Q. P. Code: 21941

Time: 3 Hours **Marks: 80**

Instruction to the candidate if any :-

N.B.

1) **Question No-1 is Compulsory.**
2) **Attempt any Three (03) Questions from remaining Five (05) Questions.**
3) **Assume suitable data where ever necessary.**

Q. No.		**Marks.**
Q.1	**Attempt the following Questions(any4)**	
	a) Equivalent circuit and circuit symbol of IGBT	**5**
	b) Compare Self commutation and Class D Commutation .	**5**
	c) What is difference between a cycloconverter and an ac voltage controller	**5**
	d) What are the performance parameters of Inverter ,give effect of crass conduction	**5**
	e) Explain brief step Down /Buck switching Regulator	**5**
	f) Calculate output voltage for a step up chopper with Vin= 200v and duty cycle= 0.25.	**5**
Q.2(a)	What are the over current protection SCR? State the crossbar protection circuit of SCR, Explain the metal oxide Varistors	**10**
Q.2(b)	What is difference between a cycloconverter and an ac voltage controller, Explain single phase converters with waveforms	**10**
Q.3(a)	Explain the construction of GTO I-V characteristics of GTO with Advantages of GTO over BJT and SCR & Applications of GTO	**10**
Q.3(b)	Draw and Explain Buck-Boost Converter with the help of circuit diagram and waveforms Derive the relation for load voltage	**10**
Q.4(a)	A SINGLE quadrant DC to DC converter is operated with following specifications 1.ideal battery of 220V 2.ON time t_{ON} =2msec.3.OFF time t_{OFF}=1.5msec. To find 1.Average and RMS out put Voltage 2.RippleFactor and Form Factor	**10**
Q.4(b)	Draw and Explain Structure of power MOSFET? State STATIC &SWITCHING Characteristics, power MOSFET with forward blocking and applications of power MOSFET	**10**
Q.5(a)	Draw and Explain single phase half controlled rectifier with symmetrical configuration with highly inductive Load draw the waveforms	**10**
Q.5(b)	A three phase inverter operated in 180^0conduction mode is operating from 470VDC supply find out the following 1.RMS value of output line and phase voltage 2.RMS value of the fundamental components of line and phase voltages	**10**
Q.6	Write short note on: (a) Full wave controlled rectifiers with R load with waveforms (b) Three phase full wave converter with waveforms (c) Dual Converter (d) Construction& operation of IGBT	**20**