

Q.21 List 4 difference between uncontrolled and controlled rectifiers? (CO2)

Q.22 Describe working of three phase Dual converter using suitable circuit diagram? (CO3)

### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Design a circuit for speed control of ceiling fan? (CO4)

Q.24 Draw and explain construction, working and V-I characteristics of SCR? (CO1)

Q.25 What is chopper? List its types along with quadrant of operation? Explain class E chopper in detail? (CO3)

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### 3rd Sem / Automation & Robotics Subject : Drives and Control Systems

Time : 3 Hrs.

M.M. : 60

### SECTION-A

**Note:** Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 SCR have \_\_\_\_\_ number of layers: (CO1)

- a) 1
- b) 2
- c) 3
- d) 4

Q.2 ATRIAC is a \_\_\_\_\_ device: (CO3)

- a) Unidirectional
- b) Bidirectional
- c) Tri directional
- d) Both a and b

Q.3 Between peak point and valley point, resistance of UJT is \_\_\_\_\_. (CO1)

- a) Positive
- b) Low
- c) Negative
- d) High

Q.4 In single phase full wave full control bridge type rectifier \_\_\_\_\_ SCR are used. (CO2)

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

Q.5 An inverter converts \_\_\_\_\_ into \_\_\_\_\_. (CO3)

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

Q.6 An online UPS transfer has \_\_\_\_\_ ms transfer time. (CO5)

- a) 0
- b) 5
- c) 30
- d) 3600

## SECTION-B

**Note:** Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 What is Dual Converter? (CO3)

Q.8 Expand SMPS? (CO5)

Q.9 Define dual converter? (CO3)

Q.10 SCR can pass current to load in both half cycles of the supply. (T/F) (CO1)

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Q.11 In R-C based gate triggering circuit firing angle can be up to 180°. (T/F) (CO2)

Q.12 Define duty cycle? (CO3)

## SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Compare online and offline UPS? (CO5)

Q.14 What is commutation? List its types and explain any one in details? (CO1)

Q.15 Explain three phase full wave half-controlled rectifier with waveform and circuit diagram? (CO2)

Q.16 List 5 properties of the material suitable for Heat Sink? (CO1)

Q.17 Differentiate between AC and DC drives? (CO4)

Q.18 Draw and explain snubber circuit for SCR protection? (CO1)

Q.19 Define holding current and latching current? (CO1)

Q.20 Explain operation of parallel inverter with waveform and circuit diagram? (CO3)

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