

- Q.27 Describe the concept of protection of thyristor.
- Q.28 Describe briefly the slip control of AC drive.
- Q.29 List five applications of dual converters.
- Q.30 Define UPS and explain the working of on-line UPS.
- Q.31 Explain the importance of heat sink and criterion of selection for thyristor.
- Q.32 List five instructions for maintenance and care of lead Acid batteries.
- Q.33 List five advantages of SMPS over conventional power supply.
- Q.34 Write a short note on CVT.
- Q.35 Write a short note on 'Electric drive'.

#### **SECTION-D**

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 Draw VI characteristics of SCR. Explain the construction and working of SCR.
  - Q.37 Explain the working of a current source series inverter with the help of circuit diagram. Write the drawbacks of series inverter.
  - Q.38 Explain the speed control method for DC motor using dual converter with proper circuit diagram.

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### **5th Sem / Elect, Power Station Engg., Elect & Eltx Engg.**

**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 An SCR is a \_\_\_\_\_ switch
  - 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 Which device can be used in a chopper circuit?
  - a) BJT
  - b) MOSFET
  - c) GTO
  - d) All of the above
- Q.3 A cyclo-converter is a \_\_\_\_\_
  - a) one stage power converter
  - b) one stage voltage converter
  - c) one stage frequency converter
  - d) None of the above
- Q.4 What are the terminals of a unijunction transistor?
  - a) Collector, Base and Emitter
  - b) Emitter, Base 1 and Base 2
  - c) Gate, Drain and Source
  - d) Gate, Drain, Body and Source

- Q.5 If the firing angle in an SCR rectifier is decreased, the output is
- increased
  - decreased
  - maximum
  - remain unaffected
- Q.6 Inverter converts
- AC to DC
  - DC to AC
  - DC to DC
  - AC to AC
- Q.7 Which method is used to control the speed of DC shunt motor above normal speed?
- flux control method
  - armature voltage control method
  - both option (1) & (2)
  - None of the above
- Q.8 SMPS is used for
- obtaining controlled ac power supply
  - obtaining controlling dc power supply
  - storage of dc power
  - switch from one source to another
- Q.9 ADIAC is turned on by
- Breakover voltage
  - Gate current
  - Gate voltage
  - None of the above
- Q.10 A DC Chopper controls the average voltage across the DC motor by controlling
- input voltage
  - field current
  - Line current
  - duration of  $T_{on}$  and  $T_{off}$

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## SECTION-B

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

- Q.11 List any one application of TRIAC.
- Q.12 Draw symbol of SCR.
- Q.13 Define Electric drive.
- Q.14 A freewheeling diode is used in a controlled rectifier in case of \_\_\_\_\_ load.
- Q.15 Define heat sink.
- Q.16 Define inverter.
- Q.17 Write two applications of cyclo-converter.
- Q.18 In which quadrant class D chopper operates?
- Q.19 Name any one device that belongs to Thyristor family.
- Q.20 Write full form of SMPS.

## SECTION-C

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

- Q.21 Draw the VI characteristics of UJT and explain its working.
- Q.22 Explain two transistor analogy of an SCR.
- Q.23 Explain the circuit diagram for single phase, half controlled half wave rectifier for resistive load.
- Q.24 Explain the working of step-down chopper with the help of circuit diagram.
- Q.25 Define cyclo-converter. Describe basic principle of its principle.
- Q.26 Explain fan speed control circuit using Triac.

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