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10NT74

**Seventh Semester B.E. Degree Examination, Dec.2017/Jan.2018**  
**Thin Films 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 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. Write a note on Spray pyrolysis, with neat diagram. (12 Marks)  
b. Explain CVD process. Explain in brief about PECVD. (08 Marks)
- 3 a. Write a note on thermal evaporation method mentioning some of thermal sources. (07 Marks)  
b. Explain the sputtering process, with neat diagram. Mention its application. (06 Marks)  
c. Discuss in detail RF sputtering. (07 Marks)
- 4 a. Write a note on following Electrical methods to measure the thickness of thin films :  
i) Film resistance ii) Capacitance monitors. (10 Marks)  
b. Elaborate the theories of thin film nucleation. (10 Marks)

**PART - B**

- 5 a. Discuss about Electron transport phenomenon in semiconductors. (10 Marks)  
b. Explain Electron transport in micro and nanostructures. (10 Marks)
- 6 a. Explain in detail about 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. Brief the applications of the thin films in Integrated optics. (10 Marks)  
b. Write about the applications of thin films in the field of MEMS. (10 Marks)

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