

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2140908

Date:17/05/2019

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	(a) Compare thermal, hydro and nuclear power stations with respect to capital cost, running cost and standby losses.	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) Draw a steam power station and explain its various components and their functions.	07
Q.2	(a) Why is the overall efficiency of a steam power station very low?	03
	(b) Explain the difference between fusion reaction and fission reaction.	04
	(c) Explain working of hydro power station with suitable schematic diagram and discuss functions of its constituents.	07
	OR	
	(c) Enlist different types of nuclear reactors. Explain working of pressurized water nuclear reactor with suitable diagram.	07
Q.3	(a) Define grounding. What are the advantages of neutral grounding?	03
	(b) Define: (i) Load factor (ii) Demand factor (iii) Diversity factor (iv) Connected load.	04
	(c) What is solar photovoltaic system? Discuss its major components. Also state its applications	07
	OR	
Q.3	(a) Differentiate between open and closed gas turbine cycles.	03
	(b) Draw and explain the I-V and P-V characteristics of solar photovoltaic cell.	04
	(c) Give schematic arrangement and explain the working of combined cycle gas power plant.	07
Q.4	(a) Enlist various equipment's used in substation.	03
	(b) Compare outdoor and indoor substations.	04
	(c) Explain arc suppression coil earthing in detail.	07
	OR	
Q.4	(a) Differentiate between Horizontal and Vertical Axis Wind Turbine.	03
	(b) Draw and explain working of direct type solar dryers.	04
	(c) Explain construction and working of DFIG.	07

- Q.5** (a) What are the major components of wind energy conversion systems? **03**
(b) Discuss the role of distributed generation in electric power system. **04**
(c) Explain construction & working of solar refrigeration plant with suitable figure. **07**

OR

- Q.5** (a) What is tariff? Explain the types of tariff. **03**
(b) What are the disadvantages of single bus bar scheme? Draw duplicate bus bar scheme and explain its advantages. **04**
(c) Derive the equation for available wind power in terms of velocity of wind and diameter of turbine rotor. **07**
