

(DEC 213)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Second Year)

Electronics & Communications

Paper - III : ELECTRONIC DEVICES

Time : 3 Hours

Maximum Marks : 75

Answer question No. 1 compulsory

(15 x 1 = 15)

Answer ONE question from each unit

(4 x 15 = 60)

- 1) a) Define mass action law.
- b) What is the difference between p-n diode and zener diode?
- c) What is intrinsic semiconductor.
- d) What are the applications of CRO.
- e) What is meant by depletion region.
- f) Define carrier life time.
- g) What are the applications of LED.
- h) What is negative temperature coefficient of temperature?
- i) Draw the PNP common collector transistor configuration.
- j) What is Diffusion capacitance?
- k) What are the applications of diode?
- l) What is Base width modulation?
- m) Define transport factor, β in a transistor.

- n) Why FET is called unipolar device?
- o) What is meant by pinch off voltage in FET.

Unit – I

- 2) a) Give the constructional details of cathode ray tube.
- b) What is drift current?

OR

- 3) a) Draw the block diagram of CRO and explain function of each block.
- b) In a CRT, a pair of deflecting plates are 2 cm long and are spaced 0.5 cm apart. The distance from the center of the plates to the screen is 24 cm. The final anode voltage is 1000V. Calculate the displacement produced by deflecting voltage of 30V.

Unit – II

- 4) a) Derive PN junction diode equation.
- b) Calculate the factor by which the current will increase in silicon diode operating at a forward voltage of 0.4 volts. When the temperature is raised from 25°C to 150°C.

OR

- 5) a) Compare Avalanche and zener break down mechanisms.
- b) Explain how zener diode works as voltage regulator.

Unit – III

- 6) a) Explain the current components in transistor with a neat diagram.
- b) Explain how the transistor acts as an amplifier.

OR

- 7) a) Explain the characteristics of transistor in CB configuration.
- b) Derive the relationship between α , β and γ

Unit – IV

- 8) a) Explain the characteristics of JFET.
- b) Explain the classification of field effect transistors.

OR

- 9) a) Explain the construction and operation of UJT.
- b) Give the UJT symbol and simplified equivalent circuit with external resistors included.

