Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- Vth SEMESTER–EXAMINATION – MAY/JUNE - 2012

Subject code: 151703 **Date: 05/06/2012**

Subject Name: Electronics in Industries

Time: 02:30 pm – 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.**

Q.1	**(a)**	The internal resistance for a UJT are R_{B1}= 7 KΩ and R_{B2}=3 KΩ. Calculate the intrinsic stand-off ratio. If externally applied voltage V_{BB} is 30V, Calculate the stand-off voltage.	**07**
	(b)	Explain full-wave bridge rectifier with resistive-inductive load.	**07**
Q.2	**(a)**	Explain Schottky diode with cross sectional view, symbol and plot of characteristic.	**07**
	(b)	Describe enhancement type MOSFET.	**07**
		OR	
	(b)	Explain BENISTOR with its basic structure and characteristic.	**07**
Q.3	**(a)**	Explain three layer and five layer DIAC.	**07**
	(b)	Describe silicon controlled switch in detail.	**07**
		OR	
Q.3	**(a)**	Write a note on thyristor with cross sectional view, symbol and plot of characteristic.	**07**
	(b)	Introduce new trends in power semiconductor devices.	**07**
Q.4	**(a)**	A voltage, 220 sin (2π50t) is applied to a half-wave rectifier with load resistance of 10 KΩ. Calculate the maximum current, rms current, average current, ac power input, dc power output and ripple factor.	**07**
	(b)	Discuss operation, circuit symbol and characteristic of programmable unijunction transistor.	**07**
		OR	
Q.4	**(a)**	Write a note on Jones commutation.	**07**
	(b)	With necessary circuit diagram explain overcurrent protection of power semiconductor devices.	**07**
Q.5	**(a)**	A three-phase half-wave controlled rectifier is connected to a 230V and 50 Hz input supply with a 200 Ω load resistance. If the desired average output voltage is 25 % of the maximum possible average output voltage, calculate the delay angle α.	**07**
	(b)	Explain the operation of a three phase fully-controlled bridge rectifier.	**07**
		OR	
Q.5	**(a)**	Describe dual converter using circuit diagram and waveforms.	**07**
	(b)	Explain mid-point configuration with resistive load for full wave controlled rectifiers.	**07**

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