

- Q25 Explain Turn On and Turn OFF of the SCR with diagram. (CO1)

Q.26 Explain the basic construction of UJT with diagram. (CO1)

Q.27 Define Construction and applications of SCR with diagram. (CO1)

Q.28 Explain any five methods of triggering SCR. (CO1)

Q.29 Explain the operation of Dual Converter in non-Circulating mode. (CO3)

Q.30 Give the symbol of TRIAC. What is the working principle of TRIAC. (CO1)

Q.31 Write a short note on "Electric Drives". (CO4)

Q.32 Describe briefly off-line and on-line UPS with diagram. (CO5)

Q.33 Explain Regenerative braking mode with diagram. (CO4)

Q.34 Explain Principle of operation of HVDC Transmission. (CO5)

Q.35 What do you mean by step-up chopper? Explain its working with diagram. (CO3)

## **Section-D**

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

- Q.36 Draw and Explain V-I Characteristics of SCR. (CO1)

Q.37 Explain the working of Current source inverter with diagram. Give applications of CSI. (CO3)

Q.38 Explain the working of Single-phase full wave centre-tapped and bridge Rectifier with circuit diagram.(CO2)

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## **5th Sem., Branch : Mechatronics Subject : Power Electronics**

Time : 3 Hrs.

M.M. : 100

## **SECTION-A**

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

- Q.1 A UJT is a \_\_\_\_\_ terminal, \_\_\_\_\_ junction semiconductor device. (CO1)

a) 2, 2                          b) 3, 2

c) 2, 1                          d) 3, 1

Q.2 A TRIAC is a \_\_\_\_\_ switch (CO1)

a) Bidirectional                b) Unidirectional

c) Omnidirectional            d) Mechanical

Q.3 A cycloconverter is \_\_\_\_\_ converter. (CO3)

a) AC to DC                    b) DC to DC

c) AC to AC                    d) DC to AC

Q.4 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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Q.5 The duty cycle of a chopper is given by (CO3)

- a)  $\frac{T_{on}}{T_{off}}$
- b)  $\frac{T_{off}}{T_{on}}$
- c)  $\frac{T_{off}}{T_{on}+T_{off}}$
- d)  $\frac{T_{on}}{T_{on}+T_{off}}$

Q.6 Transient undervoltage caused by switching heavy loads such as industrial machinery is known as (CO5)

- a) Sag
- b) Surge
- c) Brownout
- d) Power Failure

Q.7 Class E-Chopper operates in (CO3)

- a) First quadrant
- b) Second quadrant
- c) All four quadrants
- d) Both A & B

Q.8 MOSFET is a (CO1)

- a) Current controlled device
- b) Voltage controlled device
- c) Both A & B
- d) Power controlled device

Q.9 SCR is a \_\_\_\_\_ layer and \_\_\_\_\_ terminal device. (CO1)

- a) 3,3
- b) 4,4
- c) 4,3
- d) 3,4

Q.10 A 3 Phase full wave half-controlled converter is a \_\_\_\_\_ pulse converter (CO2)

- a) 3
- b) 6
- c) 12
- d) 2

### Section-B

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

Q.11 The value of latching current is more than Holding Current. (True/False) (CO1)

Q.12 Class D- Chopper operates in first and second quadrant. (True/False) (CO3)

Q.13 The uncontrolled rectifier contains thyristors in the circuit. (True/False) (CO2)

Q.14 Speed of three phase induction motor can be controlled by armature voltage control. (True/False) (CO4)

Q.15 The full form of UPS is \_\_\_\_\_. (CO5)

Q.16 A rectifier converts \_\_\_\_\_ to \_\_\_\_\_. (CO2)

Q.17 A current source inverter has a large \_\_\_\_\_ in series with the source. (CO3)

Q.18 Define is firing angle? (CO3)

Q.19 What is UPS? (CO5)

Q.20 What is a Cycloconverter? (CO3)

### Section-C

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

Q.21 Explain different types of inverter. (CO3)

Q.22 Explain the controlling techniques of the chopper. (CO3)

Q.23 Give merits and demerits of VSI and CSI? (CO3)

Q.24 Explain different types of choppers with respect to operating in quadrant. (CO3)