



# SAHYADRI

## COLLEGE OF ENGINEERING & MANAGEMENT

### MANGALURU

#### ELECTRONIC DEVICES IMPOERTANT QUESTIONS

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1. Define a) Valence band b) Conduction band c) Band gap
2. Differentiate between Intrinsic & Extrinsic materials.
3. Distinguish between conductor, insulator and semiconductor on the basis of energy band diagram.
4. Define a) Ionic Bonding b) Covalent Bonding c) Metallic Bonding
5. What is LCAO and explain its types
6. With the neat diagram explain the variations in the energy level of Si atom, when they brought together to form a solid.
7. Distinguish between a direct and an indirect semiconductor. Give an example of each.
8. With neat diagram explain the variation of the band edge in space for varying electric field.
9. Develop the expression for Current density in terms of mobility.
10. With the neat diagram explain the variation in energy levels of a solid (Consider Si atoms) as a function of interatomic spacing.
11. What is Hall effect? Derive the expression for carrier concentration and mobility in terms of Hall voltage.
12. With the neat energy band diagram qualitatively describe the flow of current at a PN junction.
13. Draw the charge density, electric field and minority carrier distribution within the transition region of a Reverse-biased PN junction with  $N_d < N_a$
14. Explain the effect of temperature on mobility.
15. Draw the energy band diagram of a p-n junction under:  
i) Equilibrium ii) Forward biased condition iii) Reverse biased condition.
16. Prove that  $n_0 p_0 = n_i^2$ .