

Dr Nishant

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

MID SUMMER EXAMINATION- June-2018

B.Tech 4th Semester

COURSE CODE: 10B11EC411

MAX. MARKS:50

COURSE NAME: Semiconductor Devices

COURSE CREDITS: 4

MAX. TIME: 2 Hrs

Note: Carrying of mobile phone during examinations will be treated as case of unfair means.

1. Distinguish between Metals, Semiconductors and Insulators on the basis of energy level diagram. [5]
2. What are intrinsic semiconductor materials? Also explain the concept of change in concentration level of holes and electrons with temperature. Support your answer with required mathematical equations. [5]
3. Explain and draw the energy level diagram for n-type and p-type semiconductors. [8]
4. What do you understand by Fermi level in energy level diagram? Draw and explain Fermi level in intrinsic and extrinsic semiconductor materials. [8]
5. Write a brief note on Hall Effect in semiconductor materials. [8]
6. Explain the concept of diffusion of charges in semiconductor materials. [8]
7. Using the concept of diffusion and drift of charges in semiconductors, derive an expression for Einstein relation. [8]