

SARDAR PATEL UNIVERSITY

M.Sc. 4th Semester (Surface Coating Technology) (CBCS) ExaminationSaturday, 9th April, 2016

Time: 02:30 pm to 5:30 pm

Course No.: PS04CSCT03

Subject: Coating Application and Specialty Coatings

Total Marks: 70

- N.B. (1) Marks allotted to the question are on its RHS
 (2) Illustrate your answers wherever necessary with the help of neat sketches & chemical equations

Q.1 Choose the correct Answer from the Followings:

1. Which application is used for the Polyurea application? [01]
 - a) Electrodeposition
 - b) Brush
 - c) Spray gun
 - d) Roller
2. Which DFT are widely used for top Coat application in coil coating? [01]
 - a) 1 – 3 u
 - b) 10 – 15 u
 - c) 18 – 22 u
 - d) 5 – 10 u
3. Select the Odd on in case of self-healing coating [01]
 - a) Used marker dyes
 - b) Its apply on very low DFT
 - c) it's a high flexible system
 - d) a and b both
4. Which application contain a highest transfer application [01]
 - a) Dip Coating
 - b) Brush
 - c) Roller
 - d) Spray gun
5. In conversion coatings, at final rinsing, pH of the bath is generally [01]
 - a) 0.5-1.0
 - b) 2.5-4
 - c) 7.0-8.0
 - d) 9.5-11
6. Conversion of the coating is tested by solution checks which involve [01]
 - a) Viscosity of solution
 - b) concentration of active ingredients
 - c) colour change of solution
 - d) none of these
7. By High speed Electrostatic Disc system High solid coatings successfully sprayed up to _____% volume solid. Above which heating equipment required. [01]
 - a) 30
 - b) 40
 - c) 50
 - d) 60
8. In conventional spray gun, the needle valve must open _____ the air valve open. [01]
 - a) After
 - b) Before
 - c) Simultaneously
 - d) none of these

Q.2 Answer any seven of the Followings:

[14]

1. What is the role of the back coat in Coil coating application?
2. Explain the sacrificial effect in Zinc and chrome base primer?
3. Give the role of corrosion inhibitors in self-healing coating?
4. Give the Possible way to formulate a polyurethane dispersion for VOC Free technique.

5. Which are two principles on which coater exist? Explain with diagram Single coater & Double coater.
6. Give an account of automatic spray application
7. How to adhesion to plastic substrate can be improved?
8. Write about testing of conversion coatings.
9. Write the advantage and disadvantage of Ceramic Coatings.

- Q.3** (a) What is the different in polyurea and polyurethane and explain the application of polyurea. [06]
- (b) Which properties of the hyper branched polymer are used in coating and write a short note on hyper branched alkyd. [06]

OR

- (b) Illustrate by the flow sheet diagram the manufacture of powder coating. What are the different methods of applying powder coating, explain any one in detail. [06]

- Q.4** (a) Write a note on Coil Coating [06]
- (b) Write a note on Fluoro Polymer which is used in Different coating department [06]

OR

- (b) Write a note on self-healing coating. [06]

- Q.5** (a) What is the principle involved in electrostatic method of paint application? Explain about different technique in this method. [06]
- (b) What is dip application? Explain with diagram. Give brief account of vacuum impregnation and flow coating. What are the requirements of paint for dipping? [06]

OR

- (b) What are different types of paint application? Write in details about roller coating. Paint requirement to be used for this application? [06]

- Q.6** (a) Outline the different stages involve in a chemical pre-treatment process of conversion Coatings on ferrous substrate of an automotive vehicle. Highlight the different phosphate conversion coatings on iron substrate [06]
- (b) Why metal cleaning require? Explain Metal surface pre-treatment, solvent degreasing, and various aqueous cleaning. [06]

OR

- (b) Write in detail about covalent bonding to Glass by giving suitable example of silanol Group. [06]

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