

Question Paper Code: 57578

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Fifth Semester

Electrical and Electronics Engineering

ME 6701 - POWER PLANT ENGINEERING

(Regulations 2013)

Time: Three Hours

Maximum: 100 Marks

Answer ALL questions. $PART - A (10 \times 2 = 20 \text{ Marks})$

- 1. What are once through boilers?
- 2. What are the functions of a draught system?
- 3. Name the essential components of a diesel electric plant.
- 4. Give examples of combined cycle power plant.
- 5. What are fast nuclear reactors?
- 6. What is a CANDU type reactor?
- Define the function of surge tank in hydro plants.
- 8. Why is a tall tower essential for mounting a horizontal axis wind turbine?
- Define load factor and capacity factor.
- 10. What are fixed costs in a power plant?

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$PART - B (5 \times 16 = 80 Marks)$

11.	(a)	(i)	Describe the working of FBC boiler with a neat diagram.	(8)
		(ii)	Explain the arrangement and operation of a surface condenser.	(8)
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	(b)	(i)	Discuss the functions of air heater types.	(8)
		(ii)	Describe with a sketch the working of a mercury-water binary cycle.	(8)
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12.	(a)	(i)	With the help of a diagram, explain the functions of essential component	S
			of diesel power plant.	(10)
		(ii)	What is IGCC system ? Brief.	(6)
			OR	
	(b)	(i)	Bring out the difference between closed cycle and open cycle gas turbine	e
			power plants.	(8)
		(ii)	Discuss why combined cycle power generation is so important in presen	t
			day energy scenario.	(8)
			What are once through beliefe	
13.	(a)	(i)	Explain the functions of reflectors and cladding.	(8)
		(ii)	Explain the necessity of pressurizer in a PWR power plant.	(8)
			Name the essential components of college class RO and	
	(b)	(i)	List and brief the characteristics features of a BWR.	(8)
		(ii)	Write a note on India's three stage nuclear power programme.	(8)
14.	(a)	(i)	Write on the factors that should be considered while selecting a site for	a
			hydroelectric plant.	(8)
		(ii)	What is pumped storage plant? Explain with a sketch.	(8)
			OR Indiana and Indiana and Indiana and Indiana	
	(b)	(i)	Describe the functions of a solar PV electric plant.	(8)
		(ii)	Enumerate the advantages of fuel cell power sources with specific	c
			reference to environment.	(8)

15.	(a)	(i)	List and discuss any 4 power tariff structure adopted by TANGEDCO ?	(8)
		(ii)	Name the pollution control technologies adopted in thermal power plants	
			and describe any one.	(8)
			OR	
	(b)	(i)	Name and elaborate on the elements that contribute to the total cost of	
			electricity.	(6)
		(ii)	Brief: Base Load, Peak Load and average load of a thermal power plant.	(6)
		(iii)	Indicate the likely % cost of capital and operating cost of a thermal power	
			plant take the like of the power plant as 25 years.	(4)