Subject Title: Electronic Devices Prepared by: K Haritha
Year: I Semester : II Updated on: 22.03.

Unit - I: PN JUNCTION

1. Define the terms drift current, diffusion current and junction capacitance in a PN Junction.
2. Write the diode equation and explain it.
3. Explain the effect of temperature on reverse saturation current.
4. Explain zener diode as voltage regulator
5. List the applications of PN junction diode, Tunnel diode.
6. Explain the formation of depletion region. How it is affected in forward and reverse bias?
7. Draw and explain the V-I characteristics of junction diode in forward and Reverse bias.
8. Discuss the V-I characteristics of Zener diode. Explain avalanche and Zener breakdowns.
9. Write a note on Tunnel diode.
10. Explain V-I characteristics of Varactor diode.

Unit - II: BIPOLAR JUNCTION TRANSISTOR

11. Draw the symbols of PNP and NPN transistors.
12. Define cut-off, active and saturation regions of a transistor.
13. Draw h-parameter equivalent circuit of BJT in CE configuration.
14. Explain the need for transistor biasing.
15. Define Stability factor. Write its expression for CE configuration.
16. Mention the advantages of self biasing.
17. Write a short note on Early effect
18. Explain the working of NPN transistor with neat circuit diagram.
19. Explain the current components of NPN transistor
20. Define the terms α, β and γ of a transistor. Deduce the relation between them.
21. Draw the characteristics of CE configuration and explain.
22. Draw and explain CE configuration as two port network.
23. Define h-parameters and determine them from the transistor characteristic Curves.
24. Explain the selection of operating point on the DC load line with neat diagram.
25. What is stability factor? Explain the “fixed bias” and “self bias” circuits.

Unit - III: FIELD EFFECT TRANSISTOR(FET) AND UNI-JUNCTION TRANSISTOR (UJT)

26. Classify different types of FETs.
27. Draw the drain characteristics of JFET.
28. Define trans conductance and amplification factor of FET.
29. List any five applications of JFET.
30. Bring out the difference between FET and BJT.
31. List the applications of UJT.
32. Explain the working of N-channel JFET and explain the V-I characteristics.
33. Discuss the output and transfer characteristics of JFET.
34. Define FET parameters and derive relationship between them.
35. Explain application of FET as voltage variable resistor.
36. Explain the construction and principle of operation of depletion type n-channel MOSFET.
37. Explain the working of MOSFET as a switch.
38. Explain the working and characteristics of a UJT.
39. Describe the working of UJT as relaxation oscillator.

Unit - IV: SILICONCONTROLLED RECTIFIER (SCR) AND PHOTOELECTRONIC DEVICES

40. List the applications of SCR.
41. Explain the two transistor representation of SCR
42. What is LDR and mention its applications.
43. Mention the various types of photovoltaic cells.
44. List the applications of photodiode.
45. List the applications of LED.
46. Explain the working and construction of SCR and draw its V-I characteristics.
47. Explain how SCR is used for power control.
48. What is LDR? Mention its specifications and explain the characteristics of a LDR.
49. Explain construction and working of photo voltaic cell.
50. Describe the construction and characteristics of photodiodes and mention its uses.
51. Explain the construction and characteristics of a phototransistor.
52. Write a note on LED