PVP 20

Code: 20ME4703C

IV B.Tech - I Semester – Regular Examinations - DECEMBER 2023

POWER PLANT ENGINEERING
(MECHANICAL ENGINEERING)

Duration: 3 hours Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.
2. All parts of Question must be answered in one place.

BL – Blooms Level CO – Course Outcome

			BL	CO	Max. Marks
UNIT-I					
1	a)	Name the different circuits in steam power plant. Describe about the layout of a modern steam power plant with neat diagram.	L2	CO1	7 M
	b)	Explain the steps involved in handling of the coal with flow chart.	L3	CO2	7 M
OR					
2	a)	What is function of stoker? Explain working of spreader stoker with neat diagram.	L2	CO1	7 M
	b)	What is major role of cooling tower in steam power plant? Explain the working of natural draught cooling system with neat diagram.	L3	CO2	7 M

UNIT-II					
3	a)	Explain briefly the following lubrication system. i) Dry lubrication system ii) Wet lubrication system	L2	CO1	7 M
	b)	Explain about combined cycle power plant with neat diagram.	L2	CO1	7 M
OR					
4	a)	What is use of cooling system in Diesel power plants? List different types of cooling system and explain any one cooling system with proper diagram.	L3	CO1	7 M
	b)	Explain the working principle of closed cycle Gas turbine with neat Schematic layout.	L3	CO3	7 M
UNIT-III					
5	a)	List the classification of hydro-electric power plant. Draw and explain the working of pumped storage power plant.	L2	CO1	7 M
	b)	Describe with help of a neat sketch the construction and working principle of Gas Cooled Reactor (GCR).	L2	CO1	7 M
OR					
6	a)	What is function of Dam? Explain with neat sketch Buttres dam and Rock fill dam.	L2	CO1	7 M
	b)	Describe with help of a neat sketch the construction and working principle of Boiling Water Reactor (BWR).	L2	CO1	7 M

UNIT-IV					
7	a)	How would you make an economic analysis of the combined operation of the hydro and steam power plants?	L3	CO3	7 M
	b)	Define smoke. Explain the working principle of smoke measurement instrument with neat diagram.	L2	CO2	7 M
OR					
8	a)	Explain the load division between power stations. Explain coordination of hydroelectric and nuclear power stations in detail.	L3	CO2	7 M
	b)	List out the different nuclear measurement instruments. Explain any one instrument working principle with neat diagram.	L2	CO3	7 M
UNIT-V					
9	a)	Define: i) connecting load, ii) maximum load, iii) demand load, iv) utility factor and v) plant use factor.	L2	CO3	7 M
	b)	List out different types of pollutions from thermal power plant and explain their effects on the environment.	L2	CO2	7 M
OR					
10	a)	A 60 MW power station has an annual peak load of 50 MW. The power station supplies loads having maximum demands of 20 MW, 17 MW, 10 MW and 9 MW. The annual	L4	CO3	7 M

		load factor is 0.45. Find: i) Average load ii) Energy supplied per year iii) Diversity factor.			
	b)	Explain how the NOx emission can be reduced in the flue gases?	L2	CO2	7 M