

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VI(NEW) – EXAMINATION – SUMMER 2019
Subject Code:2161006
Date:16/05/2019
Subject Name:Power Electronics Devices and Circuits
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.

		MARKS
Q.1	(a) Explain the Silicon Controlled Rectifier with its static characteristics.	03
	(b) Explain Turn OFF methods of SCR.	04
	(c) Explain the construction, working and characteristics of IGBT. .	07
Q.2	(a) Explain snubber circuit for Thyristor protection.	03
	(b) Explain UJT as relaxation oscillator.	04
	(c) Explain switching characteristics of SCR.	07
	OR	
	(c) Explain two transistor analogy of SCR.	07
Q.3	(a) Give comparison of Diac and Triac.	03
	(b) Explain control strategies of chopper.	04
	(c) Describe with suitable waveforms the operation of single phase fully controlled bridge converter with RL load.	07
	OR	
Q.3	(a) State the application of a cycloconverter.	03
	(b) Explain series inverter with circuit diagram and waveforms.	04
	(c) Explain the operation of Jones chopper in detail.	07
Q.4	(a) Explain basic working of cycloconverter with its significance.	03
	(b) Explain Step down Chopper.	04
	(c) Write a short note on PWM inverter.	07
	OR	
Q.4	(a) Define working of inverter, chopper and rectifier.	03
	(b) Draw and explain Morgan Chopper.	04
	(c) What is cycloconverter? Explain single phase to three phase cycloconverter in detail.	07
Q.5	(a) Explain basic working of battery charger.	03
	(b) What is SMPS? Write down the advantages of it.	04
	(c) Explain Dielectric heating and Induction heating in detail.	07
	OR	
Q.5	(a) Explain speed control by motor resistance for AC drives.	03
	(b) Explain static circuit breakers in detail.	04
	(c) Write a short note on online UPS system	07
