

ET502M2 - Open Elective-I : IC Technology

P. Pages : 2

Time : Three Hours



GUG/W/24/13921

Max. Marks : 80

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- Notes :
1. All questions carry marks as indicated.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What is float zone technique of crystal growth explain with the help of diagram. **8**
- b) Derive Fick's law of diffusion and explain different types of diffusion. **8**

OR

2. a) Explain Ion Implantation in Integrated Circuit. What are the damages that take place during Ion Implantation? **8**
- b) What is Annealing? What are the different types of Annealing? Justify annealing process is the recovery process. State its advantages? **8**
3. a) Define Oxidation? Explain the Kinetics of Thermal oxidation. **8**
- b) Write short note on Atmospheric growth technique. **8**

OR

4. a) Explain high k and low k dielectrics? Why it is needed. **8**
- b) Explain the effect of Impurities and Damage on the Oxidation Rate. **8**
5. a) Explain vapor phase Epitaxy and also what are the sources of silicon in vapor phase Epitaxy. **8**
- b) Describe low pressure CVD. State its advantages and disadvantages. **8**

OR

6. a) Enlist the types of lithography? Explain electron beam lithography. **8**
- b) Explain the process of Molecular beam Epitaxy. **8**

7. a) Write short note on- 8
- i) Ohmic contacts
- ii) Electromigration
- b) Explain the process of Dry etching and chemical etching during metallization. 8

OR

8. a) Explain Vacuum deposition technique. 4
- b) Explain Film deposition with its characteristics. 4
- c) Explain the different aspects that causes problem in the metallization. 8
9. a) Write a short note on- 8
- i) Planarization
- ii) Plasma surface chemistry
- b) Explain generation of plasma by DC plasma excitation 8

OR

10. a) Describe the properties of ETCH process. 8
- b) Explain generation of plasma by AC plasma excitation. 8
