

ET502M2 - Open Elective-I : IC Technology

P. Pages : 2

Time : Three Hours



GUG/S/23/13921

Max. Marks : 80

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- Notes :
1. All questions carry marks as indicated.
 2. Assume suitable data wherever necessary.
 3. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Explain Ion implantation in IC? Enumerate the damages caused during implantation. **8**
b) List the steps involved in IC fabrication process? Discuss wafer cleaning process in detail. **8**

OR

2. a) Explain Czochralski method for silicon crystal growth? State its advantages. **8**
b) Describe channeling and channeling effect with labelled diagram. **8**
3. a) Differentiate Wet and Dry Oxidation? Give the advantages of Wet and Dry Oxidation. **8**
b) Explain the effect of impurities and damage on the oxidation rate? **8**

OR

4. a) Define Thin and Thick Oxidation? Discuss the significance of Oxidation in IC fabrication. **8**
b) Justify how processing condition have an important impact on oxide properties. **8**
5. a) What is Epitaxy? Why it is needed? Explain liquid phase Epitaxy. **8**
b) What is Ion beam lithography? Explain the significance of etching in lithography process. **8**

OR

6. a) What are the different reactor used for CVD? Explain Atmospheric Pressure CVD. **8**
b) Explain deposition process of Polysilicon, Silicon Dioxide and Silicon Nitride? **8**
7. a) Explain the parameter required for good metalization? Discuss the multi – level metalization scheme in detail. **8**
b) Explain Evaporation method for the deposition of film? **8**

OR

8. a) Write short note on: 8
- i) Ohmic contact
 - ii) Electromigration
- b) Describe the possible problem associated with deposition in metalization. 8
9. a) Describe Plasma enhanced CVD technique in detail. 8
- b) Discuss uniformity and through put property of ETCH process. 8

OR

10. Write short note on: 16
- i) Reactive Ion – Beam Etching
 - ii) Microwave Plasma Etching
 - iii) Planarization
