods for pollution control in Thermal and nuclear power plants in India. Elaborate the reasons? Limit your answer to 250 to 300 words. *15,K3,CO6*

OR

- b) Compare a Diesel engine plant with hydel power plant and state their relative advantages and disadvantages. *15,K2,CO6*