

# CBCS SCHEME

USN

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

15NT743

## Seventh Semester B.E. Degree Examination, Jan./Feb. 2021 Engineering Materials and Surface Coatings

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. Explain the different types of forces available in the adhesive. (08 Marks)  
b. Explain the factors affecting the adhesive action. (08 Marks)

OR

- 2 a. What is Adhesive? Explain the different terminologies on adhesives. (08 Marks)  
b. Explain advantages and disadvantages of adhesives. (08 Marks)

### Module-2

- 3 a. Write a note on :  
i) Animal based glue                      ii) Plant based glue  
iii) Solvent based glue                  iv) Synthetic glue. (10 Marks)  
b. Explain : i) Pressure sensitive adhesives    ii) RTV silicon adhesive. (06 Marks)

OR

- 4 a. Explain the properties , advantages , disadvantages and the applications of epoxies. (08 Marks)  
b. Write a note on Polyurethane adhesives. (08 Marks)

### Module-3

- 5 a. Write a note on : i) Plasticizers                  ii) Pigments. (10 Marks)  
b. Write a note on : i) Impact modifiers                  ii) PVC stabilizers. (06 Marks)

OR

- 6 a. Write a note on : i) UV absorbers                  ii) Capital Brightening agents. (08 Marks)  
b. Explain : i) Slip agents                  ii) Antistatic agents  
iii) Flame retardants                  iv) Antiblocking agents. (08 Marks)

### Module-4

- 7 a. Explain the different components of paint. (08 Marks)  
b. Explain : i) Antigranite coatings                  ii) Anti – climb paint. (08 Marks)

OR

- 8 a. Write a note on Shellac and Antifouling paints. (08 Marks)  
b. Explain the applications of lubricants by fluid types. (08 Marks)

### Module-5

- 9 a. Write a note on CNT – Based conductive nano composites. (08 Marks)  
b. What are isotropic conductive adhesives? Write a note on isotropic conductive adhesives (nano / CAs) : i) with Ag nano wires                  ii) Ni nano particles with CNTs. (08 Marks)

OR

- 10 a. Explain the importance of nano technology in i) paints                  ii) Nano materials in coatings and their functions. (08 Marks)  
b. Write a note on Nano solder particles and nano – conductive adhesives for nano - electronics. (08 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.