BHARATI VIDYAPEETH INSTITUTE OF TECHNOLOGY

Question Bank (K - Scheme)

Name of subject: ELECTRONIC MATERIALS AND COMPONENTS **Unit Test**: I

Subject code: 312316 Program: EJ

Semester: II

CHAPTER-1 (Electronic Materials) -12 Marks

(2 Marks)

1. **Define the term 'Photoelectric emission.**
2. **Sketch energy band diagram of intrinsic semiconductor.**
3. **List electrical conducting material (any four).**
4. **List dielectric materials (any four).**
5. **Define the term 'Permeability'. State its unit.**

(4 Marks)

6. **Pentavalent impurity materials are called as Donor impurity.' Justify your answer.**
7. **Describe effect of plate area, thickness of dielectric material, permittivity on capacitance of a capacitor.**
8. **Sketch orientation of spins in paramagnetic, ferromagnetic, anti-ferromagnetic andferrimagnetic material**.
9. **Q. Classify-following material as diamagnetic, paramagnetic, ferromagnetic and anti-ferromagnetic :**
   (i) Platinum (ii) Iron (iii) Glass(iv) Nickel oxide (V) Quartz (vi) Silicon Iron alloy

(6 Marks)

10. **State the effect of following factors on resistivity of electrical conducting material**
    (i) Temperature (ii) Alloying (iii) Cold work (iv) Age Hardening.
11. **Explain the properties of dielectric materials.**
12. **Explain the characteristics of good insulating materials.**

CHAPTER-2 (Electronic Components) -14 Marks

(2-Marks)

13. State materials used for LED's to emit different colour light.
14. Draw symbol of photodiode and zener diode.
15. Draw symbol of NPN transistor and PNP transistor.

(4 Marks)

16. Compare P-type semiconductor with N-type semiconductor on the basis of
(i) Majority charge carrier

(ii) Minority charge carrier

(iii) Impurity material

iv) Fermi-level position in energy band diagram

17. Sketch energy band diagram of conducting and insulating material and label it

18. Describe V-I characteristics of zener diode.