Seat No.:	Enrolment No.

Subject Code: 151904

Time: 02.30pm-05.00pm

Subject Name: Power Plant Engineering

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V • EXAMINATION - SUMMER • 2015

Date: 07/05/2015

Total Marks: 70

Ins	tructio									
		. Attempt all que								
	2.		assumptions when							
	3.	. Figures to the r	right indicate full	marks.						
Q.1	(a)		-	l power plant a	nd make a list	of site selection	07			
	(7.)	criteria for the same.								
	(b)	(i) Define base load, average load and peak load for a power plant.(ii) Daily load of power generation plant is given in following table.								
			<u> </u>				04			
		Time	12 AM to 6 AM	6 AM to 8 AM	8 AM to 12PM	12 PM to 2 PM				
		Load (MW) Time	1270 2 PM to 4 PM	1850 4 PM to 6 PM	3800 6 PM to 8 PM	2000 8 PM to 12 PM				
		Load (MW)	3200	3900	3200	2800				
		Solve the follow		1 2200	10200					
		I Draw load curve II Calculate average load and load factor for maximum demand of 5000 MW.								
0.4	()						07			
Q.2	(a)	a) Draw a neat sketch of once through drum less boiler. What are its advantage over conventional high pressure boilers?								
	(b)	Explain working	g principal of flu	uidized bed boile	er with necessar	ry diagram. How	07			
		Sulfur and Nitro	ogen emissions a	re controlled in	fluidized bed bo	iler.				
				OR						
	(b)					wer plant? Name	07			
			ds to control th	e temperature o	of steam and ex	plain any two in				
		detail.								
Q.3	(a)	a) Classify stokers and explain any one overfeed stoker with necessary diagram.								
Z.c	(b)					explain any one	07 07			
	(0)	mill in detail.	au vantages of p		ing system time	onpium unij one	0.			
				OR						
Q.3	(a) Prove the following:						07			
	()		arge through chi	mney occurs wh	nen					
				J						
		$\frac{T_g}{T_a} = 2\left(\frac{m_a + 1}{m_a}\right)$								
	Where T_g and T_a are gas and air temperature respectively and m_a is mass of air.									
	(b)	How impure w	ater affects the	boiler. Explain	any one meth	od to purify the	07			
		water.								
0.4	(a)	(i)Why yacuum	is required in a	condenser? Mak	e a list of diffe	erent methods to	03			
Ų.Ŧ	(a)	achieve it.	is required in v	condenser: war	ce a list of anic	Tent methods to	UJ			
			oling tower based	l on location of	fan in it Explair	n terms "drift, fill	04			
		•	ater" with respec		-	i territe dirit, im	•			
	(b)			_		ystems of Diesel	07			
	(~)	power plant in c	-	F	j	,	0.			
		r - · · · - p···························	··· 	OR						
0.4	(a)	(i) What is de-a	erator in thermal				03			
•	` /		t common metho		er in thermal pov	wer plant.	04			
		· / I		1 ,	r	1	1			
							1			

	(b)	Give comparison for the following with respect to Diesel power plant. (i) Dry sump lubrication and wet sump lubrication (ii) Air cooling and water cooling	07
Q.5	(a)	Explain with neat sketch boiling water reactor.	07
	(b)	Define the following for Nuclear power plant	07
		(i) Moderator	
		(ii) Control rod	
		(iii) Shield	
		OR	
Q.5	(a)	Explain nuclear fusion and fission process. Make a list of nuclear power plants of India.	07
	(b)	Name major pollutants of thermal power plants and their effects on environment and mankind.	07
