Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V (OLD) EXAMINATION – WINTER 2018

Subject Code:152401   **Date: 04/12/2018**

Subject Name: Power Electronics Devices & Components

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**
4. **Notation/Symbols have used meaning.**

Q.1	**(a)**	Draw the symbol and V-I Characteristics of the following : (i) LASCR (ii) GTO (iii) UJT (iv) TRIAC.	**08**
	(b)		**06**
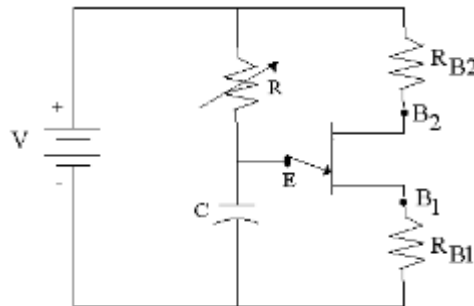
Fig.1

Analyze the working of the circuit shown in fig1.

Q.2	**(a)**	State requirements for successful commutation. Explain class A commutation method for thyristor.	**07**
	(b)	Discuss ideal switch characteristics. Enlist various types of losses in an electronic switch	**07**

OR

	(b)	Discuss the various Turn-on methods for Thyristor.	

Q.3	**(a)**	Describe reverse recovery characteristics of a diode with necessary diagram(s).	**07**
	(b)	Sketch symbol and equivalent circuit of depletion type Power MOSFET. Describe its operation in detail.	**07**

OR

Q.3	**(a)**	Describe the principle of operation of a Shottky Diode. State its applications.	**07**
	(b)	Enlist various driving circuit used for Power BJT and discuss any one of them.	**07**

Q.4	**(a)**	Write short note on:- (i) Opto-coupler (ii) PiN diode	**07**
	(b)	Explain cooling & mounting techniques for a power device in detail.	**07**

OR

Q.4	**(a)**	Discuss switching characteristic of an IGBT.	**07**
	(b)	Enlist factors responsible for un-reliable operation of a thyristor. Discuss remedies for any two of them.	**07**

Q.5 **(a)** Discuss parallel operation of two Power MOSFETs.   **07**
       (b) Draw and explain two transistor model of an SCR.   **07**

<div align="center">**OR**</div>

Q.5 **(a)** Write notes on: - (i) SITH   (ii) MCT.   **07**
       (b) Compare Power MOSFET with SCR for various aspects.   **07**

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