Roll No. .... **Total Pages : 02**

BT-5/D-23 **45255**

VLSI TECHNOLOGY

ECP-5A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. Discuss and differentiate between monolithic and hybrid IC. Discuss the Czochralski method of crystal growth in detail. **5+10**

2. Discuss the need and concept of oxidation for growth of SiO_2. Discuss dry and wet oxidation in detail. **5+10**

Unit II

3. Discuss the concept and need of epitaxy in the fabrication process. Discuss in detail the process of molecular beam epitaxy. **5+10**

4. Discuss the concept and principle of diffusion and ion implantation in detail. **15**

Unit III

5. Discuss in detail the process of lithography. Discuss various methods of lithography in detail. **5+10**

6. Discuss the process of etching in detail. Discuss dry and wet etching in detail. **5+10**

Unit IV

7. Discuss complete VLSI fabrication process for nMOS technology. **15**

8. Write short notes on the following : **3×5=15**

   (a) PVD

   (b) Reliability in VLSI

   (c) Packaging design consideration.