

CBCS SCHEME

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15NT654

Sixth Semester B.E. Degree Examination, June/July 2018 Surface Science and Thin Film Technology

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. Discuss about Physisorption and Chemisorption. (06 Marks)
b. Write a note on adsorption from the solution and its importance. (05 Marks)
c. Classify and explain colloids based on their interactions. (05 Marks)

OR

- 2 a. Brief about colloidal gold and its applications. (07 Marks)
b. Discuss about atomic structure of clean surface. (03 Marks)
c. Explain about types of colloidal solutions. (06 Marks)

Module-2

- 3 a. Discuss in detail about Frank – Van – der – Merwe mode, Stranski – Krastnow mode and Volmer – Weber mode of thin film coating. (10 Marks)
b. Discuss common Spin coating defects. (06 Marks)

OR

- 4 a. Write about Spin coating general theory. Mention advantages and limitations of spin coating. (06 Marks)
b. Brief about Spin coating thickness equation, Spin speed and Spin coating duration. (10 Marks)

Module-3

- 5 a. Discuss about Sputter coating method. Add a note on advantages and limitations of Sputter deposition. (12 Marks)
b. Explain and compare evaporation and sputtering. (04 Marks)

OR

- 6 a. Explain in detail about thin film deposition by evaporation. (12 Marks)
b. Discuss about applications of sputter deposition. (04 Marks)

Module-4

- 7 a. Explain about thermal Al_2O_3 atomic layer deposition and catalytic SiO_2 atomic layer deposition. (10 Marks)
b. Write about biomedical applications of ALD. (06 Marks)

OR

- 8 a. Write a short note on atomic layer deposition. (06 Marks)
b. Discuss in detail about advantages and limitations of ALD. (10 Marks)

Module-5

- 9 a. Explain in detail about types of anti – reflective coating. (12 Marks)
b. Discuss about Nano indentation. (04 Marks)

OR

- 10 a. Write about the theory of Reflection, Rayleigh film and Interference coating in anti-effective coatings. (12 Marks)
b. Explain about Self – cleaning glasses. (04 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Answers written on the back of the question paper will be treated as invalid.