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Question Paper Code: 99709

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2024

Elective

Mechanical Engineering

19UME909 - Power Plant Technology

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- Which of the following device helps in recovery of seeding element? CO1- U
(a) Ion precipitator (b) condenser
(c) electrostatic precipitator (d) orsat's apparatus
- Surge tank is for the protection of..... CO1- U
(a) Dam (b) Spillways (c) Penstock (d)Head race
- The equipment installed in power plants to reduce air pollution due to smoke is CO1- U
(a) Induced draft fans (b) De-super heaters
(c) Electrostatic precipitators (d) Re-heaters.
- In a steam turbine cycle, the lowest pressure occurs in CO1- U
(a) Turbine inlet (b) boiler (c) condenser (d) super heater.
- Minimum quantity of fuel is required..... CO1- U
(a) Thermal power plant (b) Nuclear power plant
(c)Hydroelectric power plant (d) Diesel power plant
- In nuclear power stations which nuclear reaction is performed? CO1- U
(a) Nuclear fission (b) Nuclear fusion
(c) 90% fission and 10% fusion (d) 90% fusion and 10% fission
- Gas turbine is widely used in CO1- U
(a) pumping stations (b) aircraft (c) locomotives (d) Automobiles.

8. In the _____ heat transfer takes place between the exhaust gases and cool air CO1- U
- (a) Intercooler (b) Re-heater (c) Regenerator (d) Compressor
9. Photovoltaic solar energy conversion system makes use of CO1- U
- (a) fuel cell (b) solar cell (c) solar pond (d) None of the above.
10. Geothermal energy is CO1- U
- (a) renewable (b) alternative (c) inexhaustible (d) all the above.

PART – B (5 x 2= 10 Marks)

11. Outline the basic principal of a magneto hydro dynamic (MHD) CO1- U
12. Classify about Mechanical Stokers? CO1- U
13. Explain about Nuclear Fusion CO1- U
14. Describe the effect of inter cooling in a gas turbine plant. CO1- U
15. Explain solar cell. CO1- U

PART – C (5 x 16= 80 Marks)

16. (a) Explain the layout of closed MHD generator and their advantages, disadvantages, application CO1- U (16)
- Or
- (b) Explain with line diagram of coal preparation in thermal power plant CO1- U (16)
17. (a) Differentiate between forced draught and induced draught cooling tower. Explain anyone with a neat sketch CO1- U (16)
- Or
- (b) What is ESP? Explain with a neat sketch and Write the advantages and disadvantages of ESP CO1- U (16)
18. (a) Explain the working of pressurized water reactor with neat sketch CO1- U (16)
- Or
- (b) Explain the working of boiling water reactor with a neat sketch CO1- U (16)

19. (a) How do you select engine for a diesel power plant? Draw a diesel power plant and explain its major components CO1- U (16)
- Or
- (b) Explain with a neat sketch of various arrangements of gas turbine power plant layouts. CO1- U (16)
20. (a) Explain the method of power generation using Biogas with neat sketch CO1- U (16)
- Or
- (b) Explain the pollution control technologies including waste disposal options for nuclear power plant. CO1- U (16)

