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6th Sem / Branch : Elect. Engg.
Sub.: Industrial Electronics & Control of Drives

Time : 3Hrs.

M.M. : 100

SECTION-A

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

Q.1 Intrinsic stand off ratio (h) of UJT is given by =

(Co1)

- a) V_B/V_{BB} b) V_{BB}/V_B
c) $V_{BB}-V_B$ d) V_B-V_{BB}

Q.2 ADIAC can be fired _____ (CO1)

- a) Only by negative half cycle of the supply
b) Only by positive half cycle of the supply
c) Both by positive as well as negative half cycle of the supply
d) Without any biasing voltage

Q.3 An SCR is a _____ (CO1)

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

Q.4 The value of ON state voltage of an SCR is approximately. (CO1)

- a) 100 V b) 500 V
c) 50 V d) 4 C

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Q.5 A three phase full-wave half controlled bridge uses. (CO2)

- a) 2 SCRs b) 3 SCRs
c) 4 SCRs d) 6 SCRs

Q.6 A cycloconverter is a (CO3)

- a) AC-DC converter b) DC-AC converter
c) DC-DC converter d) AC-AC converter

Q.7 A Class-E chopper can operate in. (CO3)

- a) 1st and 2nd quadrant
b) 2nd and 3rd quadrant
c) 1st and 4th quadrant
d) All the four quadrants

Q.8 UPS stands for. (CO5)

- a) Unipolar Power Supply
b) Uninterrupted Polar Supply
c) Uninterrupted Power Supply
d) None of the above

Q.9 SMPS is essentially a _____ converter with control of the output voltage magnitude. (CO5)

- a) DC to DC b) DC to AC
c) AC to DC d) AC to AC

Q.10 Field control method is used in D.C. motors to get. (CO4)

- a) Speed above normal speed
b) Speed below normal speed
c) Both A & B
d) None of the above

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SECTION-B

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

- Q.11 Name any two members of thyristor family. (CO1)
- Q.12 The value of Latching Current is more than Holding current (True/False) (CO1)
- Q.13 Write one application of SMPS. (CO5)
- Q.14 Draw the symbol of TRIAC. (CO1)
- Q.15 IN a dual converter if one bridge operates in _____ mode then other bridge operates in _____ mode. (CO3)
- Q.16 Define Di/Dt rating of SCR. (CO1)
- Q.17 The turn ON time of an SCR is about _____ msec. (CO1)
- Q.18 Harmonics in the output wave can be reduced by adjusting _____ of thyristors. (CO2)
- Q.19 A three phase to single phase bridge cyclo converter requires _____ thyristors. (CO3)
- Q.20 The main disadvantages of cycloconverter drives is that the output frequency is _____ of input frequency. (CO3)

SECTION-C

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

- Q.21 Illustrate the series operation of SCRs with the help of diagram. (CO1)
- Q.22 Construct and explain the two transistor analogy of SCR. (CO1)
- Q.23 Explain speed control of a universal motor with neat and clean circuit diagram. (CO2)

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- Q.24 Name different types of commutation and explain any one of them. (CO2)
- Q.25 Explain the operation of single-phase semi controlled rectifier with suitable waveforms. (CO3)
- Q.26 Draw the block diagram of dual converter and state its applications. (CO3)
- Q.27 Draw and explain the circuit diagram of step up chopper. (CO3)
- Q.28 Write a short note on AC drive. (CO4)
- Q.29 Explain the operation of single phase bridge type cyclo converter. (CO3)
- Q.30 Explain the operation of single phase half wave converter drive. (CO4)
- Q.31 With the help of circuit diagram, explain cyclo converter controlled A.C. drives. (CO4)
- Q.32 Explain, why the SMF batteries are preferred over lead acid batteries? (CO5)
- Q.33 Differentiate between On line and Off line UPS. (CO5)
- Q.34 Write short note on protection of SCR. (CO2)
- Q.35 Write short note on Heat Sink for thyristors. (CO2)

SECTION-D

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

- Q.36 Explain the construction, working and V-I characteristics of UJT. Also explain, how it is used as relaxation oscillator? (CO2)
- Q.37 Define chopper. What are different types of choppers? Explain any one in detail. (CO3)
- Q.38 Draw and explain single phase full converter drives. (CO4)

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