

- Q.22 Explain the working of DIAC.  
 Q.23 Explain the working of Automatic Battery Charger.  
 Q.24 Differentiate between Natural and forced commutation  
 Q.25 What is the need of a Free Wheeling Diode ?  
 Q.26 Explain the working of single phase fully controlled full wave bridge rectifier  
 Q.27 Explain the working principle of Series Inverter  
 Q.28 Explain Centre Trapped Cycloconverter with the help of diagram.  
 Q.29 What are the applications of Dual Converter ?  
 Q.30 Differentiate between Step up and Step down choppers.  
 Q.31 Explain working principle of single phase half wave converter drives.  
 Q.32 What are the advantages and disadvantages of AC drives ?  
 Q.33 Explain working principle of Cycloconverter Controlled AC drives.  
 Q.34 Explain the working of off-line UPS.  
 Q.35 Write a Short note on GTO.

#### SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)  
 Q.36 What is Triggering ? What are the methods of Triggering ? Explain gate Triggering.  
 Q.37 What is Chopper ? Explain types of Choppers in detail.  
 Q.38 Explain Speed control modes of DC motor using chopper drive.

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**5th Sem./ Eltx., IC, Mechatronics, GE**

**Subject:- Power Electronics**

Time : 3Hrs.

M.M. : 100

#### SECTION-A

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

- Q.1 A SCR is a  
 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.2 A UJT is a  
 a) Current controlled device  
 b) Voltage controlled device  
 c) Relaxation oscillator  
 d) None of the above  
 Q.3 TRIAC is equivalent to  
 a) Two SCRs connected in parallel  
 b) Two SCRs connected in anti parallel  
 c) One SCR, one Diode connected in parallel  
 d) One diode, one SCR connected in anti parallel  
 Q.4 A fully controlled rectifier circuit contains  
 a) SCRs  
 b) Only diodes  
 c) Mixture of SCRs and diodes  
 d) None of these

- Q.5 An inverter converts
- DC into variable DC
  - AC into DC
  - DC into AC
  - AC into AC different frequency
- Q.6 A Class-E chopper can operate in
- 1st and 2nd quadrant
  - 2nd and 3rd quadrant
  - 1st and 4th quadrant
  - All the four quadrant
- Q.7 A dual converter consists of two bridges out of which one works as
- A Rectifier the other as Oscillator
  - An inverter the other as frequency changer
  - A Rectifier the other as Inverter
  - An Inverter the other as Chopper
- Q.8 Cycloconverter drives are generally used in
- Traction
  - Milling
  - Generating low frequencies
  - Generation pulses
- Q.9 Armature control method is used in DC Motors to get
- Constant speed
  - Speed above normal speed
  - Speed below normal speed
  - Both B & C

- Q.10 The output of a Regulated Power supply
- Changes when input ac supply changes
  - Remains constant irrespective of change in input ac change
  - Changes when output load current changes
  - Changes when both input ac supply and output load current change

### SECTION-B

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

- Q.11 Draw the symbol of DIAC.
- Q.12 What is Triggering ?
- Q.13 Define Holding Current.
- Q.14 Write any two applications of Dual Converters
- Q.15 A SCR has \_\_\_\_\_ terminals.
- Q.16 The duty Cycle of a chopper is expressed as \_\_\_\_\_
- Q.17 The Series inverter uses \_\_\_\_\_ type of Commutation.
- Q.18 The speed of motor increases with the increase in \_\_\_\_\_
- Q.19 Armature Control method is used in DC motors to get \_\_\_\_\_
- Q.20 In On-line UPS, the inverter is \_\_\_\_\_ all the time

### SECTION-C

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

- Q.21 Explain the V-I characteristics of a SCR.