

This question paper contains 3 printed pages]

AG—286—2018

FACULTY OF SCIENCE

M.Sc. (Second Year) (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2018

(CBCS Pattern)

ORGANIC CHEMISTRY

Paper XXIII (CH-544/2B)

(Polymer Chemistry—II)

(Tuesday, 4-12-2018)

Time : 2.00 p.m. to 5.00 p.m.

Time—3 Hours

Maximum Marks—75

N.B. :— (i) Attempt All questions.

(ii) Figures to the right indicate full marks.

1. Solve any *three* of the following : 15
 - (a) Compare properties of LDPE and HDPE.
 - (b) What properties are sought in the fillers ?
 - (c) What is the role of hydrogen bonding in cellulose ?
 - (d) Discuss the applications of polymer supported bases.
 - (e) Give the mechanism of thermal degradation of polystyrene.
2. Attempt any *three* of the following : 15
 - (a) Discuss the properties and applications of polycarbonate.
 - (b) Explain in detail the mechanism of chain breaking anti oxidants.
 - (c) Describe the manufacturing process of cellulose nitrate.
 - (d) What is the method of preparation of poly [4(5)-vinyl imidazole] catalyst ?
 - (e) Give the mechanism of thermal degradation of polystyrene.

P.T.O.

3. (A) Discuss properties and applications of polyethylene. 8

Or

Give the applications of polymer supported reagents.

- (B) Discuss the properties and applications of nylon 6, 6. 7

Or

What is polymer degradation ? Explain.

4. (A) Describe the manufacturing process of viscose rayon. 8

Or

Describe the mechanical degradation of polymers.

- (B) What are the components of starch ? Describe their structures. 7

Or

Explain applications of phase transfer catalysts.

5. (A) Select the *correct* alternative from the following : 5

(i) Buna-N is a copolymer of :

- (a) Butadiene and acrylonitrile
- (b) Butadiene and styrene
- (c) Styrene and acrylonitrile
- (d) None of the above

(ii) In case of phenol formaldehyde resins the most widely used filler is :

- (a) Cotton
- (b) Wood flour
- (c) Asbestos
- (d) Graphite

(iii) The unsaturated polymers containing double bonds are easily attacked by :

- (a) Hydrogen
- (b) Nitrogen
- (c) Oxygen
- (d) Phosphorous

(iv) contain a group that performs catalytic function in some reaction between small molecules.

- (a) A polymer reagent
- (b) A polymer catalyst
- (c) A polymer substrate
- (d) A polymer reactant

(v) A plastic articles expose to sun light become yellowish due to degradation.

- (a) Thermal
- (b) Mechanical
- (c) Solvolytic
- (d) Photo

(B) Write short notes on (any two) :

10

- (i) Contact lense
- (ii) Colourants
- (iii) Flame retardants.