Roll No. ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚   **Total No. of Pages : 01**

Total No. of Questions : 08

M.Tech (VLSI Design)   (Sem.–1)
VLSI TECHNOLOGY
Subject Code : MTVL-PE2A-18
Paper ID : [75210]

Time : 3 Hrs.   **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :
1.Attempt any FIVE questions out of EIGHT questions.
2.Each question carries TWELVE marks.

Q1. a) What is the importance of cleaning in VLSI Technology? Discuss Wet and dry cleaning technologies in brief.   (2+5)

  b) Differentiate between diffusion and ion implantation. Also draw the doping profiles of the same.   (5)

Q2. a) Explain high k and low K dielectrics used for ULSI?   (6)

  b) Describe the various requirements in Thermal Processes in ULSI Technology.   (6)

Q3. Write the short note on following :   (6+6)

  a) Electromigration

  b) Classification of Clean Rooms

Q4. Describe in detail the Deal and Grove's Model for the silicon oxidation.   (12)

Q5. a) Enlist the uses of silicon nitride in VLSI. Also describe its various properties.   (5)

  b) Describe four different CVD reactors used for deposition of thin films.   (7)

Q6. Discuss the masking sequence and process integration of CMOS using appropriate schematic diagrams.   (12)

Q7. a) What do you understand by annealing? How annealing is different from Rapid thermal annealing?   (4)

  b) Describe the coupling between various types of simulation. Discuss Monte Carlo method used to simulate Ion implantation phenomena in solids.   (8)

Q8. What is photolithography? Explain any two photolithography techniques.   (12)