

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

15NT654

Sixth Semester B.E. Degree Examination, June/July 2019 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. What are Physisorption and Chemisorption? Explain. (06 Marks)
b. Briefly explain Colloidal silver. Mention its drawbacks. (06 Marks)
c. Write the difference between Adsorption and Absorption. (04 Marks)

OR

- 2 a. What are the important properties of Colloidal solution? (06 Marks)
b. Briefly explain the applications of adsorption. (06 Marks)
c. Classify between Colloids and Suspensions. (04 Marks)

Module-2

- 3 a. Discuss in detail Frank – Van – der – Merwe mode, Stranski – Krastanow mode and Volmer – Weber mode of thin film coating. (10 Marks)
b. Write a note on Spin coating method of thin film deposition. (06 Marks)

OR

- 4 a. Discuss Spin coating thickness equation, Spin speed and Spin coating duration. (10 Marks)
b. Write a note on Dip Coating method of thin film deposition. (06 Marks)

Module-3

- 5 a. Explain in detail Sputter deposition method. (12 Marks)
b. Discuss Electron beam heating technique. (04 Marks)

OR

- 6 a. Explain in detail Thin film deposition by evaporation. (12 Marks)
b. Compare Evaporation and Sputtering. (04 Marks)

Module-4

- 7 a. Write a short note on Atomic Layer deposition. (06 Marks)
b. Explain the Microelectronic Applications of Atomic layer deposition. (10 Marks)

OR

- 8 a. Discuss Chemical bath deposition technique. (06 Marks)
b. Explain the advantages and limitations of atomic layer deposition. (10 Marks)

Module-5

- 9 a. Write a note on antireflective coating, corrective lenses and photolithography. (06 Marks)
b. Discuss Self cleaning glasses. (06 Marks)
c. Explain Single layer and Multilayer interference. (04 Marks)

OR

- 10 a. Write a note on the Theory of Reflection and Rayleigh film. (06 Marks)
b. Discuss nano indentation. (06 Marks)
c. Explain Textured coating. (04 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.