Exam.Code:0930
Sub. Code: 6608

2023

B.E. (Electronics and Communication Engineering)

Sixth Semester

EC-625: Power Electronics

Time allowed: 3 Hours Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer in brief and to the point.

a) What is Snubber circuit? Explain its working.

b) What is meant by integrated cycle control?

c) Why a PWM inverter is superior to a square wave Inverter? Discuss.

d) In controlled rectifier, how will you ensure continuous load current? Describe.

e) Why switching mode is used in power supplies? Give concept of soft-switching. (5x2)

UNIT - I

II. a) What is power MOSFET? What are the types of power MOSFET? Write the difference between general purpose MOSFET and power MOSFET?

b) Describe the basic behavior of an SCR using a two-transistor model. (2x5)

III. a) Draw and explain the working of a single-phase full bridge controlled rectifier with R and RL load and find dc output voltage.

b) A single phase fully controlled bridge converter with RL load is supplied from 220 V, 50 Hz ac supply. If the firing angle is 35°, determine

i) average output voltage

ii) output current

iii) input power factor (2x5)

IV. a) What is the effect of source inductance in single -phase full - wave controlled bridge rectifier with RL load?

b) Draw the voltage and current waveforms. (2x5)

UNIT - II

V. a) Explain the basic working principle of a 1-phase current source inverter.

b) Discuss the Principle of operation of forward and fly back converters in CCM. (2x5)

P.T.O.

VI. Write technical notes on the following:-

a) Filters at the output of inverters

b) UPS (2x5)

VII. a) What types of disturbances are there on power lines? Discuss the role of power conditioner.

b) Discuss series loaded half bridge DC-DC converter. (2x5)

x-x-x