Department of Electronics & Communication Engineering

Faculty of Engineering, Integral University, Lucknow

Assignment Sheet 3

Semiconductor Device Modeling & Circuit Simulation (GEC 101)

Faculty : Shrish Bajpai

Due Date : March First Week

Problems : 05

1. Write SPICE input file to determine the transfer characteristic of RC coupled common source amplifier.
2. Explain flat band voltage V_{FB}, surface accumulation and strong inversion region in the MOSFET structure.
3. Explain body effect in MOSFET? Why a little amount of current flows between the source & the substrate under reverse bias.
4. Derive the mathematical expression of the drain current of an N channel enhancement type MOSFET.
5. Draw the model of a MOSFET inverter circuit & obtain the mathematical expression for the propagation delay for the pulse input.