Department of Electronics & Communication Engineering

Faculty of Engineering, Integral University, Lucknow

Quiz 1

Semiconductor Device Modeling & Circuit Simulation (GEC-101)

Candidate Name :

Date :   22-Jaunary-2013

Maximum Marks : 10

Group: First Year M.Tech Part Time

Note : Last two questions are two marks each.

1. Maximum value of electric field in PN junction occurred at

    (a). Junction Point   (b). Middle of the depletion layer

    (c). End of the depletion layer   (d). None of these

2. Relationship between doping level and depletion width is given as

    (a). Inversely   (b). Linear

    (c). Square   (d). None of these

3. Minority carrier diffusion length in forward bias PN junction is given mathematically as

    (a). $L_p = \sqrt{(D_p \tau_p)}$ (b). $L_p = (D_p \tau_p)$

    (c). $L_p = (D_p / \tau_p)$ (d). $L_p = (D_p \tau_p)^{-1}$

4. The change in stored charges with forward bias voltage exhibits capacitive effect resulting in

    (a). Depletion Capacitance   (b).Diffusion Capacitance

    (c). Inductance   (d).None of these

5. Give the mathematical expression for the Mass Action Law

6. Give the mathematical expression for Einstein equation

7. Write down mathematical expression for Continuity Equation

8. Write down mathematical equation of width of depletion layers of unbiased PN Junction