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RX-003-001646 Seat No. _____

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

March - 2019

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.

(4) Assume suitable data.

(5) Question-1 carries 20 marks.

(6) Question-2 & 3 carry 25 marks each.

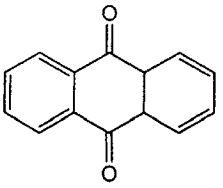
1 Answer the following questions : **20**

(1) In azo dye, D stands for what?

(2) $A \rightarrow Z \leftarrow A'$ is a type of bis azo dye. True/False?

(3) Give one example of mono azo dye.

(4) Give the structure of β–naphthol.

(5)  is the structure of _____

(6) Sulfonation of naphthalene at low temperature gives _____.

(7) Give full form of HPLC.

(8) The ratio of distance travelled by solute to solvent is known as?

(9) Give one example of stationary phase used in TLC.

(10) Give full form of EBT.

(11) _____ can be used as monomer for addition polymerization.

(12) Monomer having _____ functional groups can create branched polymer.

(13) Give structure of ethane 1,2-diol.

(14) _____ is catalyst for manufacturing of stereo regular polymer.

(15) Give raw materials for manufacturing of SBR polymer.

(16) _____ can be used as initiator for free radical polymerization.

(17) _____ is commonly called Buna-S.

(18) "Polythene is thermosetting polymer"is this statement true or false?

(19) _____ is full form of LDPE.

(20) Give formula of phosgene.

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

(1) What is weight average molecular weight?

(2) Define : (a) Degree of polymerization, (b) Monomer

(3) Explain X-ray diffraction method for characterization of polymer.

(4) Give preparation of Bromamine acid.

(5) Explain in brief: Determination of α–Naphthol in brief.

(6) Give synthesis of Chrome Blue Black R.

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

(1) Give the synthesis of Congo red.

(2) Explain in brief: Direct determination of amine.

(3) Write a note on glass transition temperature of polymer.

(4) Explain IR spectroscopy for analysis of monomer and polymer sample.

(5) Write a detailed note on melamine formaldehyde with mechanism.

(6) Write a brief note on paper chromatography.

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

(1) Discuss Lung nitro meter with diagram.

(2) Describe manufacturing of H-acid with diagram.

(3) Explain cationic mechanism for addition polymerization of propylene.

(4) Explain anionic mechanism for addition polymerization of ethylene.

(5) Discuss classification of polymer in detail.

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

(1) Write types of polyisoprene in detail.

(2) Explain homopolymer and copolymer in detail.

(3) Write only reaction scheme of neoprene.

(4) Explain any one method for the preparation of Anthraquinone.

(5) Give the synthesis of Tartrazine.

(6) Give preparation of G-acid.

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

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

(2) Give synthesis of p-nitro aniline.

(3) Give synthesis of Bismark brown.

(4) Write a detailed note on nylon,6-6 with mechanism.

(5) Discuss manufacturing of polyurethane in detail with reaction scheme.

(6) Explain manufacturing of ABS in detail with reaction scheme.

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

(1) Explain various methods of diazotization.

(2) Explain Gas chromatography with schematic diagram.

(3) Describe manufacturing of Direct Black EW with diagram.

(4) Explain Styrene butadiene rubber in detail.

(5) Explain free radical mechanism for addition polymerization of styrene.