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Roll No.

**5th Sem / Branch : Electrical Engg,
Power Station Engg.,Elect & Eltx Engg.**

Subject:- Industrial Electronics and Control of drives

Time : 3Hrs.

M.M. : 100

SECTION-A

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

Q.1 AN SCR is a

- a) Four layer, four junction device
- b) Four layer, three junction device
- c) Four layer, two junction device
- d) Three layer, single juction device

Q.2 Among the following, the most suitable method to turn on the SCR device is the

- a) Gate triggering method
- b) dv/dt triggering method
- c) Forward voltage triggering method
- d) Temperature triggering method

Q.3 The TRIAC's terminals are

- a) gate, anode, cathode
- b) MT1, MT2, gate
- c) gate1, gate2, anode, cathode
- d) MT1, MT2, gate1, gate2

Q.4 Dual converters provide

- a) Two quadrant operation
- b) Three quadrant operation

- c) Four quadrant operation
- d) None of the above

Q.5 What is the duty cycle of a chopper?

- a) Ton/Toff
- b) T=Ton + Toff
- c) T/Ton
- d) Toff x Ton

Q.6 Inverters converts

- 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.7 SMPS is used for

- a) Obtaining controlled ac power supply
- b) Obtaining controlled dc power supply
- c) Storage of dc power
- d) Switch form one source to another

Q.8 A cycloconverter is a _____

- a) One stage power converter
- b) One stage voltage converter
- c) One stage frequency converter
- d) None of the mentioned

Q.9 In the SCR structure the gate terminal is located

- a) Near the anode terminal
- b) Near the cathode terminal
- c) In between the anode & cathode terminal
- d) None of the mentioned

Q.10 Usually _____ batteries are used in the UPS systems.

- a) Ni- Cd battery
- b) Li- ion battery
- c) Lead acid battery
- d) All of the above

SECTION-B

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

- Q.11 Draw symbol of DIAC
Q.12 Expand SMPS
Q.13 In which quadrant Class B chopper operates ?
Q.14 The process of turning OFF a thyristor is called.....
Q.15 UJT stands for.....
Q.16 For wide range speed control, AC drives are used (True/ False)
Q.17 Field control method is used in DC motors to get the speeds normal speed.
Q.18 Duty Cycle of a chopper is expressed by.....
Q.19 In Cyclo-Converters, Input is AC signal and output signal
Q.20 The..... UPS is also called Backups UPS.

SECTION-C

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

- Q.21 Draw and explain V-I characteristics of TRIAC.
Q.22 Compare two modes of dual converter.
Q.23 Discuss the working of three phase full wave half controlled bridge rectifier.
Q.24 Explain the full wave convertor drive.
Q.25 Explain any one application SCR.
Q.26 Differentiate between online UPS and OFF line (any five)
Q.27 Describe the slip control of AC drives.

- Q.28 List five advantages of SMPS over conventional power supply
Q.29 Explain the parallel operation of Thyristors.
Q.30 Explain dv/dt and di/dt protection of SCRs.
Q.31 Explain the work of step up chopper with the help of circuit diagram.
Q.32 Explain the single phase to single phase step down cyclo converter with diagram.
Q.33 Explain the importance of Heat sink in SCR.
Q.34 What do you mean by an Electric drive? Write any three differences between AC drives & DC drives
Q.35 Write any five instructions for maintenance and care of lead Acid batteries

SECTION-D

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

- Q.36 Draw VI characteristics of SCR. Explain the construction and working of SCR.
Q.37 What is inverter? Explain the working of current source series inverter with the help of neat circuit diagram.
Q.38 Explain with diagram single phase half wave controlled rectifier with resistive inductive load and freewheeling diode.