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MAL-003-001646 Seat No. _____

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

March / April - 2018

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) Figures to the right indicate maximum marks.
(3) Draw labeled diagram wherever necessary and assume suitable data.
(4) Question-1 each question carries 1 mark objective type question.
(5) Question 2 & 3 carries 25 marks each.

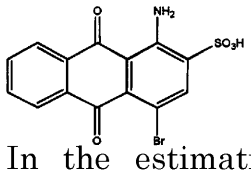
1 Attempt all : **20**

(1) In sub-classes of azo dyes Z stands for?

(2) Give IUPAC name of H-acid.

(3) _____ is known as the heart of chromatographic system. (Column/Detector)

(4) Give one example of acid azo dye.

(5) 

Give the name of this compound.

(6) In the estimation of fluoride by SPADNS method _____ metal is useful.

(7) Give any one sub-category of tris azo dye.

(8) Define: R_f value

(9) $A \rightarrow Z \leftarrow A'$ is an example of which category of dye ?

(10) In chromatographic analysis HPLC means _____.

(11) Give any three examples of natural polymer.

(12) What is polyamide ?

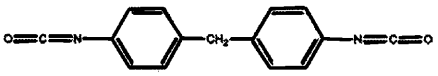
(13) Homolytic bond dissociation takes place in _____ mechanism of addition polymerization.

(14) For linear polymers functionality of monomer should be _____

(15) Give equation for Number average molar mass or Mn.

(16) Write full form of FPO, VPO & MO

(17) Give full name of NMR technology used for characterization of polymers.

(18)  give name of this monomer.

(19) $TiCl_4$ can be used in _____ catalyst.

(20) $-O-(C=O)-O-$ functional group is present in _____polymer.

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

(1) Give synthesis of: Aniline yellow.

(2) Give synthesis of: Bromamine acid.

(3) Explain in brief: Determination of α-Naphthol.

(4) Define : (a) Polymer (b) Monomer

(5) Write any five properties of polymer.

(6) Give any two examples of alternating linear copolymer.

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

(1) Give synthesis of: Naphthol blue black 6B.

(2) Explain: Determination of chloride by silver nitrate method.

(3) Explain: Sulphonation of anthraquinone (reaction only).

(4) Explain in brief x-ray diffraction and IR spectrometry techniques for characterization of polymer.

(5) Explain Crystallinity in polymers in detail.

(6) Give short note on Mass average molecular mass with equations.

(C) Answer any **three** : **10**

(1) Explain manufacturing of H-acid with flow diagram.

(2) Discuss: TLC in detail.

(3) Describe: Various methods of diazotization.

(4) Explain free radical mechanism for addition polymerization of polythene.

(5) Explain cationic mechanism for addition polymerization of polypropylene.

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

(1) Give synthesis of: p-Nitro aniline from aniline.

(2) Give classification of chromatographic techniques.

(3) Give synthesis of: Bismarck brown.

(4) Write structure of monomer for manufacturing of neoprene.

(5) Write structure of monomer of natural rubber.

(6) Give properties of ABS polymer.

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

(1) Give synthesis of Brilliant yellow.

(2) Give preparation of Nevile and Winther's acid.

(3) Volumetric determination of dye by EDMUD KNECHT reduction method.

(4) Explain in detail: Urea-formaldehyde Resin, its reaction scheme, properties and uses.

(5) Explain in detail: Polyurethane, its reaction scheme, properties and uses.

(6) Give mechanism for manufacturing of nylon,6-6.

(C) Answer any **three** : **10**

(1) Discuss: Lunge Nitro Meter in detail.

(2) Describe two methods for the manufacturing of Anthraquinone.

(3) Explain mechanism for manufacturing of phenol formaldehyde resin.

(4) Explain mechanism for manufacturing of melamine formaldehyde resin.

(5) Explain in detail epoxy resin in detail.
