Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V EXAMINATION – WINTER 2015

Subject Code: 151703 **Date:05/12/2015**

Subject Name: Electronics in Industries

Time: 10:30am to 1:00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain the constructional details, working and characteristics of an SCR.	**07**
	(b)	Describe half wave controlled rectifier with inductive load and flywheel diode.	**07**
Q.2	**(a)**	What do you mean by commutation? Discuss any two methods of commutation of thyristor.	**07**
	(b)	Explain uni-junction transistor, its biasing and application.	**07**
		OR	
	(b)	Explain the operation of a two-thyristor center-tapped controlled rectifier and draw its input and output waveforms.	**07**
Q.3	**(a)**	With neat sketch explain structure, symbol and V-I characteristics of Silicon Controlled Switch.	**07**
	(b)	Explain three phase center-tapped full wave uncontrolled rectifier.	**07**
		OR	
Q.3	**(a)**	Describe Shockley diode with neat sketch of its V-I characteristic, sectional view and symbol.	**07**
	(b)	Enlist various turn on methods of thyristor. Explain dV/dt turn on in detail.	**07**
Q.4	**(a)**	Classify single-phase controlled rectifier and compare half-wave and full-wave controlled rectifier.	**07**
	(b)	Explain the working principle of Dual converter.	**07**
		OR	
Q.4	**(a)**	Prepare PUT Firing Circuit and list-out its advantages and disadvantages.	**07**
	(b)	Explain the switching characteristics of an IGBT.	**07**
Q.5	**(a)**	Write about Diode-Resistance-Capacitance firing circuit.	**07**
	(b)	Write a note on transistor analogue of a thyristor.	**07**
		OR	
Q.5	**(a)**	Explain the effect of free-wheeling diode in detail.	**07**
	(b)	Describe six phase full wave controlled bridge rectifier.	**07**

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