NAM-003-001646 Seat No. _____

B. Sc. (Sem. VI) (CBCS) Examination

March / April - 2017

Industrial Chemistry : IC-601

(Dyes-2 & Polymer Technology)

Faculty Code : 003
Subject Code : 001646

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) All the questions are compulsory.
(2) Draw labeled diagram wherever necessary and assume suitable data.
(3) Question-1 : Each carries 01 mark objective type question.
(4) Question-2 and 3 : Each carries 25 marks.

1 (1) In sub-classes of azo dye D stands for? **20**

(2) Give one example of mono azo mordant dye.

(3) Give the name of any two methods for the application of coating material on TLC plate.

(4) Write any two factors which affects R_f value.

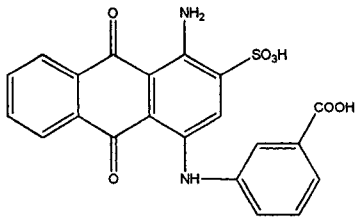
(5) A $\rightarrow$ Z-L-Z $\leftarrow$ A' is which category of dye?

(6) Anthraquinone can be prepared from?

(7) Which metal is used in SPADNS complex to identify fluoride ion?

(8) Enlist analytical methods for the estimation of Amines.

(9) Write the name of following dye :



(10) Write IUPAC name of Bromamine acid.

(11) Write the composition of Ziegler- Natta catalyst.

(12) Give monomer of Nylon 6, 6.

(13) Give monomer of Polycarbonate polymer.

(14) If the functionality is 2, then the polymer is _____.

(15) If the molecular weight of polymer is around 1 lac then which method is useful?

(16) When polymer is atactic in nature then structure of Polymer will be _____.

(17) Write the full name of uPVC.

(18) Give the full name of PTFE.

(19) What is the sample size range in Vapor pressure Osmometry?

(20) Elastic material to be stretched _____ times than its original length.

2 (a) Answer any **three** : **6**

(1) Define :

(a) Repeating unit

(b) Degree of polymerization.

(2) Give any two applications of Poly Vinyl Acetate.

(3) Draw only Schematic diagram of Nuclear Magnetic Resonance.

(4) Explain in brief: Direct determination amines.

(5) Give synthesis of Bromamine acid.

(6) Write the synthesis of Brilliant yellow.

(b) Answer any **three** : **9**

(1) Explain: Crystallinity of polymer and Crystallization mechanism.

(2) Draw Schematic diagram of Infrared Spectroscopy (IR) for determination of crystallinity in polymer.

(3) Define: Elastomer; give any two structure of its isomer.

(4) Explain: Edmud-Knecht reduction method.

(5) Give two synthesis of Anthraquinone.

(6) Give the synthesis of Congo Red.

(c) Answer any **two** : **10**

(1) Describe manufacturing of Styrene Butadiene Rubber (SBR) in detail.

(2) Explain: Polypropylene in detail.

(3) Describe Membrane Osmometry in detail.

(4) Discuss various methods of diazotization in detail.

(5) Explain: Thin Layer Chromatography in detail.

3 (a) Answer any **three** : **6**

(1) Give four properties of epoxy resin.

(2) Write any two formulas for molecular weight determination of polymer.

(3) Define :

(a) Glass transition temperature

(b) Elastomer

(4) Enlist superiorities of TLC over other chromatographic techniques (any four).

(5) Give synthesis of Quinizarin.

(6) Write the synthesis of metanil yellow.

(b) Answer any **three** : **9**

(1) Write advantages and disadvantages of vapour pressure Osmometry.

(2) Discuss factors affecting glass transition temperature.

(3) Write reaction and application of polyvinyl acetate.

(4) Explain: Sulphonation of Anthraquinone (Only reaction)

(5) Describe method for the determination of chloride.

(6) Give the synthesis of Naphthol Blue Black 6B.

(c) Answer any **two** : **10**

(1) Explain manufacturing of ABS in detail.

(2) Explain classification of polymer based on structure.

(3) Explain: Manufacturing of Direct black EW in detail.

(4) Describe Lunge Nitro meter in detail.

(5) Discuss: Manufacturing of H-acid in detail.
