PVP 12

Code: **EE2T4**

I B.Tech-II Semester-Regular Examinations - July 2013

ELECTRONIC DEVICES & CIRCUITS
(For Electrical & Electronics Engineering)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) Describe the principle of working of LED. What are the merits of LEDs ? 7 M
   b) Give the construction of semiconductor photo diode. Draw and discuss its V-I characteristics. 7 M

2. a) Draw the equivalent circuit of SCR and explain its working from the equivalent circuit. 7 M
   b) Explain the construction and working of a triac. Sketch its V-I characteristics. 7 M

3. a) With the help of a neat sketch, describe various components of a Cathode Ray Tube. 7 M
   b) Derive the expression for electrostatic deflection sensitivity. 7 M

4. a) A full wave rectifier operating at 50 Hz is to provide D.C. Current of 50mA at 30V, with a 80 μF capacitor filter is used. Calculate

(i) V_m the peak secondary voltage of transformer.
(ii) The ripple factor of the output. 7 M

b) Draw and explain the operation of a bridge rectifier. List out advantages and disadvantages. 7 M

5. a) Draw the Collector to Base bias circuit and derive the expression for the stability factor. What are the limitations of this circuit? 8 M

b) Explain the terms: Thermal Runaway and Thermal Resistance. 6 M

6. a) Discuss about classification of amplifiers. 7 M

b) Explain the characteristic of common gate FET amplifier. 7 M

7. a) Draw the circuit for Current series amplifier and justify the type of feedback. Derive the expressions for A_V, A_I, R_i and R_o. 7 M

b) An amplifier gain changes by ±10% using negative feedback, the amplifier is to be modified to yield a gain of 100 with ±0.1% variation. Find required open loop gain of the amplifier and the amount of the negative feedback. 7 M

8. a) Explain Barkhausen criterion in oscillator. Derive the expression for frequency of oscillation for RC phase shift oscillator (BJT). 7 M

b) Explain the principle of operation of Wein bridge oscillator using BJT. 7 M