Roll No. ..... **Total No. of Pages : 2**

PC 11485-NH

CS/2111

ELECTRONIC–I : ELECTRONICS AND SOLID STATE DEVICES, Paper—B

Semester—V

Time Allowed : Three Hours] [Maximum Marks : 30

Note :– The candidates are required to attempt *two* questions each from Sections A and B. Section C will be compulsory.

SECTION—A

1. Discuss Zener Diode and Zener Breakdown. Explain Voltage Stabilization by it.
2. Explain Half Wave Rectification. Derive expressions for Peak Inverse Voltage, Efficiency, Vrms.
3. What is a Voltage multiplier circuit ? Give the working of a Full Wave Voltage Doubler.
4. Derive Diode equation for p-n junction. 2×5=10

SECTION—B

5. What are Photo conductive devices ? Explain any one of them.
6. What are the various configurations of a transistor ? Explain the Active, Cutoff and Saturation regions in the Output characteristic of a transistor in C.B. mode.

7. Explain the structure and working of n-Channel JFET and give its characteristics.
8. What is Pinch Off Voltage ? What is the structural difference between Enhancement and Depletion MOSFET ? 2×5=10

SECTION—C

9. Do any *five* :
   (i) Give the comparison between FET and BJT.
   (ii) What is a filter circuit ? Draw the circuit for pie filter.
   (iii) What is the relation between alpha and beta ?
   (iv) A d.c. voltage source having an open circuit voltage of 4V and internal resistance of 2 ohm. Obtain an equivalent current source.
   (v) Classify conductors, insulators and semiconductors on the basis of their Band Structure.
   (vi) What is the charge on a p-type semiconductor ? Explain.
   (vii) Can Emitter and Collector be interchanged. Explain.
   5×2=10