

1. Read attached file "MOSFET_CURRENT.PDF" and derive in using hand writing the current equations for NMOS device and PMOS device in the three region. Once done scan and insert the answer as in image in the solution report
2. What do we mean by Doping the Semiconductor? What is the difference between Ntype and Ptype materials?
3. Explain how do we generate a depletion layer and how does that affect the capacitance for both NMOS and PMOS ?
4. Define threshold voltage for NMOS and PMOS device and what are the main factors that affect threshold voltage of the device?
5. In each region of operation, how do we treat or model the MOS transistor?
6. Define leakage current in MOS transistor and explain the main factors that affect threshold voltage of the device?
7. Explain the Main factors that affect reliability of chip/device?
8. What do we mean by Hot-e degradation for MOS device?