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## SARDAR PATEL UNIVERSITY

M.Sc. 2<sup>nd</sup> Semester (Surface Coating Technology) (CBCS) ExaminationSaturday, 9<sup>th</sup> April, 2016

Time: 10:30 am to 1:30 pm

Course No.: PS02CSCT03

**Subject: Coating Properties & Analysis of Coating**

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 equation

**Q.1 Choose the correct Answer from the Followings:**

1. In cross-cut test 0 B= \_\_\_\_\_ % area of removed [01]
  - a) 15 – 35 %
  - b) less than 5%
  - c) 35 – 65 %
  - d) None of them
2. High settling is observed in \_\_\_\_\_ [01]
  - a) Varnish
  - b) Semi-glossy Paint
  - c) Enamel
  - d) Primer
3. Which is the Surface related test? [01]
  - a) Dew Point
  - b) Soluble Salts test
  - c) Wind Speed
  - d) Relative Humidity
4. In Kinematic Viscosity - 1 St (Stokes) = \_\_\_\_\_ m<sup>2</sup>/s = \_\_\_\_\_ cm<sup>2</sup>/s [01]
  - a) 100 and 10<sup>-4</sup>
  - b) 10<sup>-4</sup> and 1
  - c) 10<sup>-4</sup> and 10
  - d) 1 and 10<sup>-4</sup>
5. Which is the force are not operated in adhesion of coating to mild steel substrate? [01]
  - a) ionic
  - b) debey
  - c) london
  - d) Keesom
6. Which is the following coating resin exhibit excellent adhesion to substrate [01]
  - a) Latex polymer
  - b) Polar and thermoplastic
  - c) Polar & thermosetting
  - d) Non polar & thermosetting
7. Flocculation is in context to [01]
  - a) Breaking of emulsion
  - b) Viscosity increases
  - c) Poor wetting of pigment
  - d) Gloss
8. Which is not a capillary glass viscometer [01]
  - a) Ubbelohde glass viscometer
  - b) Brookfield glass viscometer
  - c) Dilution glass Viscometers
  - d) Reverse Flow glass Viscometers

**Q.2 Answer any seven of the Followings:**

[14]

1. Write about stoving film formation in alkyd – amino system and what is the different stoving schedule? .

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**Q.2 Answer any seven of the Followings:****[14]**

1. Write about stoving film formation in alkyd – amino system and what is the different stoving schedule? .

2. How will you check grinding on Hegman gauge?
3. Calculate WFT in micron for a paint having nonvolatile content 56.45 % and DFT is 24 micron.
4. How to adjust the pH of solution in NSS test, AASS test, CASS test?
5. Write a note on Wet thickness film gauge.
6. Give the list of additive are used in solvent and water based paint.
7. What is shear thickening and shear thinning describe it's on graph.
8. What is the relation between Dispersion and Paint properties of the paint?
9. Give the important of testing and Quality Control in Coating industry.

- Q.3 (a) Explain the film formation in water based paint, stoving enamels and air dry alkyd. [06]
- (b) Give the detail about solution preparation and working of salt spray test. [06]

OR

- (b) 1) Write a short note on weather test in coating [02]
- 2) What is the cause and remedy of viscosity increases and poor drying phenomenon? [04]

- Q.4 (a) Write about CIE theory of color measurement. [06]
- (b) What is the different between flexibility & elasticity? What are the factor affecting flexibility and how it checked by conical mandrel bend tester? [06]

OR

- (b) How we check the hard dry, surface dry and take free dry in coating industry [06]

- Q.5 (a) Give the Detail of % Pigment in Different paint and its effect on Optical and Mechanical propitiates. [06]
- (b) List the different glass viscometer and describe Cone & Plate Viscometer. [06]

OR

- (b) 1) Give the SI and CGS unit of Dynamic and kinematic viscosity [03]
- 2) Give the classicization of viscosity measurement instrument on their accuracy [03]

- Q.6 (a) Give the Failure Appearance, Cause of Failure and Problem Solution of Settling and Gelling [06]
- (b) Write are the different hardness test? Write about the pendulum hardness test. [06]

OR

- (b) Write the cause, prevention and remedy of the given bellow defect. [06]
- 1) Moisture blisters
  - 2) Bird droppings

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