GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V- EXAMINATION - SUMMER 2016

Su	bjec	t Code: 152401 Date: 19/05/20	16
Ti	me: (tructi	. Attempt all questions.	70
Q.1	(a) (b)	Compare: Ideal Switch & Practical Switch. Enlist various losses in Practical switch. Explain in brief Safe Operating Area (SOA)	07 07
Q.2	(a) (b)	Draw the Block Diagram of Power Electronics System and Explain functionality and working of each block in detail. Discuss method of Commutation by Resonating the load. OR	07 07
Q.3	(b)(a)(b)	With the use of necessary waveforms explain Class – D Commutation. Draw & Discuss Reverse Recovery Characteristics of power diode and Derive the equation for the Reverse Recovery Time $t_{\rm rr.}$ Draw & Explain Static I-V characteristics of SCR. Also indicate Holding current & Latching Current.	07 07 07
Q.3	(a) (b)	OR Explain in detail: construction & working of Power MOSFET. Explain model of SCR with the help of Two Transistor Analogy.	07 07
Q.4	(a) (b)	Discuss an application of Opto-Coupler with necessary diagrams. Enlist various turn – on methods of SCR. Prove that "Gate Turn on Method is safe to turn on Thyristor."	07 07
Q.4	(a) (b)	OR Write a short note on : Snubber Circuit. Discuss UJT as relaxation oscillator.	03 07
Q.5	(a) (b)	With the help of suitable diagrams explain working principle of TRIAC. Compare: 1) MTO 2) GTO 3) ETO OR	07 07
Q.5	(a) (b)	Write a short note on: DIAC. Explain requirement of Heat sink for Power Electronics application. ***********************************	07 07