PVP 14

Code: EE2T4

I B.Tech - II Semester – Regular Examinations – JULY 2015

BASIC ELECTRONIC DEVICES AND CIRCUITS
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11x 2 = 22 M

1. a) What is a PN junction? How is it formed?

   b) Define peak factor and ripple factor.

   c) Draw the symbols of photo diode, LED and Tunnel diode.

   d) What is meant by thermal stability? Give the condition for it.

   e) What is early effect?

   f) Advantages of negative feedback amplifier.

   g) Draw the V-I characteristics of Zener diode.

   h) Define stability factor.

   i) Define the condition for stability of an oscillator.

   j) Draw the transistor hybrid model.

   k) Differentiate JFET with BJT

PART – B

Answer any ***THREE*** questions. All questions carry equal marks. 3 x 16 = 48 M

2. a) Show that the zener diode can be used as a voltage regulator. 8 M

   b) Draw the circuit diagram of a full wave rectifier. Explain the operation and derive the expression for I_{dc}, V_{dc}, I_{rms} and ripple factor. 8 M

3. a) Explain input and output characteristics of a Common Base configuration. 8 M

   b) Explain the V-I characteristics of MOSFET in enhancement mode. 8 M

4. a) Derive an expression for the stability factor of a self bias circuit using transistor. 8 M

   b) Explain in detail about the biasing of FET. 8 M

5. a) Compare the performance of a BJT as an amplifier in CE, CB & CC configurations. 8 M

   b) Derive the parameters for high frequency BJT amplifiers and explain their interrelationship. 8 M

6. a) Draw the circuit of voltage series feedback amplifier and explain how stability is improved? Derive necessary equations. 8 M

b) State the barkhausen's criterion for stability and explain the Hartley oscillator operation with a neat sketch. 8 M