AOI1315

Elements of Electronic Engineering
(Old) (1050)

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :
1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Figures to the right indicate full marks.
5. Assume data wherever necessary.
6. Please mark question number with specific bit to write answer.

UNIT - I

1. Solve **any two**. 10

   a) Explain V-I characteristics of a p-n junction diode. Also explain the drift current mechanism for a semiconductor.

   b) What do you understand by extrinsic semiconductor ? What are the types ? Explain each type using energy band diagram. 10

   c) Discuss the zener breakdown and avalanche breakdown mechanisms. Also state the applications of zener diode. 10

UNIT - II

2. Solve **any two**.

   a) define α, β, γ . Derive the relationship between them. 10

   b) Draw and explain the experimental set up to plot drain characteristics of n-channel JFET. 10

   c) Compare CC, CE and CB configurations.

UNIT - III

3.   Solve **any two**.

a)   Explain the spectral response of human eye with the help of neat diagram. Also explain the principle of photo emission & list out the devices which work on this principle.   **10**

b)   Explain the working & I-V characteristics of SCR with the help of its two transistor analogy.   **10**

c)   Draw and explain the UJT relaxation oscillator circuit with neat diagram and waveforms. Also list its applications.   **10**

UNIT - IV

4.   Solve **any two**.

a)   Draw and explain the basic building blocks of IC 741.   **10**

b)   Distinguish between regulated & unregulated power supply. Explain the need of regulated power supply. Also list the 5 applications of SMPS.   **10**

c)   Explain the different parameters of op-amp. Also discuss the virtual ground concept.   **10**

UNIT - V

5.   Solve **any two**.

a)   Draw & explain the construction & working of the
       i)   CRT   ii) DC voltmeter.   **10**

b)   What are the different types of universal gates. Explain AND, OR & NOT gates using universal gates.   **10**

c)   Convert the following.   **10**
       i) $(0.85)_{10} - (\quad)_2$ ii) $(1011.101)_2 - (\quad)_{10}$
       iii) $(175.23)_{10} - (\quad)_8$ iv) $(347.5)_8 - (\quad)_2$
       v) $(B97.46)_{16} - (\quad)_{10}$

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