

End Semester Examinations - 2015-16 Even Semester - May 2016

Time : 3 hrs
Total Marks: 100

1. a. Describe the Working principle of diffusion pump with suitable schematic diagram (15 marks)
b. Explain the advantages and disadvantages of Diffusion pump (5 marks)
OR
2. a. How Pirani Resistance Gauge measures the vacuum. Explain with a suitable diagram. (10 marks)
b. With suitable diagram explain the working of a Pirani gauge (10 marks)
3. a. With suitable diagrams explain the construction & working of Molecular Beam Epitaxy. (10 marks)
b. How will you measure the electrical conductivity of the thin film using Four Probe technique? (10 marks)
OR
4. Explain the experimental technique of preparing thin films by rf, dc, and Magnetron sputtering. (20 marks)
5. a. Give some examples for substrate materials. How does the substrate material property affect the properties of thin films? (10 marks)
b. Explain any two methods of substrate cleaning. (10 marks)
OR
6. Give a brief account on the following processes (20 marks)
a) Adsorption b) Surface diffusion
7. a. Demonstrate the working principle of X-ray diffractogram (10 marks)
b. Describe how the structure of a material and the particle size are determined by X-ray diffraction studies. (10 marks)
OR
8. Define Hall Effect and describe how this technique can be used to find the electrical properties of thin films. (20 marks)
9. Compulsory
Explain the fabrication of thin film solar cells and the conditions for achieving high efficiency (20 marks)

Wishing you All the Best