Seat No.: _____ Enrolment No._____

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**
		OR	
	(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**
		OR	
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**
		OR	
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**
		OR	
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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