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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

M.Tech I Year II Semester Regular Examinations November-2021

LOW POWER VLSI DESIGN

(VLSI Design)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 a Explain about Silicon-on-Insulator (SOI) technology. L1 6M
 b Explain in detail about threshold voltage adjustment for CMOS devices. L3 6M

OR

- 2 a Explain low cost, medium speed digital CMOS process. L2 6M
 b How the bipolar transistor takes important role in Isolation in BiCMOS? L1 6M

UNIT-II

- 3 a Explain in detail about copper Electroplating/Copper-Fill. L1 6M
 b What are the future trends and directions in CMOS/BICMOS processes? Explain. L2 6M

OR

- 4 a Describe the device structure and fabrication process for lateral BJT on SOI. L1 4M
 b Explain the following Advanced MOSFET models, L3 8M
 i) HSPICE level 50 Model ii) EKV MOSFET Model.

UNIT-III

- 5 a Explain the following parameters in conventional CMOS logic gates, L1 6M
 i) Power dissipation in CMOS technology ii) Complementary MOS Inverter.
 b Explain the following parameters in ESD-free BiCMOS Digital circuits, L2 6M
 i) Circuit operation. ii) Comparative evaluation.

OR

- 6 a Describe the basic driver configuration in conventional Bi CMOS logic gates. L2 6M
 b What are all the performance evaluation and comparison of BiCMOS logic gates? L1 6M

UNIT-IV

- 7 a Explain about the pipelining theme in the evolution of Latches and Flip-flop. L2 6M
 b Explain in detail about Dynamic flip-flops in single edge-triggered Flip-flops. L1 6M

OR

- 8 a Discuss about the sensitivity to clock skew and input and clock skew rate of performance measures for latches and Flip-flop. L1 6M
 b Explain about the high performance and low power theme in the evolution of latches and Flip-flop. L2 6M

UNIT-V

- 9 a How the swing clock is used to reduce the power in clock networks? L1 6M
 b Discuss Tristate Keeper Circuit in CMOS Floating Node. L3 6M

OR

- 10 Describe the Oscillator Circuit for Clock Generation. L1 12M

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