

[60] SEAT No. _____

No. of Printed pages: 2

SARDAR PATEL UNIVERSITY

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

Wednesday, 20th March 2019

Time: 10:00 am to 01:00 pm

Course No.: PS02CSCT22

Subject: Chemistry & Technology of Organic Pigments, High Performance Pigments, Additives & Solvents

Total Marks: 70

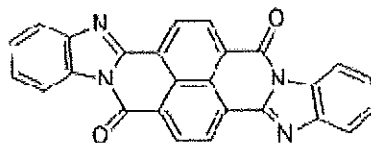
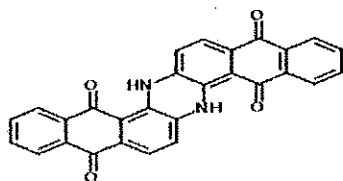
N.B. (1) Marks allotted to the question are on its RHS
(2) Illustrate your answers wherever necessary with the help of neat sketches & chemical equations

Choose the correct answer from the following

- Q.1. 1 Among following which solvent has highest solvency power. (1)
(a) Thinners (b) Diluent (c) Latent (d) Active
- Q.1. 2 Naphthol 'AS' is prepared from. (1)
(a) Beta oxy naphthoic acid (b) C Acid (c) Tobias Acid (d) P nitro aniline
- Q.1. 3 For any solvent relative evaporation rates are measured relative to _____. (1)
(a) n-aceto acetate (b) n-butyl alcohol (c) n-butyl acetate (d) n-butyl acetate
- Q.1. 4 Silicone additive with molecular weight ($X > 1400$) is used as _____ additive. (1)
(a) Flow control (b) Slip Agent (c) Defoamer (d) Hammer finish
- Q.1. 5 _____ is an Auxiliary Drier. (1)
(a) Iron (b) Manganese (c) Cerium (d) Bismuth
- Q.1. 6 Arylamide Yellow Pigment prepared from coupling agent. (1)
(a) Beta Naphthol (b) Acetoacetarylamide (c) Beta naphthoic acid (d) Beta oxy naphthol
- Q.1. 7 Pick the odd one with respect to drying mechanism. (1)
(a) Latex paint (b) Poly Amide (c) Polyurethane (d) Epoxy resin
- Q.1. 8 Bromine Index indicates the properties of _____, which may cause deterioration of solvent on storage. (1)
(a) Saturation (b) un saturation (c) contaminants (d) Purity
- Q.2 Attempt any Seven Questions (14)
- (a) What is Aniline point? Give ranges of aniline Point.
(b) Write down causes for 'loss of dry'.
(c) Explain 'Evaporation rate' of Solvent
(d) 500 gms resin solution (Resin + Solvent) of 70% solid. What amount of Solvent needs to add in above solution to get 50 % solid?
(e) What is primary reason for most organic pigment considered transparent?
(f) Flocculation leads to instability of pigment dispersion – Justify.
(g) Write about Lead metal as drier.
(h) What are chemisorptions of drier onto the pigment surface?

(P.T.O.)

(i) Give name of following organic pigments.



Q.3 a Write in details of Phthalocyanine Pigment. (6)

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

OR

Q.3 b What is Foam? Explain Nature of Foam .How Foam is stabilized? What are the basic requirements of Defoamer? (6)

Q.4 a What are Solvents? Explain theory of solvency giving suitable formula. Explain solvent balance. (6)

Q.4 b Give classification of AZO Pigments. Write a note on Arylamide Yellow (6)

OR

Q.4 b Write short note on (6)

(1) Benzimidazolone & Perinone Pigment.

(2) Quinacridone Pigment.

Q.5 a Write all three manufacture process of drier in details. (6)

Q.5 b Why Wetting & Dispersion is important in pigmented coatings? Explain in brief characteristics of W&D agent used in coatings. What is controlled Flocculation? (6)

OR

Q.5 b Explain in Detail (6)

(1) Which are most common problems of α -Blue related to reducing tinting strength?

(2) Explain four steps of Drier's auto oxidation process.

Q.6 a What are important properties of 'Plasticizers', Give its classifications. (6)

Q.6 b Give the brief account of Metal Complex and Fluorescent dyestuff pigments (6)

OR

Q.6 b Chemistry of silicon additive as 'surface additive'. (6)