B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2010

Third Semester

Electrical and Electronics Engineering

EE 2203 — ELECTRONIC DEVICES AND CIRCUITS

(Regulation 2008)

Time : Three hours Maximum : 100 Marks

Answer ALL questions

PART A — (10 × 2 = 20 Marks)

1. Define Knee voltage of a diode.
2. What is peak inverse voltage?
3. Name the operating modes of a transistor.
4. What are hybrid parameters?
5. Draw the high frequency model of JFET.
6. Write the AC input impedance of a Darlington Transistor.
7. Mention the operating modes of MOSFET.
8. Mention any two high frequency LC oscillators.
9. Write the frequency equation of an Astable multivibrator.
10. What is Schmitt Trigger?

PART B — (5 × 16 = 80 Marks)

11. (a) (i) Explain the operation of FWR with centre tap transformer. Also derive the following for this transformer. (6)

(ii) dc output voltage (4)

(iii) dc output current (2)

(iv) RMS output voltage. (4)

Or

(b) Explain the following regulator circuits :

(i) Transistorized shunt regulator. (8)

(ii) Zener diode shunt regulator. (8)

12. (a) Describe the static input and output characteristics of a CB transistor with neat circuit diagram. (16)

Or

(b) Derive the expression for current gain, input impedance and voltage gain of a CE Transistor Amplifier. (16)

13. (a) Explain the construction of N channel JFET. Also explain the drain and transfer characteristics of the same. (16)

Or

(b) (i) Describe the operation of common drain FET amplifier and derive the equation for voltage gain. (12)

(ii) In the common drain FET amplifier. Evaluate the voltage gain V A . (4)

14. (a) Derive the equation for differential mode gain and common mode gain of a differential amplifier. (8 + 8 =16)

Or

(b) Draw and explain the operation of a Hartley oscillator. (16)

15. (a) Explain the working of UJT as a relaxation oscillator with necessary wave forms and equations. (16)

Or

(b) (i) Draw the circuit of a monostable multivibrator and explain. (14)

(ii) What are the applications of monostable multivibrator? (2)