

No. of Printed Pages : 4

Roll No.

181043/171043

4th Sem / Branch : Eltx.

Subject:- Power Electronics

Time : 3Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Inverters converts (CO7)
- a) dc power to dc power
 - b) dc power to ac power
 - c) ac power to ac power
 - d) ac power to dc power
- Q.2 Higher the magnitude of the gate pulse (CO2)
- a) lesser is the time required to inject the charges
 - b) greater is the time required to inject the charges
 - c) greater is the value of anode current
 - d) lesser is the value of anode current
- Q.3 Class A chopper operates in _____ quadrant. (CO5)
- a) 1st
 - b) 2nd
 - c) 3rd
 - d) 4th
- Q.4 Which terminal does not belong to the SCR? (CO1)
- a) Anode
 - b) Gate
 - c) Base
 - d) Cathode
- Q.5 The holding current is _____ than the latching current.
- a) same as
 - b) lower
 - c) higher
 - d) none of the above

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Q.6 Choose the false statement. (CO2)

- a) SCR is a bidirectional device
- b) SCR is a controlled device
- c) In SCR the gate is the controlling terminal
- d) SCR are used for high-power applications

Q.7 The thyristor turn-off requires that the anode current (CO2)

- a) falls below the holding current
- b) falls below the latching current
- c) rises above the holding current
- d) rises above the latching current

Q.8 A Triac has three terminals viz _____ (CO5)

- a) Drain, source, gate
- b) Two main terminal and a gate terminal
- c) Cathode, anode, gate
- d) None of the above

Q.9 Applications of cycloconverters include (CO7)

- a) speed control of ac drives
- b) induction heating
- c) static VAr compensation
- d) all of the mentioned

Q.10 A chopper may be thought as a (CO7)

- a) Inverter with DC input
- b) DC equivalent of an AC transformer
- c) Diode rectifier
- d) DC equivalent of an induction motor

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SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 Draw the symbol of a DIAC. (CO2)
- Q.12 Phase controlled rectifier. (CO4)
- Q.13 Define Duty Cycle. (CO7)
- Q.14 How many Junctions are there in a SCR? (CO1)
- Q.15 SCR is unidirectional switch. (True/False) (CO1)
- Q.16 Define a controlled rectifier. (CO4)
- Q.17 What is the symbol of UJT? (CO3)
- Q.18 What is half wave driver? (CO8)
- Q.19 Rectifier converts _____ supply into _____ supply. (CO4)
- Q.20 Define is dv/dt triggering. (CO2)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Q.21 Compare step up and step-down chopper. (CO7)
- Q.22 Explain the operations of class B chopper. (CO7)
- Q.23 Draw the circuit diagram and V-I characteristic of UJT. Explain it. (CO3)
- Q.24 Name any five methods of triggering the SCR. (CO1)
- Q.25 Explain the working operation of smart UPS. (CO6)
- Q.26 Explain basic working principle of dual converter. (CO7)
- Q.27 Explain the working of illuminator control circuit using thyristor. (CO5)

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- Q.28 Draw the circuit of single-phase half wave-controlled rectifier with R-L load. Explain it with input and output waveforms. (CO4)
- Q.29 Explain Basic idea about selection of Heat sink. (CO1)
- Q.30 What are the applications of TRIAC based circuits? (CO5)
- Q.31 Explain the working of full wave-controlled rectifier. (CO4)
- Q.32 What are the laminations of single phase half controlled full wave rectifier? (CO4)
- Q.33 Explain the applications of cycloconverter. (CO4)
- Q.34 Illustrate the series operation of SCRs with the help of diagram. (CO2)
- Q.35 Outline five specifications and ratings of SCR. (CO2)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Write short note on: (CO5)
 - a) Battery charger using thyristor
 - b) Heat Sink
- Q.37 Classify the choppers. Also explain different types of choppers in detail. (CO7)
- Q.38 With a neat sketch explain VI characteristics of SCR. (CO5)

(**Note:** Course outcome/CO is for office use only)

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