

**Sem-3 Automation & Robotics
Sub : Drives and Control Systems**

Time : 3 Hrs.

M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)

- Q.1 AUJT is a
- a) Current controlled device
 - b) Voltage controlled device
 - c) Relaxation oscillator
 - d) None of the above
- Q.2 ADIAC is used to
- a) Commutate a TRIAC
 - b) Trigger a TRIAC
 - c) To protect a TRIAC
 - d) None of the above
- Q.3 Which of these is not a Chopper type?
- a) Class A
 - b) Class B
 - c) Class AB
 - d) Class D
- Q.4 An inverter converts
- a) DC into variable DC
 - b) AC into DC

- c) DC into AC
 d) AC into AC of different frequency
Q.5 Armature control method is used in DC Motors to get
 a) Constant speed
 b) Speed above normal speed
 c) Speed below normal speed
 d) Both B & C
Q.6 UPS stands for
 a) Uninterruptible power supply
 b) Unwanted power supply
 c) Unused power supply
 d) Uninstall power supply

Section-B

Note: Objective/Completion type questions. All questions are compulsory. $(6 \times 1 = 6)$

- Q.7 An SCR has _____ junctions.
 Q.8 Define Holding Current.
 Q.9 Uncontrolled Rectifiers contain thyristors in circuits. (True/False)
 Q.10 Series Inverter uses _____ type of Commutation.
 Q.11 What components are used to build an Electric Drive?
 Q.12 in On-line UPS, the inverter is _____ all the time.

Section-C

- Note:** Short answer type Question. Attempt any Eight questions out of Ten Questions. $(8 \times 4 = 32)$
- Q.13 Explain the working of DIAC.
 Q.14 What is Commutation? Explain any one method of Commutation.
 Q.15 Explain the working of Single Phase Half Wave Controlled Rectifier with Resistive Load.
 Q.16 What is the need of a Free Wheeling Diode?
 Q.17 Explain the working principle of Series Inverter.
 Q.18 What are the applications of Dual Converter?
 Q.19 Explain the working of DC Chopper drive in Regenerative Braking Mode.
 Q.20 What are the advantages and disadvantages of AC drivers?
 Q.21 Explain on-line UPS with the help of diagram.
 Q.22 Write a short note on SMPS.

Section-D

- Note:** Long answer questions. Attempt any Two question out of Three Questions. $(2 \times 8 = 16)$
- Q.23 Explain the construction and working of SCR.
 Q.24 What is Chopper? Explain types of Choppers in details.
 Q.25 Explain the working principle of Single Phase Full Wave Converter Drive with the help of suitable diagram.