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SE-6289

B. E. II (Sem - III) (Textile Processing & Textile Technology) Examination

April / May – 2011

Polymer Chemistry

(Old 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. 2 (Sem - 3) (TP & TT)**

Name of the Subject :

☛ **Polymer Chemistry (Old)**

☛ Subject Code No. : **6 2 8 9** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

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

(3) Figures to the right indicate full marks.

SECTION - I

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

(1) Thermocoal is nothing but _____ polystyrene.

(2) _____ is the repeat unit of starch.

(3) What is meant by vulcanization ?

(4) What is difference between silicon and silicone ?

(5) Give the chemical structure of polyvinyl acetate.

(6) _____ is known as 'Teflon'.

(7) Name various grades of P.E.

(8) Butyl rubber is produced by _____ polymerization of isobutylene.

(9) The epoxy resins are prepared from _____ .

(10) Cellulose is thermoplastic polymer - True or False.

(b) Describe briefly the technical aspects of plastics, elastomers and fibres. **10**

2 (a) Give a critical review on chemistry, properties and applications of polyester. **10**

(b) Describe the preparations, properties and applications of melamine formaldehyde. **5**

OR

2 Enlist different types of polyolefins. Describe elaborately various technochemical aspects of H.D.P.E. **15**

3 Write short notes : (any **three**) **15**

(a) Sulphur vulcanization

(b) Injection moulding

(c) Recycling and incineration

(d) Polymethyl methacrylate

SECTION - II

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

(1) Polymer chloride finds extensive use in certain formulations called _____ and _____ .

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

(3) When two repeat units are distributed alternately through the chain the polymer is called _____ copolymer.

(4) The free radical attack on the monomer to start the polymerization is _____ process.

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

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

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

(b) Explain addition and substitution reaction in detail. **5**

(c) Describe the working and applications x-ray diffraction method polymer analysis. **5**

5 (a) Derive the following equation and draw suitable diagram. **10**

$$\bar{M}W = \frac{1}{\left(\frac{kc}{R\theta}\right)C, \theta \to 0}$$

(b) What is Number and Weight average molecular weight ? **5**

OR

5 (a) Explain Emulsion polymerization in detail. **5**

(b) What do you understand by I.R. spectroscopic method ? **10**

6 Write short notes on any **five** of the following : **15**

(a) Acidolysis reaction

(b) Hydrogenation reaction

(c) Cyclization reaction

(d) Cross linking reaction

(e) Bulk polymerisation

(f) Intrinsic viscosity