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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January 2024 Semester End Main Examinations

Programme: B.E.

Branch: Mechanical Engineering

Course Code: 20ME7DEPPE

Course: Power Plant Engineering

Semester: VII

Duration: 3 hrs.

Max Marks: 100

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.	UNIT - I			CO	PO	Marks
	1	a)	Draw the layout of Steam Power Plant and label the different parts.	CO1	PO1	06
		b)	With a neat sketch explain the following mechanical stokers: i) Chain grate stoker, and ii) Spreader stoker.	CO1	PO1	08
		c)	Discuss with suitable line diagram, various methods used to fire pulverised coal.	CO1	PO1	06
	OR					
	2	a)	Derive an expression for height of chimney and 'h' in mm of water and show that height of column of hot gases (h) is given $h' = \left[\left(\frac{w}{w+1} \right) \times \frac{T}{T_1} - 1 \right] \text{ mm of hot gases.}$	CO2	PO1	08
		b)	What are the different types of cooling towers used in steam power plant? Discuss their specific advantages.	CO2	PO1	06
		c)	Discuss the following components with respect to steam power plant: i) Economizer, ii) super heater, iii) Air pre heater.	CO2	PO1	06
	UNIT - II					
	3	a)	Discuss with the help of line diagram, the auxiliary equipment of diesel engine power plant.	CO2	PO2	10
		b)	What are the various factors to be considered while selecting the site for diesel engine power plant? Discuss the advantages and disadvantages of the diesel engine power plant.	CO2	PO2	10
UNIT - III						
4	a)	Name different types of hydro-electric plants. Discuss with neat sketch, pumped storage plant.	CO3	PO2	06	

	b)	How a surge tank helps in reducing the water hammer effect? Discuss the various types of surge tanks used in hydro-electric power plant	CO3	PO2	06
	c)	What is the function of a gate in hydro power station? Briefly describe Rolling gate and Radial gate.	CO2	PO2	08
		OR			
5	a)	What is nuclear reactor? With a neat sketch describe the various parts of nuclear reactor.	CO3	PO2	10
	b)	Make a neat sketch and explain the working of the following: i) Liquid metal cooled Reactor, and ii) Gas cooled nuclear reactor.	CO3	PO2	10
		UNIT - IV			
6	a)	Discuss the various methods of computing the Tariff.	CO4	PO2	06
	b)	Discuss the effects of Nuclear Radiation (Radiation Hazards) and methods of Nuclear Nuclear Waste Disposal.	CO4	PO2	08
	c)	Discuss the effect of green house on environment.	CO4	PO2	06
		UNIT - V			
7	a)	Discuss on thermodynamic property trends.	CO4	PO6	06
	b)	What are the qualities of super critical carbon dioxide (CO ₂)?	CO4	PO6	06
	c)	With neat sketch discuss the working of a recompression cycle.	CO4	PO6	08
