

PEL QUESTION BANK

CHAPTER 1

3 mks

- 1) Draw the symbol & V-I characteristics of
 - a) DIAC
 - (b) SCS
 - (c) LASCR
- 2) Draw the symbol of SCS and also draw its labeled characteristics with ON state and OFF state.
- 3) Give two applications of GTO & UJT.
- 4) State the difference between GTO and conventional thyristor in terms of Commutation and also state any two advantages over conventional Thyristor.

4 mks

- 5) Draw & explain the characteristics of SCR. What is the effect of gate current on operation of SCR?
- 6) Explain two transistor analogy of SCR. Write relation between anode current and Gate current.
- 7) Define the terms related to SCR:
 - a) Latching current
 - (c) Holding current
 - b) On state voltage
 - (d) reverse break over voltage.
- 8) Draw the constructional diagram of GTO & explain its operation.
- 9) State 4 modes of operation of TRIAC. Explain any one mode with neat diagram.
- 10) Explain the operation of PUT.
- 11) Draw and Explain Working of SBS.
- 12) Compare UJT & PUT on the basis of
 - a) Construction

- b) Symbol
- c) Working Principle
- d) Applications.

13) Explain the operation of DIAC.

CHAPTER 2

3 mks

- 1) Define commutation. State the types of commutation.
- 2) What is the need of isolation in pulse transformer in triggering circuits and give its two applications.
- 3) Draw Turn off characteristics of SCR. Define reverse recovery time.
- 4) List out triggering methods for SCR. Which method is mostly preferred?

4 mks

- 5) Explain dv/dt triggering method of SCR.
- 6) Show the effect of resistance variations on firing & conduction angle with waveform in RC triggering.
- 7) Explain the working of resistance triggering with neat waveforms.
- 8) Draw the circuit diagram of UJT relaxation oscillator and write the expression for frequency.
- 9) Draw & explain the operation of PUT relaxation oscillator.
- 10) Draw class A commutation circuit with its neat waveform.
- 11) Draw the circuit diagram of Class B commutation. State the function of each commutating components.
- 12) Draw and explain the circuit diagram of Class C commutation.

PEL Question Bank (17444)

Unit Test 2 (2013-14)

CHAPTER 1 (10 mks)

3 MKS

- 1) State the phenomenon of breakdown in NPN power transistor with proper output characteristics.
- 2) State any three advantages of IGBT.

4 MKS

- 3) State different operating regions of power transistor. What is primary and secondary breakdown?
- 4) Draw the labeled constructional diagram of N channel IGBT.
- 5) Compare power transistor & power MOSFET with respect to
 - a. symbol
 - b. switching speed
 - c. SiO₂ layer
 - d. On state losses
 - e. Application

CHAPTER 4 (24 mks)

3 MKS

- 6) Define any two performance parameter of inverter.
- 7) Define chopper & State its classification.
- 8) Define inverter and classify it.

4 MKS

- 9) Draw circuit diagram of step up chopper and why it is called as step up?
- 10) Draw single phase half bridge inverter with R load & State its operation.
- 11) Show the effect of change of duty cycle on the output voltage of chopper with proper waveforms.

CHAPTER 5 (14 mks)

3 MKS

- 12) Why germanium is not suitable for control rectification ?
- 13) State the need of polyphase rectifier.

4 MKS

- 14) Differentiate controlled & Uncontrolled rectifier with respect to device used, firing circuit, phase angle control & applications.
- 15) Draw the circuit diagram and input & output voltage waveforms of 3 Φ half wave rectifier with resistive load.
- 16) Draw single phase center tapped controlled rectifier with resistive load and its load voltage waveform.
- 17) Draw the neat circuit diagram of single phase half wave controlled rectifier with RL load & describe its working. State the effect of freewheeling diode with suitable waveforms in controlled rectifier.
- 18) A single phase Full wave controlled rectifier is supplied with a voltage $V = 230\sin(314t)$ find average output DC voltage and current if firing angle is 45 degrees & load resistance is 100 Ω .

CHAPTER 6 (16 mks)

3 MKS

- 19) Draw labeled circuit of Electronic timer using SCR.
- 20) Draw labeled basic block diagram of UPS.

4 MKS

- 21) Draw the temperature controller using SCR. Explain How temperature is controlled?
- 22) Draw the circuit of speed control of fan using TRIAC. Why DIAC is used ?
- 23) Draw the labeled circuit diagram of battery charger using SCR.
- 24) Draw circuit diagram & write the working of emergency light system.
- 25) Draw block diagram of SMPS & describe its working.