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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) Describe float zone method for crystal growth with it's advantages. **8**
b) Explain mechanism of atomic diffusion and factors affecting diffusion. **8**

OR

2. a) Elaborate WET cleaning technique in detail. **8**
b) Justify annealing process is the recovery process with it's types, purpose and advantages. **8**

3. a) Define thin oxidation and discuss the significance of oxidation in IC fabrication. **8**
b) Discuss HCL Dry oxidation technique in detail. **8**

OR

4. a) Derive the expression for growth kinetics of oxidation. **8**
b) Enlist the different oxidation techniques and explain plasma oxidation details. **8**

5. a) Describe low pressure CVD with it's advantages and disadvantages. **8**
b) Describe Molecular beam epitaxy in detail. **8**

OR

6. a) What are the different types of Lithography. Explain Photolithography process and it's significance in IC Fabrication. **8**
b) Describe X-ray lithography in detail with it's advantages. **8**

7. a) Describe Resistive method for Metal Film deposition. **8**
b) Explain film deposition, its characteristics and sputtering technique in details. **8**

OR

8. a) Explain the importance of Metallization, material choice, it's requirement and application. **8**
b) Which schemes have been proposed to minimize interconnection resistance and chip area, explain in detail. **8**

9. a) Justify, how underlying topography can increase the selectivity demand of and etch process. **8**
b) Describe generation of plasma by DC plasma excitation in detail. **8**

OR

10. a) Enlist some experimental techniques that are commonly used to measure plasma properties. **8**
b) Illustrate PECVD techniques in details. **8**
