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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

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

(1)

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(2)

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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)

- 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)