Roll No. ..... Total No. of Pages : 3

BT-1/D11 7520

Elements of Electronics Engineering (New)

Paper : EL-101 E

Time : Three Hours] [Maximum Marks : 75

Note :– Attempt **FIVE** questions, selecting at least **ONE** from each Unit. Question **9** is compulsory.

UNIT–I

1. (a) Explain the importance of PIV in rectifiers. 2

   (b) Draw the circuit of Bridge wave rectifier and explain its working with the help of waveforms. What are its advantages over centre tapped Rectifier ? 10

   (c) Discuss the operation of varactor diode. 3

2. (a) Explain the working of Zener diode as voltage regulator. 5

   (b) What do you understand by waveshaping circuits ? Discuss various waveshaping circuits used for clipping of signals ? 8

   (c) Define drift current and diffusion current in p-n junction. 2

UNIT–II

3. (a) Explain why transistor action cannot be achieved by connecting two diodes back to back ? 3

   (b) Sketch typical CB input and output characteristics of NPN transistor. Indicate all the operation regions and explain the characteristics qualitavely. 8

   (c) Differentiate between CE, CC and CB configurations in terms of their performance. 4

(b) Differentiate between positive and negative feedback. What are the advantages of negative feedback in Amplifier ? Explain briefly. 10

UNIT–III

5. (a) Explain :

(i) CMRR

(ii) Input offset voltage

(iii) Slew rate

(iv) PSRR. 6

(b) Draw the equivalent circuit of op-amp. Explain its transfer characteristics. 5

(c) Write a short note on Transducers. 4

6. (a) Draw the circuit of differential Amplifier. Derive the relation between CMRR and Vout of op-amp. Under what conditions CMRR may be maximized ? 10

(b) Discuss how op-amp acts as differentiator. 5

UNIT–IV

7. (a) Explain the working of JFET as an amplifier in CS configuration. 6

(b) How UJT acts as relexation Oscillator ? 5

(c) Define following with reference to JFET-

(i) Depletion region

(ii) Pinch off voltage

(iii) Saturation

(iv) Drain. 4

8. (a) Explain with help of Block Diagram, various functions of CRO. Also discuss its various applications. 7½

(b) Explain construction, working and characteristics of TRIAC. 7½

(Compulsory Question)

9. (i) Define current controlled and voltage controlled device.

(ii) Differentiate between Zener and Advalanche breakdown.

(iii) Draw Transfer Characteristics of MOSFET.

(iv) Why FET is unipolar device ?

(v) Define early effect.

(vi) What are active and passive components ? Give few examples.

(vii) Draw frequency response of RC coupled Amplifier.

(viii) What is Barkhausen criterion in Oscillator ?

(ix) Draw pin diagram of 741.

(x) How does (LED) emit light ? 1.5×10=15