

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER– VIII (New) EXAMINATION – WINTER 2019****Subject Code: 2182401****Date: 27/11/2019****Subject Name: Power Electronics Applications****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) Explain merits and demerits of power electronics systems.	03
	(b) Explain the role of power electronics in Fan Regulator.	04
	(c) Write a technical note on: - Battery operated vehicles.	07
Q.2	(a) Explain the role of power electronics in washing machine.	03
	(b) Give advantages of HVDC transmission system.	04
	(c) Explain application of power electronics in satellite power supplies and aircraft power supplies.	07
<b>OR</b>		
	(c) Explain induction heating application of power electronics converter.	07
Q.3	(a) Explain the Principle of Arc furnaces.	03
	(b) Explain the static circuit breakers.	04
	(c) Explain the functions of Power electronics converter in excavators & cement mills applications.	07
<b>OR</b>		
Q.3	(a) Draw block diagram of active power filter.	03
	(b) What is the electroplating?	04
	(c) List various methods of static VAR compensators and explain any one in details.	07
Q.4	(a) Define basic four types of power processing converters.	03
	(b) List out the advantages and disadvantages of variable speed drives.	04
	(c) Explain the block diagram of electric motor drive.	07
<b>OR</b>		
Q.4	(a) Compare Regenerative braking and Rheostatic braking mode for chopper drives.	03
	(b) Give classification of FACTS controllers.	04
	(c) Explain the functions of Power electronics converter in rolling mills and textile mills applications.	07
Q.5	(a) Draw the block diagram of SMPS.	03
	(b) Give brief description of wind power plant.	04
	(c) Explain the Principle of induction heating. Explain Arc furnace with necessary diagrams.	07
<b>OR</b>		
Q.5	(a) Give advantages of hybrid vehicle.	03
	(b) Explain the reliability of power supply in aerospace systems.	04
	(c) Explain speed control of BLDC motor with power electronics converter with necessary diagrams.	07

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