



Advanced VLSI Design (1020)

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
 2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
 3. Students should note, no supplement will be provided.
 4. Attempt **any five**. Each question carries equal marks.(Twenty each)
 5. Draw well label diagram and assume suitable data whenever necessary.
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1. a) Explain different modeling style in VHDL with example.
b) Write down the VHDL code for 8:1 Mux. Also write the test bench for it.
 2. a) Draw and explain design flow for FPGA design.
b) Explain Full Custom and Semi - Custom ASIC with schematic.
 3. a) Explain FPGA partitioning methods.
b) Explain floor planning and what is its significance in VLSI Chip design ?
 4. a) Explain the construction of CMOS transistor and draw the transfer characteristics.
b) Draw and explain 2 input NAND and NOR gate with truth tables.
 5. a) Explain VLSI Design flow with the help of flow chart.
b) Write short notes on
 - i) Body effect.
 - ii) Tunneling.

6. a) Obtain the generalized expression for MOS threshold voltages V_T .
- b) Draw and explain 2:1 Mux Inverter using transmission gates, also explain its advantages over other gates.
7. a) What is BiCMOS technique ? What are the problems in CMOS which can be overcome in BiCMOS.
- b) Explain different design rules in VLSI design.
8. a) Explain different methods of resistance and capacitance estimation techniques.
- b) Write short notes on
 - i) CMOS Gate transistor sizing.
 - ii) Sizing routing conductor.
