

Branch – ELECTRONICS

SEMICONDUCTOR DEVICES

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 2 = 20)

- 1 Define depletion layer.
- 2 What are the types of semiconductor?
- 3 What is knee voltage?
- 4 Write any two application of zener diode.
- 5 Define ∞ .
- 6 Define pinch off voltage of JFET.
- 7 Expand LDR.
- 8 What is photo electric theory?
- 9 What is tunneling effect?
- 10 Draw the symbol of TRIAC and mention its terminals names.

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Compare intrinsic and extrinsic semiconductor.
OR
b Discuss in detail the effect of temperature on semiconductor.
- 12 a Discuss about the characteristics of zener diode.
OR
b Write note on static and dynamic resistance of diode.
- 13 a Describe the operation of NPN transistor.
OR
b Compare BJT and FET.
- 14 a Describe the working of opto couplers.
OR
b What is LED? Briefly explain its functions.
- 15 a What is thermistors? Discuss the application of thermistors.
OR
b With a neat diagram explain the structure of SCR.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Explain in detail about the formation of p-type semiconductor.
- 17 With a neat circuit diagram explain the working of zener voltage regulator.
- 18 Discuss the characteristics of MOSFET.
- 19 Write notes on : (i) OID (ii) Photo voltaic cell.
- 20 Explain the construction and operations of UJT.