Code :RR100207



Max Marks: 80

B.Tech I Year (RR) Supplementary Examinations, May 2011 ELECTRONIC DEVICES & CIRCUITS (Common to Electrical & Electronics Engineering, Electronics & Communication Engineering, Computer Science & Engineering, Electronics & Instrumentation Engineering, Biomedical Engineering, Information Technology, Electronics & Control Engineering, Computer Science & Systems Engineering, Electronics & Computer Engineering, Instrumentation & Control Engineering)

Time: 3 hours

Answer any FIVE questions All questions carry equal marks $\star \star \star \star \star$

- 1. (a) Give the block diagram of CRO and explain about each block in detail?
 - (b) In a electrostatic deflecting CRT the length of the deflection plats is 2cm, and spacing between deflecting is 0.5cm. The distance from the cenlve of the deflecting plate to the screen is 20cm, the deflecting voltage is 25V Find the deflecting sensitivity, the angle of diction and velocity of the beam. Assume final anode potential is 1000V
- 2. (a) Explain about diode switching times.
 - (b) In the case of an open circuited p-n junction, the acceptor atom concentration is $2.5x10^{16}/m^3$ and donor atom concentration is $2.5x10^{22}/m^3$. Intrinsic concentration ni is $2.5x10^{19}/m^3$. Determine the value of contact difference of potential.
- 3. (a) Draw the circuit diagram of a bridge rectifier circuit with shunt capacitance filter? Sketch the input and output wave forms and explain its operation with the aid of output wave form.
 - (b) What are the advantages and disadvantages of shunt capacitance filter.
 - (c) What is the difference between rectifier, unregulated power supply and regulated power supply?
- 4. (a) What are the different configurations of BJT. Explain?
 - (b) Define I_{CBO} and I_{CEO} ?
 - (c) What is the order of magnitude of I_{CBO} for Si transistor and Ge transistor. How does I_{CBO} vary with temperature?
- 5. (a) Give symbol of UJT and mark required polarities for operation.
 - (b) Give the equivalent circuit of UJT.
 - (c) Explain how UJT can be used as a-ve resistance device, with the help of static characteristics.
- 6. (a) Draw the circuit diagram of small signal CE amplifier circuit and give its equivalent hybrid model. What is the role of C_c and C_e .
 - (b) Obtain frequency response of CE amplifier circuit and find out its band width. What is the impact of C_C and C_S on the band width?
- 7. (a) Classify the amplifiers based as feedback topology and give their block diagram. How the input and output impendence are effected in each case.
 - (b) Draw the circuit diagram of a current feed back circuit and derive Expressions for Voltage gain and output resistance, and input resistance.
- 8. (a) What is the basis on which the classification may be done for oscillators.
 - (b) What are the requirements on which the oscillator depends upon.
 - (c) Why RC phase shift oscillators are needed?
 - (d) Calculate the operating frequency of BJT phase shift oscillator for R = 6K ohms, C =1500pf and $R_c = 18 \mathrm{k}\Omega$.