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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 junction 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) T_{on}/T_{off} b) $T = T_{on} + T_{off}$
c) T/T_{on} d) $T_{off} \times T_{on}$
- Q.6 Inverters convert
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 from 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.

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- 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.

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