PVP 12

Code: **EE1T5**

I B.Tech - I Semester – Regular Examinations February - 2014

BASIC ELECTRONICS ENGINEERING
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) Briefly explain about the different types of Capacitors and their applications. 7 M

   b) Discuss about the active components with necessary representation. 7 M

2. a) Describe Hall effect? What properties of a semiconductor material are determined from a Hall effect experiment? 7 M

   b) Define intrinsic concentration of holes? What is the relationship between this density and the intrinsic concentration for electrons? Explain their behavior at 0^0K. 7 M

3. a) What is the order of magnitude of the space-charge width at a p-n junction? What does this space charge region consist of ? 7 M

b) Explain why the p-n junction contact potential cannot be measured by placing a voltmeter across the diode terminals? 7 M

4. a) Draw the volt-ampere characteristics of an avalanche diode? What is meant by the knee of curve, Dynamic resistance, Temperature coefficient? 7 M

b) Draw and explain the volt-ampere characteristics of a tunnel diode? Explain about the negative resistance portion in the characteristics. 7 M

5. a) Explain the operation of the transistor in CE configuration? 8 M

b) Derive the expression for I_c versus I_B for a CE transistor Configuration in the active region and if $I_B = 0$, what is I_c ? 6 M

6. a) Explain the V-I characteristics of JFET. Compare JFET with BJT.

b) Draw the circuit of an FET amplifier with a source resistance R_S and a drain resistance R_d? What is the equivalent circuit looking into the drain at low frequencies. 7 M

7. Explain about the construction, characteristics and applications of LED? 14 M

8. Discuss about motion of electron in Parallel and Perpendicular electric fields with diagrams? 14 M