(DCS / DIT 414 E)

B.Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Final Year)

COMPUTER SCIENCE

Paper - IV : VLSI Design

Time : 3 Hours   **Maximum Marks : 75**

Answer question No.1 compulsory   *(15)*

Answer ONE question from each unit   *(4 × 15 = 60)*

1) a) What are the advantages of BiCMOS technology?

   b) Define sheet resistance.

   c) What are pass transistors?

   d) Why is testing needed?

   e) Define area capacitance.

   f) Give differences between Si and GaAs technology.

UNIT - I

2) a) Explain nMOS fabrication with neat sketches.

   b) Explain sheet resistance for different layers.

OR

3) a) Explain BiCMOS technology.

   b) What is scaling factor? Explain different scaling models.

UNIT - II

4) a) Explain the array multiplier with neat figure.

   b) Explain the structures of different switch logic circuits.

OR

5) a) Explain the parity generator and its advantages.

   b) Implement the carry save adder using full adders.

UNIT - III

6)   a)   Explain the architecture of a general memory cell.

       b)   Explain Dynamic RAM cell with computation of area and power dissipation.

<div align="center">OR</div>

7)   a)   Explain the random access memory cell with neat sketch.

       b)   Compare the ROM and Random access memory according to its area, complexity and power dissipation.

UNIT - IV

8)   a)   Explain :

          i)   System-level testing.

          ii)   Chip-level testing.

       b)   What is a fault? Explain the different faults occurred in a system.

<div align="center">OR</div>

9)   a)   What is fault grading? Explain in detail.

       b)   Explain about following CAD tools.

          i)   Design rule verification.

          ii)   Schematic verification.

<div align="center">φφφ</div>