Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) • EXAMINATION – WINTER 2016

Subject Code: 2140908 Date:22/11/2016

Subject Name: Electrical Power Generation

Time:02:30 PM to 05:00 PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1		**Short Questions**	**14**
	1	What is the difference between base load & peak load?	
	2	What is load curve and load duration curve?	
	3	What is the requirement of neutral grounding?	
	4	Write the list of equipments used for the control in substation.	
	5	Why C.T. secondary should not be open?	
	6	Write name of conventional & nonconventional energy sources.	
	7	What are objectives of tariff?	
	8	Write function of economizer in thermal power plant.	
	9	Write function of surge tank in hydro power plant.	
	10	Why overall efficiency of hydro power plant is high?	
	11	What is chain reaction?	
	12	What is the function of moderator & control rod?	
	13	Write the name of various elements of diesel power plant.	
	14	Write name of any three nuclear power plant of India.	
Q.2	**(a)**	What is energy? Write various sources of energy.	**03**
	(b)	Discuss the factors are affect for site selection of thermal power Station.	**04**
	(c)	Draw a steam power station and explain its various components and their functions.	**07**
		OR	
	(c)	Discuss the points to be considered in locating the site of a hydro power plant. Write the advantages and disadvantages of hydro power plant.	**07**
Q.3	**(a)**	What are the advantages of nuclear power plants? Also write problems associated with it.	**03**
	(b)	Explain the difference between fusion reaction and fission reaction.	**04**
	(c)	What is nuclear reactor? Describe the various parts of nuclear reactor.	**07**
		OR	
Q.3	**(a)**	Explain the different types of turbine used in hydro power station.	**03**
	(b)	Define: (i) Load factor (ii) Demand factor (iii) Diversity factor (iv) Connected load	**04**
	(c)	Explain types of gas turbine power plant with diagram. Why compressor is use in gas turbine power plant?	**07**
Q.4	**(a)**	Compare conventional energy sources with non conventional energy sources.	**03**
	(b)	Discuss the applications of solar energy.	**04**
	(c)	A power station is to supply three industrial loads- whose peak	**07**

loads are 50 MW,40 MW and 30 MW. The annual load factor is 0.65 and diversity factor is 1.75. Estimate the following.

(i) Maximum demand on the plant
(ii) Average load
(iii) Annual energy generated

OR

Q.4	**(a)**	Explain advantages and disadvantages of wind energy.	**03**
	(b)	Explain basic principle of wind energy generation.	**04**
	(c)	What is substation? Explain classification of substation.	**07**
Q.5	**(a)**	Explain present status of photovoltaic system in Gujarat and India.	**03**
	(b)	Discuss the points and write the methods of site selection for locating the wind mills.	**04**
	(c)	Write a short note on arc suppression coil earthing. Explain the objectives and advantages of earthing.	**07**

OR

Q.5	**(a)**	What is tariff? Explain the types of tariff.	**03**
	(b)	Define power coefficient, tip speed ratio and solidity. Discuss their effect on performance of wind turbine.	**04**
	(c)	Explain solar photovoltaic system in detail.	**07**

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