Total No. of Questions :8] *[Total No. of Printed Pages :2*

Roll No .....

MEDC-104

M.E./M.Tech. I Semester

Examination, June 2016

VLSI Design

Time : Three Hours

Maximum Marks : 70

Note : Attempt any five questions. All questions carry equal marks. Assume and mention suitable missing data if any.

1. a) What do you mean by Integrated circuits. Write all its manufacturing steps.
   b) Explain design abstraction and circuit validation.

2. a) Discuss about the fundamental design for digital CMOS circuit with the help of any one example.
   b) Describe basic physical design and I/O structure.

3. a) Discuss CMOS logic design rules and importance of power and delay in logic design.
   b) Explain the verification and simulation in system design with example.

4. a) Derive the expression for fall time and rise time in CMOS inverter.
   b) Explain programmable gate array with an example.

5. a) Implement the function $Y = X^2$ for a three bit input with the help of ROM.
   b) What are the different mode of operation we can use in sub system design.

6. a) What do you mean by Routing of the chip? Explain Global Routing.
   b) Explain the effective implementation of PLA and ROM on CMOS sub system design operation.

7. a) Explain the controllability and observability in detail.
   b) Write an introductory note on Algotronix. Explain its CAL logic cell functions.

8. Write short notes on any two :
   a) CAD systems
   b) Optimization
   c) RTL synthesis
   d) Circuit level simulation

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