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Question Paper Code	12259
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B.E./B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 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,</i>
<i>K-Level, CO</i> |
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| 1. List different methods of ash handling. | <i>2, K1, CO1</i> |
| 2. Why the preparation of coal is necessary? | <i>2, K2, CO1</i> |
| 3. State the merit and demerit of use of mercury in binary cycle power plants. | <i>2, K1, CO2</i> |
| 4. Under what circumstance will you recommend Diesel power plants? | <i>2, K2, CO2</i> |
| 5. What is the purpose of reprocessing of nuclear waste? | <i>2, K2, CO3</i> |
| 6. List the subsystems of a typical nuclear power plant. | <i>2, K1, CO3</i> |
| 7. What are the advantages of using horizontal axis wind turbines? | <i>2, K1, CO4</i> |
| 8. What is a surge tank? | <i>2, K1, CO4</i> |
| 9. What is the significance of load curve? | <i>2, K1, CO5</i> |
| 10. What are the methods used for controlling the NO _x ? | <i>2, K1, CO5</i> |

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

11. a) With neat sketch explain the working of modern coal power plant. Explain its advantages & disadvantages. *13, K2, CO1*
- OR**
- b) Explain the working principle of fluidized bed combustion boiler with neat sketch. *13, K2 CO1*
12. a) Explain in detail about integrated gasifier based combined cycle systems. *13, K2, CO2*
- OR**
- b) Draw the layout of gas turbine power plant and discuss its significance over otto and diesel cycles power plants. *13, K3, CO2*

13. a) Draw and explain construction and working principle of Liquid Metal Cooled Nuclear Reactor. *13,K2,CO3*

OR

- b) Draw and explain construction and working principle of CANDU Type Reactor. *13,K2,CO3*

14. a) Discuss with a neat sketch vertical axis and horizontal axis wind turbines. *13,K2,CO4*

OR

- b) Discuss with a neat sketch of hydro-electric power plant. *13,K2,CO4*

15. a) Explain load curves, load tariffs and load distribution system used in power plants. *13,K3,CO5*

OR

- b) The peak load on a power station is 30MW. The loads having maximum demands of 15MW, 10MW, 5MW and 7MW are connected to the power station. The capacity of the power station is 40MW and annual load factor is 50%. Find a) Average peak load of the power station b) Energy supplied per year c) Demand factor & d) Diversity factor. *13,K3,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) With neat sketch explain solar thermal power plant, its construction, working, advantages and disadvantages. *15,K3,CO3*

OR

- b) Describe the principle of a fuel cell and discuss the choice of fuels required. *15,K3,CO3*