D 23521 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER B.TECH (ENGINEERING) DEGREE EXAMINATION DECEMBER 2011

EE 04 305—ELECTRONICS—I

Time : Three Hours Maximum : 100 Marks

I. (a) Obtain the relation among all the current components of BJT.

(b) Explain the construction and characteristics of JFET.

(c) Obtain Ripple factor and efficiency for diode half wave rectifier.

(d) What are d.c. limiters ? Explain them with neat sketches.

(e) What is bias stability ? Explain its significance.

(f) Draw a BJT Emitter follower and explain its characteristics.

(g) State and explain Miller effect in detail.

(h) Explain the high frequency behaviour of FET with a neat diagram.

(8 × 5 = 40 marks)

II. (a) (i) State and explain diffusion and transition capacitances. Obtain expressions for them : (7 marks)

(ii) Show that a *p-n* junction diode can act as a rectifier. (8 marks)

Or

(b) Explain the construction and characteristics of the following diodes.

(i) Schottky diode. (ii) Breakdown.

(iii) *p-n* junction.

(5 + 5 + 5 = 15 marks)

III. (a) Draw a diode full wave rectifier and explain its principle of operation obtain rectification efficiency and TUF for the same.

Or

(b) Compare and contrast the parameters of diode half wave, centre tapped full wave and Bridge rectifiers in detail.

IV. (a) Give a account on :

(i) Biasing circuits for MOSFET. (7 marks)

(ii) Self bias for BJT. (8 marks)

Or

(b) (i) Differentiate voltage amplifier from power amplifier. (7 marks)

(ii) Explain the characteristics of CS and CD amplifiers. (8 marks)

V. (a) Draw the high frequency equivalent circuit of BJT and Obtain expressions for f_α, f_β and f_γ. Explain the model.

Or

(b) Write short notes on :

(i) CMRR. (7 marks)

(ii) Current source biasing for differential amplifiers. (8 marks)

(4 × 15 = 60 marks)