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SARDAR PATEL UNIVERSITY

M.Sc. 2nd Semester (Surface Coating Technology) Examination (CBCS)

Wednesday, April 6th, 2016

Time: 10:30 am to 1:30 pm

PS02CSCT02*: Chemistry & Technology of Organic Pigments, High Performance Pigments, Additives & Solvents.*

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

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Q1. Choose the correct option. **(08)**

1: In Water based system the stabilizing mechanism of the dispersing additives is due to
(a) Nonionic Charge (b) Electro Charge (c) Anionic Charge (d) Electrostatic repulsion

2: Pigment Flocculation can be controlled by
(a) Polymeric Additive (b) Drier (c) Silicone Additive (d) MEK Oxime

3: Silicone Additive with molecular weight less than 60 is used as flow control
(a) Flow Control (b) Slip Agent (c) Defoamer (d) Hammer Finish

4: Which of the following is high performance pigment?
(a) Phthalocyanine Blue (b) Beta Naphthol Red (c) Diketo Pyrrolo Pyrrol (d) Acetylene Black

5: In the history of drier technology, Driers were prepare with _____ other than octates
(a) Vanadates (b) Oxides (c) Naphthanates (d) Urathenes

6: Bromine Index indicates the properties of _____, which may cause detoriation Of solvent on storage.
(a) Saturation (b) un saturation (c) contaminants (d) Purity

7: While paint manufacturing by changing the order of addition of the drier and antiskinning agent Leads to change in _____ of paint. Hence drier is added before antiskinning agent.
(a) Colour (b) Smell (c) Drying (d) none of these

8: Which of the following is violet organic pigment?
(a) Thioindigo (b) Isoindolinone (c) Dioxazine (d) Azo Bona Pigment

Q 2: Answer **Any Seven** of the Following **(14)**

1) What is auxiliary Drier? How they differ in mechanism than active drier?
2) Explain the chemistry of Defoamers for aqueous and non aqueous coatings.
3) Explain phenols as antiskinning agent.
4) Why craters formed? Explain with term surface tension.
5) Write in details about solvent balance giving example.
6) Write about Kauri butanol value of solvent.
7) Write about isoindoline & isoinolinone Pigment.
8) Flocculation leads to instability of pigment dispersion – Justify.
9) Explain why Gloss Enamel made with toludine red tends to develop slight Haze.

Q 3 :(a) Why driers are not used in Latex Paints? Give detailed composition of Drier. Give accounts of Basic requirement of Drier. **(6)**

(b) Explain the chemistry of silicone additives used in surface coatings **(6)**

OR

(b) Write in details about phthalocyanine Blue & phthalocyanine Green Pigments. **(6)**

Q 4 :(a) Why Wetting & Dispersion is important in pigmented coatings? Explain in Brief Characteristics of W&D agent used in coatings. What is controlled Flocculation? Where does controlled flocculating additive uses? **(6)**

(b) What is loss of Dry? Give causes for a reduction in mobility of drier due to loss of dry in details. How driers are manufactured? Write all three manufacturing methods in detail. **(6)**

OR

(b) Write note on. **(6)**

(1) Parylene & Perinone Pigment.
(2) Azo condensation Pigment.

Q 5 :(a) Give Classification of Azo Pigment. Write in details about Arylamide Yellow & Toludine Red Pigment. **(6)**

(b) What are solvents? Explain their functions during paint manufacture & paint application. Write in details about oxygenated solvents. **(6)**

OR

(b) Explain in Detail:

(1) Intercoat adhesion with suitable figure. **(3)**
(2) Foam stabilizing & destabilizing effects with diagram. **(3)**

Q 6 :(a) Write in details about theory of solvency. Explain evaporation rate of solvent by giving suitable example. **(6)**

(b) Distinguish Following: (6)

(1) Tonners & Metal Tonners.
(2) Dyes & Pigments.
(3) Mono AZO Pigment & Dis Azo Pigment.

OR

(b) Discuss various property required for Organic Pigments. **(6)**