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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS-2022

B.Tech-VI Semester (ECE)

COURSE CODE: 18B11EC612

MAX. MARKS: 25

COURSE NAME: VLSI Technology

COURSE CREDITS: 04

MAX. TIME: 1 Hour 30 Min

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

- Q1.** Write short notes on any two of the followings: [2x2.5]
- MOSFET Scaling
 - Subthreshold Conduction
 - Velocity Saturation
- Q2.** Develop the formula of V_{IH} in case of resistive load inverter. [4]
- Q3.** What do you understand about noise margins NM_H and NM_L ? Explain in detail. [4]
- Q4.** Explain the voltage transfer curve of the MOS inverter. Also mention the labels. [4]
- Q5.** Describe oxide related capacitances in MOSFETs. [4]
- Q6.** Consider the MOS inverter with $V_{DD}=5V$, $k_n'=30\mu A/V^2$, and $V_{T0}=1V$, designed with resistive load with $R_L=205K\Omega$ and $V_{OL}=0.2V$. Find the value of the aspect ratio (W/L) of the driver transistor. [4]