

**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
<b>Q.1</b>	(a) Compare thermal, hydro and nuclear power stations with respect to capital cost, running cost and standby losses.	<b>03</b>
	(b) Explain functions of the following in relation to nuclear power station: (i) Control rod (ii) Moderator (iii) Coolant (iv) Heat exchanger.	<b>04</b>
	(c) Draw a steam power station and explain its various components and their functions.	<b>07</b>
<b>Q.2</b>	(a) Why is the overall efficiency of a steam power station very low?	<b>03</b>
	(b) Explain the difference between fusion reaction and fission reaction.	<b>04</b>
	(c) Explain working of hydro power station with suitable schematic diagram and discuss functions of its constituents.	<b>07</b>
	<b>OR</b>	
	(c) Enlist different types of nuclear reactors. Explain working of pressurized water nuclear reactor with suitable diagram.	<b>07</b>
<b>Q.3</b>	(a) Define grounding. What are the advantages of neutral grounding?	<b>03</b>
	(b) Define: (i) Load factor (ii) Demand factor (iii) Diversity factor (iv) Connected load.	<b>04</b>
	(c) What is solar photovoltaic system? Discuss its major components. Also state its applications	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Differentiate between open and closed gas turbine cycles.	<b>03</b>
	(b) Draw and explain the I-V and P-V characteristics of solar photovoltaic cell.	<b>04</b>
	(c) Give schematic arrangement and explain the working of combined cycle gas power plant.	<b>07</b>
<b>Q.4</b>	(a) Enlist various equipment's used in substation.	<b>03</b>
	(b) Compare outdoor and indoor substations.	<b>04</b>
	(c) Explain arc suppression coil earthing in detail.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Differentiate between Horizontal and Vertical Axis Wind Turbine.	<b>03</b>
	(b) Draw and explain working of direct type solar dryers.	<b>04</b>
	(c) Explain construction and working of DFIG.	<b>07</b>

- 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**

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