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10NT74

Seventh Semester B.E. Degree Examination, Dec.2016/Jan.2017
Thin Film Technology

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. Write a brief note on inter – diffusion, grain boundary diffusions. **(05 Marks)**
b. Explain Lattice matching epitaxy and domain matching epitaxy. **(07 Marks)**
c. Explain Thin film nucleation and growth models. **(08 Marks)**

2 a. Explain the Spin coating process, with neat diagram. **(08 Marks)**
b. Explain the process of MOCVD giving an example. Mention its applications. **(07 Marks)**
c. Write a note on Electron plating, with an example. **(05 Marks)**

3 a. What is Epitaxy? Explain epitaxial thin films LPE and MBE, with neat diagram. **(12 Marks)**
b. Define Sputtering deposition. Discuss in detail Reactive sputtering. **(08 Marks)**

4 a. Write about the following electrical methods to measure the thickness of the thin films :
i) Film Resistance ii) Capacitance monitors. **(12 Marks)**
b. Brief the capillarity theory of thin film nucleation. **(08 Marks)**

PART – B

5 a. Write about Electron transport phenomenon in semiconductors. **(12 Marks)**
b. Explain Electron transportation in single electron transistors. **(08 Marks)**

6 a. Explain in detail screen printing. **(10 Marks)**
b. Write a note on Gravure printing. **(10 Marks)**

7 a. Explain about Molecular beam epitaxy technique, with neat sketch. **(10 Marks)**
b. Describe Atomic Layer deposition technique, with diagram. **(10 Marks)**

8 a. Explain the applications if thin films as a photo detector. **(10 Marks)**
b. Describe the use of thin films in solar cells. **(10 Marks)**

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