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UF-8131

B. E. II (Sem. III) (Textile Processing) Examination

May/June – 2012

Polymer Chemistry

(New Scheme)

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. II (Sem. III) (Textile Processing)**

Name of the Subject :

☛ **Polymer Chemistry (New)**

☛ Subject Code No. : **8 1 3 1** ☛ Section No. (1, 2,.....) : **1,2**

Seat No. :

Student's Signature

(2) Answers to the two sections must be writtenin same answer book.

(3) Figures to extreme right indicate full marks.

Section - I

1 (a) Answer the following objective questions. **10**

(1) Phenyl β-naphthyl amine is an example of _____.

(2) _____ is the repeat unit of starch.

(3) Poly m-phenylene isophthalamide is nothing but _____.

(4) Polytetrafluoro ethylene is known as _____.

(5) What is difference between silicon and silicone ?

(6) With _____ polymers we can carry out a substitution reaction.

(7) Give an example of amino acid based raw material of nylon _____.

(8) Textile grade polyvinyl acetate is produced by _____ polymerization method.

(9) The process by which a network of cross links is introduced in rubber is called as _____.

(10) _____ is repeat unit of cellulose.

(b) Discuss the production, properties and applications of isotactic polypropylene. **10**

2 (a) Discuss the production, properties and applications of LDPE. **8**

(b) Describe production, properties and application of polymethyl methacrylate. **7**

OR

2 Discuss in detail various ecological aspects of polymers. **15**

3 Write short notes on any three of the following. **15**

(a) Viscometry method to determine molecular weight.

(b) Melamine formaldehyde.

(c) Determination of weight average molecular weight M_W.

(d) Epoxy resin.

Section - II

4 (a) Fill in the blanks : **10**

(1) Name the raw material of polyvinyl alcohol.

(2) _____ is hydrolyzed with an alkali to give polyvinyl alcohol.

(3) The _____ process was discovered by Goodyear, in 1939.

(4) In nylon 66, what does the first digit '6' indicate ?

(5) Fully aliphatic polyesters have very limited applications due to _____.

(6) Natural rubber is a highly _____ and _____ material.

(7) The free radical attack on the monomer initiating polymerization is _____ process.

(8) In _____ and _____ polymerization technique, has monomer droplets.

(b) Define following. **10**

(i) Plastics

(ii) Hydrolysis

(iii) Cross linking

(iv) Polymer

(v) Microscopy.

5 Answer any three of the following. **15**

(a) What is number average & weight average molecular weight? Derive the equations.

(b) Silicone elastomers.

(c) Discuss chain polymerization reaction mechanism in detail.

(d) Different copolymers of polystyrene.

6 Explain any five of the following. **15**

(a) Write a note on emulsion polymerization.

(b) Explain cure reaction in detail.

(c) Discuss addition & substitution reactions.

(d) What is difference between hydrolysis hydrogenation reactions ?

(e) Explain cross linking reaction in detail.

(f) Explain bulk polymerization technique to form types of polymers.
