

This question paper contains 3 printed pages]

ST—458—2022

FACULTY OF SCIENCE

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

MAY/JUNE, 2022

(CBCS Pattern)

ORGANIC CHEMISTRY

Paper—XXIII (CH-544/2B)

(Polymer Chemistry-II)

(Wednesday, 6-7-2022)

Time : 2.00 p.m. to 5.45 p.m.

Time— 3.45 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) Give the applications of PVC.
- (b) What is the role of anti-oxidant in polymer ?
- (c) Write the applications of phenolic resins.
- (d) What is polymer degradation ? Explain.
- (e) Give applications of polymer supported protecting groups.

2. Attempt any *three* of the following : 15

- (a) Discuss the applications of polymer supported acids.
- (b) What is the method of preparation of poly [4(5)-vinyl imidazole] catalyst ?
- (c) Describe the manufacturing process of ethyl cellulose.
- (d) Discuss the properties of linear saturated polyester.
- (e) Explain the applications of silicon polymers.

P.T.O.

3. (a) Explain properties and applications of cellulose nitrate with its manufacturing process. 8

Or

What is rubber ? How is rubber produced from natural sources ?

- (b) Give the preparation methods of polymer supported substrate. 7

Or

Explain properties and applications of polyethylene.

4. (a) Give the mechanism of photo degradation with suitable example. 8

Or

Discuss the properties and applications of polycarbonate.

- (b) Explain mechanical degradation of polymer. 7

Or

Give the applications of polymer Catalyst.

5. (a) Select the correct alternative from the following : 5

1. During processing and servicing the oxidative degradation of commercial polymers can be controlled by adding

- (a) antioxidant (b) plasticizer
(c) pigments (d) filler

2. is a polymer containing a group that bring about a chemical transformation on some small molecules.

- (a) A polymer reagent
(b) A polymer catalyst
(c) A polymer substrate
(d) None of the above

3. Nylon-6 is a copolymer of
 - (a) Amino caprolactum
 - (b) Dodecyl lactum
 - (c) Adipic acid
 - (d) Hexamethylene diamine
 4. is a mineral filler which is the hydrated form of magnesium silicate.
 - (a) Wood flour
 - (b) Mica
 - (c) Asbestos
 - (d) Graphite
 5. In the segmental motion is permitted whereas motion is restricted.
 - (a) Solid
 - (b) Gas
 - (c) Liquid
 - (d) Rubber
- (b) Write short notes on : 10
- (i) Artificial Heart
 - (ii) Transition metal complexes.