

- Q.27 Describe the working of parallel inverter.
- Q.28 Write the three-three applications of chopper and cycloconverter.
- Q.29 Explain step down chopper with the help of waveform.
- Q.30 Describe the working of class-E chopper.
- Q.31 Explain three phase to single phase cycloconverter.
- Q.32 Explain three phase Dual converter.
- Q.33 Explain single phase half wave DC converter drives.
- Q.34 Write four point, why AC drive is preferred than DC drive.
- Q.35 Explain the working ON line UPS.

#### SECTION-D

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

- Q.36 Explain the working of battery charger using thyristor with the help of diagram.
- Q.37 Explain the single phase full wave half controlled bridge rectifier with RL load with the help of diagram and waveform.
- Q.38 Explain the slip power recovery controlled AC Drive.

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### Electrical Engineering 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 After triggering an SCR, the gate pulse is removed, the current in the SCR will
- Remain the same
  - Immediately fall to zero
  - Rise up
  - Rise a little and fall to zero
- Q.2 With the increase in gate current of an SCR, the forward breakdown voltage will
- increase
  - reduce
  - remain unchanged
  - none of the above
- Q.3 The triac is equivalent to
- two SCRs connected in parallel
  - two SCRs connected in antiparallel
  - one SCR, one diode connected in parallel
  - one diode, one SCR connected in antiparallel
- Q.4 For constructing a relaxation oscillator

- a) Zener diode is used    b) MOSFET is used  
 c) CRO is used            d) UJT is used
- Q.5 A single phase full wave fully controlled bridge rectifier use  
 a) 4 SCRs.                      b) 6 SCRs.  
 c) 2 SCRs.                      d) 3 SCRs.
- Q.6 The duty cycle of a chopper is given by  
 a)  $T_{ON}/T_{OFF}$                       b)  $T_{OFF}/T_{ON}$   
 c)  $T_{ON}/T_{ON}+T_{OFF}$                       d)  $T_{OFF}/T_{ON}+T_{OFF}$
- Q.7 Cyclo-converter is a  
 a) ac to dc converter    b) dc to ac converter  
 c) dc to dc converter    d) ac to ac converter
- Q.8 In On-line UPS \_\_\_\_\_ is on all the time.  
 a) rectifier                      b) chopper  
 c) cycloconverter              d) inverter
- Q.9 The V-I characteristics of DIAC lie in the  
 a) First quadrant  
 b) Fourth quadrant  
 c) The first and third quadrant  
 d) The third and second quadrant
- Q.10 A three-phase to three-phase cycloconverter requires.  
 a) 24 SCRs for 6 pulse device  
 b) 36 SCRs for 6 pulse device  
 c) 48 SCRs for 3 pulse device  
 d) 24 SCRs for 3 pulse device

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## SECTION-B

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

- Q.11 Draw two transistor analogy of SCR.  
 Q.12 Draw VI characteristics of DIAC.  
 Q.13 Define Holding current.  
 Q.14 Define heat sink.  
 Q.15 Define Triggering  
 Q.16 Write one difference between half and full controlled rectifier.  
 Q.17 Define UPS.  
 Q.18 Enlist the type of Chopper.  
 Q.19 Define Electric Drive.  
 Q.20 Write two point for the maintenance of battery.

## SECTION-C

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

- Q.21 Explain working principle of SCR with the help of VI characteristics.  
 Q.22 Write the commutation methods of a thyristor.  
 Q.23 Describe construction and working of UJT.  
 Q.24 Explain the UJT relaxation oscillator.  
 Q.25 Draw and explain the construction of DIAC.  
 Q.26 Explain the single phase semi controlled rectifier.

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