

- Q.28 Draw the waveform of single phase half controlled rectifier with RLE load.
- Q.29 Explain the working of class B chopper with the help of circuit diagram and waveform.
- Q.30 Explain the operating principle of single phase force-commuted half bridge thyristor inverter.
- Q.31 Describe the working of sinusoidal phase modulation series inverter.
- Q.32 Draw the circuit diagram of battery charger using thyristor.
- Q.33 Explain the Parallel operation of the thyristor.
- Q.34 Write the five point of comparison between BJT and MOSFET.
- Q.35 Draw the circuit diagram of control of Emergency light using thyristor.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 Explain the working of illumination control using thyristor with the help of circuit diagram.
- Q.37 Explain the operating principle of TRIAC with the help of circuit diagram and V-I characteristic.
- Q.38 Draw and explain the working of single phase full wave bridge controlled rectifier the help of Waveform.

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SECTION-A

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

- Q.1 A silicon controlled rectifier is turned on if the anode current is greater than
- a) Trigger current
 - b) Anode current
 - c) Cathode current
 - d) Holding current
- Q.2 Which of the given device is the most suitable power device for a higher frequency (above 100 kHz) switching application
- a) SCR
 - b) Power MOSFET
 - c) GTO
 - d) BJT
- Q.3 A chopper converts
- a) AC to DC
 - b) AC to AC
 - c) DC to AC
 - d) DC to DC
- Q.4 Power diode is
- a) two terminal semiconductor device
 - b) three terminal semiconductor device
 - c) four terminal semiconductor device
 - d) none of these

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- Q.5 A triac is a
- 2 terminal switch
 - 2 terminal bilateral switch
 - 3 terminal bilateral switch
 - 3 terminal bidirectional switch
- Q.6 A device that does not exhibit negative resistance characteristics is
- FET
 - UJT
 - Tunnel diode
 - SCR
- Q.7 An Inverter converts
- DC to AC
 - AC to DC
 - DC to DC
 - AC to AC
- Q.8 In a step-up chopper circuit, if V_s is the source voltage and α is duty cycle, then the output voltage is
- $V_s/(1+\alpha)$
 - $V_s(1+\alpha)$
 - $V_s(1-\alpha)$
 - $V_s/(1-\alpha)$
- Q.9 Single-phase full bridge inverters requires
- 4 SCRs and 2 diodes
 - 4 SCRs and 4 diodes
 - 2 SCRs and 4 diodes
 - 2 SCRs and 2 diodes
- Q.10 Class A commutation or load commutation is possible in case of
- dc circuit only
 - ac circuit only
 - both ac and dc circuit only
 - none of the above

SECTION-B

- Note:** Objective type questions. All questions are compulsory. (10x1=10)
- Q.11 Draw the symbol of schottky diode.
- Q.12 Write two application of GTO.
- Q.13 Write any two specification and rating of SCR.
- Q.14 Draw the characteristics of PUT.
- Q.15 Define Commutation.
- Q.16 Write one difference between half and full controlled rectifier.
- Q.17 Define duty cycle.
- Q.18 Enlist the type of Inverter.
- Q.19 Draw the symbol of UJT.
- Q.20 Define string efficiency.

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 Draw and explain the characteristics of IGBT.
- Q.22 Draw and explain the working of SCR using two transistors analogy of SCR.
- Q.23 Explain the working and V-I characteristics of DIAC.
- Q.24 Write about the at-least five point for selection of better heat sink for thyristor.
- Q.25 Define RCT and draw its characteristics.
- Q.26 Describe the working of UJT as relaxation oscillator.
- Q.27 Explain class D commutation with the help of diagram.