School of Engineering
B.TECH Electronics and Communication Engineering in Artificial Intelligence and Machine
Mid Term Examination - May 2024

Duration : 90 Minutes
Max Marks : 50

Sem VI - G2UC606C - VLSI Design

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1) Explain about the diffusion. K2 (2)

2) Discuss the ypes of the metal semicoductor contacts, describe in brief K1 (3)

3) Distinguish between dry etching & wet etching. K2 (4)

4) Draw a RC ladder for Elmore delay with its propagation delay time, tpd. K2 (6)

5) Illustrate problems arise due to the scaling of MOSFET. K3 (6)

6) Explain is the pinch-off condition in MOSFET with diagram. K3 (9)

7) Formulate the various critical parameters of Transistor scaling K4 (8)

8) Analyze Delay in CMOS. K4 (12)

OR

(i) What is the accumulation voltage in MOSFET. (ii)An n-channel MOS transistor is made on a p-type Si substrate with $Na = 5 \times 10^{15} cm^{-3}$, intrinsic concentration of $Si\ is\ 1.5 \times 10^{10} cm^{-3}$. And Vt at room temperature is 0.259 eV. Find the inversion voltage. K4 (12)