Subject Name: Power Electronics Devices and Circuits			t No	
				016 11/05/2016
Q.1	(a)	What are the different methods for turning off an SCR? I commutation with necessary circuit diagram and waveform in det	-	07
	(b)	Why it is necessary to connect SCR in series? Draw and explain static and dynamic equalizing circuit for series connected SCRs.	the necessity of	07
Q.2	(a) (b)	Explain the principle of operation of a chopper with the help of circuit diagram also explain the working of step up chopper. Explain 3 phase half wave controlled rectifier, Also define the continuous and dis continuous mode for the same and draw the load voltage and load current for RL load.		07 07
	(b)	OR Explain single phase half controlled bridge rectifier, with appropriate of load voltage, load current, voltage across thyristor, for RL load		07
Q.3	(a) (b)	Draw the circuit diagram of a two quadrant type C chopper a detail. Write a short note on series inverter and also draw the necessary		07 07
Q.3	(a)	OR Describe the operation of three-phase inverter with 120-De mode.	gree conduction	07
	(b)	Single phase fully controlled bridge converter supplies Id 4 mA following performance measures, if supply voltage is 230V and is maintained at 30°. So, find(a) Average output voltage, current, (c) supply fundamental RMS current, (d)fundamental purply power factor, (f) supply harmonic factor, (g)voltage ripple	if the firing angle (b) supply RMS power factor, (e)	07

(a) What is the basic principal of Cycloconverter? Explain single phase to single

OR

Draw and explain the structure of IGBT. Also explain the following term.(i)

Q.4

Q.4

phase Cycloconverter.

(b) Write a short note on PWM inverter.

Punch through IGBT, (ii) Non punch through IGBT

07

07

07

	(b)	Explain briefly the following methods of braking a dc motor (A) Regenerative braking (B) Dynamic braking (C) Plugging	07		
Q.5	(a)	Draw the block diagram and explain the operation of phase-locked loop control system of DC drives.	07		
	(b)	What is SMPS? Give classification of SMPS. Also explain any one of the SMPS	07		
	OR				
Q.5	(a)	State the various method of speed control of induction motor. And also discuss briefly the stator voltage control scheme of induction motor with its speed torque curves	07		
	(b)	Write a short note on UPS with its necessary mode of operation.	07		
