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Roll No.....

4th Sem, **Branch :** Eltx. Engg.

Subject : POWER ELECTRONICS

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

Q.1 A SCR is a _____ device

- a) Two layer two-junction
- b) Three-layer two-junction
- c) Four-layer three-junction
- d) Four-layer four-junction

Q.2 The maximum anode current, gate being open, at which a SCR is turned ON condition is called _____

- a) Cut off current b) Switch-off current
- c) Forward current d) Holding current

Q.3 A single phase full wave fully controlled bridge uses _____

- a) 2 SCR's b) 3 SCR's
- c) 4 SCR's d) 6 SCR's

Q.4 A diac has _____

- a) One terminal b) Three terminals
- c) Two terminals d) Four terminals

Q.5 A three phase full wave half-controlled bridge uses _____

- a) 2 SCR's b) 3 SCR's
- c) 4 SCR's d) 6 SCR's

Q.6 Duty cycle of a chopper circuit is given by _____

- a) $T_{ON}/T_{ON} + T_{OFF}$
- b) $T_{ON} + T_{OFF} / T_{ON}$
- C) T_{OFF}/T_{ON}
- d) T_{ON}/T_{OFF}

Q.7 The cycloconverters are used to obtain _____

- a) Very low frequency
- b) Low frequency
- c) Very high frequency
- d) High frequency

Q.8 A dual converter used for speed control of D.C. Motors, will have two bridges, they are _____

- a) One rectifier and one inverter
- b) One inverter and one chopper
- c) Two Inverters
- d) Two rectifiers

Q.9 UPS stands for _____

- a) Uninterruptible power standby
- b) Universal power supply
- c) Uniterruptible power supply
- d) Universal power source

Q.10 Time taken by the UPS to deliver supply to the load when main supply goes OFF is called _____

- a) Switching time b) On-time
- c) OFF-time d) Change over time

SECTION-B

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

- Q.11 What is a thyristor?
- Q.12 Define the term firing angle.
- Q.13 What do you mean by controlled rectifier?
- Q.14 What is a triac?
- Q.15 Define the term inverter.
- Q.16 What is the operating frequency of chopper circuit?
- Q.17 What is cycloconverter?
- Q.18 Name the modes of operation in dual converters drive?
- Q.19 What is a primary cell?
- Q.20 What is the full form of HVDC?

SECTION-C

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

- Q.21 What are the applications of SCR?
- Q.22 Explain the construction and working of Triac.
- Q.23 Write a short note on dual converter.
- Q.24 What do you mean by commutation technique?
- Q.25 Discuss the significance of heat sinks.
- Q.26 What is the false triggering of a SCR?
- Q.27 Draw and explain the relaxation oscillator using UJT.

- Q.28 What are the advantages of SCR's using in series connections?
- Q.29 Draw and explain the working of dual converter.
- Q.30 Explain the basic principle of operation of an inverter.
- Q.31 Write a short note on class A chopper circuit.
- Q.32 Give comparison of AC & DC drivers.
- Q.33 Discuss the working of line-interactive UPS.
- Q.34 Explain the various methods of SCR triggering.
- Q.35 Explain the working of fully controlled single phase bridge rectifier with R-L load.

SECTION-D

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

- Q.36 Give the constructional details of SCR. Also draw the V-I characteristics of SCR.
- Q.37 Explain the various methods for controlling the speed of induction motor. Discuss any one method in detail.
- Q.38 Write a short note on any two of the following:
 - a) Snubber circuit
 - b) SMPS
 - C) Class B chopper circuit