D 1824

(2 pages)

THIRD SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
DECEMBER 2004
CS/IT-2K-304 – BASIC ELECTRONICS ENGINEERING
(New Scheme)

Time : Three Hours

Maximum : 100 Marks

I. (a) Explain the characteristics of an ideal voltage source and an ideal current source.

(b) Draw the equivalent circuit of Varactor diode. Explain its potential applications.

(c) Write and discus the advantages of PNP biasing.

(d) Explain the need for cascaded amplifiers.

(e) What type of BJT is used for power amplification ? Explain.

(f) Draw the block diagrams of voltage series and current series feed back amplifiers. Explain them.

(g) Show that an operational-amplifier can be used as a summer.

(h) Explain the following for an op-amp differential amplifier.

   (i) CMRR.   (ii) SURR.   (iii) Slew rate.

(8 × 5 = 40 marks)

II. (a) (i) What are the types of LED ? Explain the applications of LEDs.   (8 mars)

   (ii) Explain the V-I characteristics of UJT with neat sketches.   (7 marks)

Or

(b) Tabulate the differences between

   (i) Insulator and semiconductor.

   (ii) PN junction diode and zener.

   (iii) UJT and FET.

III. (a) (i) What is the significance of transistor biasing ? Explain.   (3 × 5 = 15 marks)   (8 marks)

   (ii) Draw all the biasing circuits and explain the principles of most commonly used biasing circuit.   (7 marks)

Or

(b) Draw a neat circuit diagram of a 2 stage R.C coupled amplifier. Explain its principle of operation.   (15 marks)

IV. (a) (i) Describe the applications of tuned voltage amplifier.   (8 marks)

(ii) Define and Explain Resonance. Explain the types of resonance.   (7 marks)

Or

(b) Draw a neat circuit diagram of an RC oscillator. Explain its principle of operation. State the limitations advantages and applications of it.   (15 marks)

V. (a) (i) List and Explain the characteristics of an Ideal Op-amp.   (8 marks)

(ii) Explain in detail the applications of Op-amp with neat circuit diagrams.   (7 marks)

Or

(b) Write technical notes on :—

(i) Analog computation.   (8 marks)

(ii) Op-amp peak detector.   (7 marks)