Seat No.: Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV(New) EXAMINATION - SUMMER 2016

Subject Code:2140908 Date:03/06/2016

Subject Name: Electrical Power Generation

Time:10:30 AM to 01:00 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	4	Short Questions	14
	1 2	Economisers are used to heat	1 1
		In a hydro-electric plant, spillways are used	
	3	Of all the plants, minimum quantity of fuel is required in plant.	1
	4	Diesel power plants are used as plants.	1
	5	Gas turbine power plant is efficient than steam power plant.	1
	6	The value of demand factor is than one.	1
	7	The block rate tariff is mostly applicable to consumers.	1
	8	The ideal tariff for any type of consumer is tariff.	1
	9	Francis and Kaplan turbines are used for heads.	1
	10	What is photovoltaics (solar electricity)?	1
	11	What do you mean by wind energy conversion systems?	1
	12	When single line to earth fault occurs on an ungrounded neutral system, the capacitive current in the two healthy phases rises to times the normal value.	1
	13	Single bus-bar arrangement in sub-stations is used for voltages less then KV.	1
	14	The neutral wire is coloured	1
Q.2	(a)	Why is the overall efficiency of a steam power station very low?	03
	(b)	Explain functions of the following in relation to nuclear power station:(i) Control rod (ii) Moderator (iii) Coolant (iv) Heat exchanger	04
	(c)	diagram.	07
	(a)	OR Explain are symmetric acil conthing in detail	07
0.0	(c)	Explain arc suppression coil earthing in detail.	07
Q.3	(a)	Explain the essential factors which influence the choice of site for a hydro- electric plant.	03
	(b)	Explain the functions of the following: (i)Dam (ii) spillways (iii) surge tank (iv) draft tube	04

	(c)	Draw and explain schematic arrangement of diesel power plant. Give advantages and disadvantages of diesel power plant.	07
		OR	
Q.3	(a)	Discuss advantages and disadvantages of Nuclear power stations.	03
	(b)	What is meant by water hammering effect? How it is minimized with the help of surge tank?	04
	(c)	Explain the working of a closed cycle gas turbine power plant with a schematic diagram	07
Q.4	(a)	Differentiate between open and closed gas turbine cycles?	03
	(b)	What are the major components of wind energy conversion systems?	04
	(c)	Explain construction & working of solar refrigeration plant with suitable figure	07
		OR	
Q.4	(a)	Enlist various equipment's used in substation.	03
	(b)	Write different types tariff and explain three part tariff.	04
	(c)	Define (I) Connected load (II) Plant capacity factor (III) Diversity factor (IV) Maximum load (V) Plant use factor (VI) Base load (VII) Peak load.	07
Q.5	(a)	What is Neutral Grounding? List the advantages of Neutral Grounding.	03
	(b)	What is a transformer sub-station? What are the different types of transformer sub-stations? Illustrate your answer with a suitable block diagram.	04
	(c)	Explain working principle of solar photovoltaic cell. Also Draw and explain the I-V and P-V characteristics of solar photovoltaic cell.	07
		OR	
Q.5	(a)	Why is neutral earthing necessary in power system? How can it be classified?	03
	(b)	Differentiate between Horizontal and Vertical Axis Wind Turbine.	04
	(c)	Explain construction and working of DFIG	07
