

- Q.25 What is the advantage of a controlled rectifier over an uncontrolled rectifier?
- Q.26 Explain the working of a PWM inverter.
- Q.27 Write a short note on Class-B commutation technique.
- Q.28 Explain the principle of operation of step-down chopper.
- Q.29 List the five limitations of a series inverter.
- Q.30 Compare BJT and MOSFET mentioning at least five points.
- Q.31 Explain the role of gate terminal in GTO.
- Q.32 Explain Light triggering of LASCR.
- Q.33 Give the main constraints on which heat sink is selected for a given application?
- Q.34 Explain the working principle of a parallel inverter.
- Q.35 What do you understand by illumination control? Explain.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 Draw the circuit and explain the working of automatic battery charger using SCR.
- Q.37 Describe the construction and working principle of TRIAC with its V-I characteristics.
- Q.38 Explain the working of a single phase full wave fully controlled bridge converter with the help of waveforms. Why it is called fully controlled?

No. of Printed Pages : 4
Roll No.

125951/105951

**5th Sem / Branch : Power Eltx.
Sub. : Power Electronics I**

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 In case of power transisitor..... is a controlling parameter.
- a) V_{BE}
 - b) I_C
 - c) I_b
 - d) V_{CE}
- Q.2 The V-I Characteristics of a power diode lie in the.....
- a) 1st and 3rd quadrant
 - b) 1st and 4th quadrant
 - c) 1st quadrant
 - d) 4th quadrant
- Q.3 Which of the following are/is the majority charge carriers in a Schottky diode?
- a) Holes
 - b) Electrons
 - c) Both holes & Electrons carry equal current
 - d) None of the above
- Q.4 A power MOSFET is a
- a) Voltage controlled device

- b) Current controlled device
c) Frequency controlled device
d) None of the above
- Q.5** When a SCR is in the forward blocking state
a) All the 3 junctions are reverse biased
b) The anode and cathode junctions are forward biased but the gate junction is reverse biased.
c) The anode junction is forward biased but the cathode and gate junctions are reverse biased
d) The anode and gate junctions are forward biased but the cathode junction is reverse biased
- Q.6** If gate current is increased, the anode-cathode voltage at which SCR conducts is
a) Increased b) Decreased
c) Maximum d) Least
- Q.7** The three terminals of MCT
a) Anode, cathode, gate
b) Collector, emitter, gate
c) Drain, source, base
d) Drain, source, gate
- Q.8** Chopper converts
a) AC to DC b) DC to AC
c) DC to DC d) AC to AC
- Q.9** A single phase full wave fully controlled bridge converter uses
a) 4SCRs b) 6SCRs
c) 2SCRs d) 3SCRs

- Q.10** A TRIAC is a switch
a) Bidirectional b) Unidirectional
c) Manual d) None of the above

SECTION-B

- Note:** Objective type questions. All questions are compulsory. (10x1=10)
- Q.11** What is the duty cycle of a chopper?
Q.12 Latching current for the GTOs is as compared to conventional thyristors. (Fill in the blank)
Q.13 What do you mean by triggering of SCR?
Q.14 Draw the symbol of UJT.
Q.15 Why heat sinks are used?
Q.16 Write the full form of SCS and draw its symbol.
Q.17 What is LDR?
Q.18 How many SCRs are needed in a half-wave single-phase controlled rectifier?
Q.19 Define holding current.
Q.20 How many modes of operation are there for a TRIAC?

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21** Differentiate between natural and forced commutation.
Q.22 Why series operation of SCRs is needed?
Q.23 What is the meaning of the term phase control?
Q.24 Why fly wheeling diode is used in rectifiers?