



HAD-003-001646

Seat No. _____

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

June / July – 2017

Industrial Chemistry : IC-601

(Dyes-2 and 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) Give one example of Basic azo dye. **20**
 - (2) $E \leftarrow D \rightarrow Z \leftarrow A_1$ is an example of which category of azo dye?
 - (3) Give two methods to apply coating material on TLC plate.
 - (4) Zwitter ion is formed in which method of diazotisation?
 - (5) Edmud-Knecht reduction method is for the estimation of which functional group?
 - (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) Give the structure of H-acid.
 - (10) Sulphonation of Naphthalene at low temperature produces which product.
 - (11) If the polymer is syndiotactic in nature then the structure of polymer will be _____

- (12) Give one example of natural polymer.
- (13) If functionality is 4, then the structure of polymer will be _____
- (14) Give the monomer for the production of Novolac.
- (15) Give one special property of polycarbonate.
- (16) The degree of polymerization is denoted by _____
- (17) Freezing point Osmometry can measure molecular weight of polymer up to _____.
- (18) Give the full name of uPVC.
- (19) If the degree of polymerization increase, mechanical strength will be _____
- (20) Give the content of Ziegler- Natta catalyst.

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

- (1) Write only reaction of Poly Vinyl Acetate.
- (2) Give the difference between homopolymer and copolymer.
- (3) Write any four properties of ethylene-propylene copolymer.
- (4) Explain in brief: Determination of α -Naphthol.
- (5) Write the synthesis of Congo Red.
- (6) Give synthesis of Koch acid.

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

- (1) Discuss: Functionality of polymer in detail.
- (2) Define: Elastomer; give only two structure of its isomer.
- (3) Draw Schematic diagram of X-ray diffraction technique.
- (4) Give two synthesis of Anthraquinone.
- (5) Explain: Silver nitrate method for the estimation of chloride.
- (6) Give the synthesis of Bismark brown.

- (c) Answer any **two** : **10**
- (1) Describe ABS in detail with reaction.
 - (2) Explain: Glass transition temperature in detail.
 - (3) Explain: Classification of polymer based on structure.
 - (4) Discuss various methods of diazotization.
 - (5) Explain: Manufacturing of Direct black EW with flow diagram.
- 3** (a) Answer any **three** : **6**
- (1) Define :
 - (a) Monomer
 - (b) Degree of polymerization.
 - (2) Give any two formulas for molecular weight determination of polymer.
 - (3) Write any four property of ethylene-propylene copolymer.
 - (4) Give classification of Chromatography in brief.
 - (5) Give synthesis of Quinizarin.
 - (6) Give synthesis of Butter yellow.
- (b) Answer any **three** : **9**
- (1) Write advantages and disadvantages of Freezing Point Osmometry.
 - (2) Describe Crystallinity of polymer and Crystallization mechanism.
 - (3) Discuss NMR spectroscopy
 - (4) Explain: Sulphonation of Anthraquinone (Only reaction)
 - (5) Explain: Volumetric determination of dyes by Edmud-Knecht reduction method.
 - (6) Give the synthesis of Naphthol Blue Black 6B.

(c) Answer any **two** :

10

- (1) Discuss Free radical mechanisms of addition polymerization in detail.
 - (2) Explain membrane osmometry in detail.
 - (3) Describe: Lunge Nitro meter in detail.
 - (4) Explain: Thin Layer Chromatography.
 - (5) Explain: Manufacturing of H-acid with flow diagram.
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