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SARDAR PATEL UNIVERSITY
M. Sc. Semester - IV Examination
Monday, 16th April 2018
INDUSTRIAL CHEMISTRY

Subject: Technology of chemical process industries

Date: 16/04/2018

Course No. : PS04CICH12

Time: 02:00 p.m. to 05:00 p.m.

Marks: 70

- Q. 1** **Answer the following MCQs (Attempt all)** **[08]**
- i. Particle size of iron blue pigment is _____ micrometres.

(a) 0.5-0.9	(b) 1.2-3.0
(c) 0.01-0.2	(d) 4.0-4.5
 - ii. _____ is an extender.

(a) Iron oxide	(b) Phthalocyanine blue
(c) Titanium dioxide	(d) China Clay
 - iii. Increase in the amount of siccatives for oxidative drying in alkyd resin leads to _____.

(a) Surface defects and discolouration	(b) Increase in compatibility
(c) Low solubility	(d) Higher flexibility
 - iv. Phenol formaldehyde resins prepared in the presence of acids are called _____.

(a) Novolac	(b) Resols
(c) Cresol	(d) Indol
 - v. Which of these is not a blocking agent in the polyurethane systems?

(a) Malonates	(b) Phenols
(c) ε-Caprolactum	(d) Vegetable oils
 - vi. Epoxy resin is formed by the reaction of _____.

(a) Melamine and formaldehyde	(b) Epichlorohydrin and bis phenol A
(c) Carboxylic acid and polyol	(d) Diisocyanate and diol
 - vii. _____ insecticides act on the respiratory system of the insect.

(a) Fumigants	(b) Stomach poisons
(c) Contact poisons	(d) Attractants
 - viii. Zinc and boron fall into the category of _____.

(a) Primary nutrients	(b) Micronutrients
(c) Secondary nutrients	(d) None of these

- Q.2** **Answer the following short question (Any seven)** **[14]**
- I. Define pigments. List down its functions.
 - II. Differentiate between organic and inorganic pigments.
 - III. How can we measure the end point of trans-esterification reaction during the manufacture of alkyd resin?
 - IV. Enlist the manufacturing methods of phenol.
 - V. Enlist the disadvantages of unmodified epoxy resin.
 - VI. Define iodine value and gas proofing
 - VII. Give the molecular formula and molecular weight of monoammonium-phosphate & diammonium phosphate.
 - VIII. Name the methods used for the granulation of calcium ammonium nitrate.
 - IX. What happens when there is an excessive temperature rise during the manufacture of urea fertilizer?

C.P.T.O.)

- Q.3** (a) With the help of flow diagram explain manufacture of titanium dioxide by chloride process. [06]
(b) Differentiate between dyes and pigments. [06]
Or
(b) Write explanatory note on the uses of titanium dioxide. [06]
- Q.4** (a) With the help of flow diagram explain manufacture of saturated polyester resin. [06]
(b) Write a note on methylated amino resins. [06]
Or
(b) With the help of flow diagram explain manufacture of Novalac resin. [06]
- Q.5** (a) Write a note on isocyanates. [06]
(b) What are hydrocarbon and oxygenated solvents? Explain their solvent ratings. [06]
Or
(b) Write an explanatory note on epoxy coating systems. [06]
- Q.6** (a) With the help of flow diagram explain manufacture of ammonium sulphate using gypsum process. [06]
(b) Write a note on BHC and DDT. [06]
Or
(b) With the help of flow diagram explain manufacture of triple super phosphate. [06]

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