

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

15PH3018 Thin Film Technology

Set A

Time : 3 hrs
Total Marks: 100

1. a) Explain with suitable diagram the instrumentation, working principle, advantages and drawbacks of turbo molecular pump. (16)
b) What are the advantages and drawbacks of diffusion pump? (4)

OR
2. a) With a neat sketch explain in detail the construction and working of penning gauge. (16)
b) Give the importance of vacuum in thin film technology. (4)
3. a) With a neat sketch, explain the principle, kinetics and working concept of CVD. (16)
b) Write short notes on spray pyrolysis. (4)

OR
4. a) With suitable diagram explain the construction and working of DC sputtering and DC magnetron sputtering. (16)
b) What is LASER ablation and what are its benefits? (4)
5. a) With appropriate figures, explain in detail, the different types of lattice mismatch. (16)
b) Write short notes on surface diffusion. (4)

OR
6. a) With a neat sketch, explain in detail the various stages in thin film growth. (16)
b) Differentiate homoepitaxy and heteroepitaxy with suitable examples. (4)
7. a) Define Hall Effect and describe how this technique can be used to find the electrical properties of thin films. (16)
b) Briefly discuss the steps in fabrication of a thin film solar cell. (4)

OR
8. a) Describe in detail the basic parts and working of UV-Visible spectrophotometer. Explain how to determine the transmittance and absorbance of
thin films with suitable equations. (16)
b) Describe the steps involved in fabrication of thin film diode. (4)
9. a) What are the various factors that should be considered during the design of thin film capacitors? (10)
c) What are thin film gas sensors? Briefly explain the different types of gas sensors. (6)

Wishing you All the Best