PVP 14

Code: EC2T5

I B.Tech - II Semester – Regular Examinations – April 2016

ELECTRONIC DEVICES & CIRCUITS
(ELECTRONICS & COMMUNICATION ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

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

11x 2 = 22 M

1. a) Define Electro static deflection sensitivity and Electro static deflection factor.
   b) How to measure voltage and frequency by using CRO?
   c) Draw the Energy band diagram of a PN diode.
   d) Define Diffusion capacitance and give the expression.
   e) What is Ripple factor and specify its value for HWR and FWR?
   f) Write the basic difference between Capacitor and Inductor filters.
   g) Write any three advantages of FET over BJT.
   h) What is Base width modulation?
   i) Give the classification of Biasing Techniques.
   j) Draw the Self Bias circuit of BJT.
   k) Write the applications of a diode.

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) What is Magnetic deflection sensitivity and derive the expression for Magnetic deflection sensitivity? 10 M

b) Discuss the movement of electron beam under varying conditions. 6 M

3. a) Explain the principle of operation of Zener diode and draw its characteristics. 8 M

b) A silicon diode with 0.7 V forward voltage drop at 25^0C is to be operated with a constant forward current up to a temperature of 100^0C. Calculate the diode V_F at 100^0C. Also determine the junction dynamic resistance at 25^0C and a 100^0C if the forward current is 26 mA. 8 M

4. a) Draw the Bridge Rectifier, explain its operation and find the Ripple factor. 10 M

b) An AC supply of 230V is applied to half wave rectifier circuit through a transformer of turns ratio 5:1. Assume the diode as an ideal one, the load resistance is 300Ω.

Find (i) d.c. output voltage

(ii) PIV

(iii) power delivered to load 6 M

5. a) Explain the operation of MOSFET in depletion mode with neat sketches and draw output characteristics. 10 M

b) Describe the construction and working of UJT. 6 M

6. a) What is meant by Thermal Runaway and Thermal stability? Explain in detail. 8 M

b) Define stability factor and obtain the stability factor of potential divider circuit. 8 M