Code: 19ME4702A

IV B.Tech - I Semester - Regular Examinations - DECEMBER 2022

POWER PLANT ENGINEERING (MECHANICAL ENGINEERING)

Duration: 3 hours Max. Marks: 70

Note: 1. This question paper contains two Parts A and B.

- 2. Part-A contains 5 short answer questions. Each Question carries 2 Marks.
- 3. Part-B contains 5 essay questions with an internal choice from each unit. Each question carries 12 marks.
- 4. All parts of Question paper must be answered in one place.

BL – Blooms Level

CO – Course Outcome

PART - A

		BL	CO
1. a)	Define energy. What are the different sources of	L1	CO1
	energies?		
1. b)	Distinguish between open cycle and closed cycle	L2	CO2
	gas turbine plants.		
1. c)	Summarize the advantages of fast breeder	L2	CO3
	reactors.		
1. d)	State the importance of measurement and	L1	CO4
	instrumentation in power plants.		
1. e)	Define demand factor and load factor.	L1	CO5

PART – B

power plant and explain them with neat sketch. b) Describe the working of single retort stoker with neat sketch. OR 3 a) State the functions of following components of thermal power plant: (i) Economizer (ii) Boiler feed pump (iii) Draught System. b) Write a short note on electrostatic precipitator and Air Pre-heater. UNIT-II 4 a) Why the starting of diesel plant is more difficult? Explain the method used for starting diesel engine. b) Explain briefly the methods available to improve thermal efficiency of gas turbine plant. OR 5 a) Explain the method used for super L2 (charging the engine.				BL	СО	Max. Marks		
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power plant with neat sketch. b) Explain the principle of operation of Pressure Water Reactor with neat sketch. OR 7 a) Describe briefly about spillway. Why are spillways required? What are the different types of spillways? b) Explain the principle of operation of boiling water reactor used for power generation along with a neat sketch. UNIT-IV 8 a) Illustrate with schematic diagram, L3 CO4 6 M coordination of gas turbine plant with hydro electric plant. b) Sketch and explain the working of smoke measurement system. OR 9 a) Illustrate the working of pump storage plant in coordination with nuclear power plant.			UNIT-III					
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b) Explain the procedures for the L2 CO4 6 M			plant in coordination with nuclear power					
measurement of oxygen.		b)	Explain the procedures for the	L2	CO4	6 M		
			measurement of oxygen.					

UNIT-V					
10	a)	A power station has a maximum demand	L2	CO5	8M
		of 15 MW, a load factor of 0.7, plant			
		capacity factor of 0.525 and a plant use			
		factor of 0.85. Find (i) The daily energy			
		produced (ii) The reserve capacity of the			
		plant (iii) The maximum energy that			
		could be produced daily if the plant			
		operating schedule is fully loaded when			
		in operation			
	b)	Discuss briefly about different types of	L2	CO5	4M
		effluents from power plants.			
		OR			
11	a)	Differentiate between fixed cost and	L2	CO5	6 M
		running cost in an organization.			
	b)	Explain how the NOx emissions can be	L2	CO5	6 M
		reduced in the flue gases?			