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RN-8131

B. E. II (Sem. III) (T.P.) Examination

May / June – 2010

Polymer Chemistry

(New Course)

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) (T.P.)**

Name of the Subject :

☛ **Polymer Chemistry (New Course)**

☛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 written in **separate** answer books.

(3) Figures to the **right** indicate full marks of the question.

(4) Tie **two** sections separately.

SECTION - I

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

(i) Thermocoal is nothing but _____.

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

(iii) Name various grades of P.E.

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

(v) Give the chemical structure of polyvinyl acetate.

(vi) Name the raw material of polyvinyl alcohol.

(vii) The epoxy resins are prepared from _____.

(viii) _____ is the repeat unit of starch.

(ix) What is meant by vulcanization ?

(x) What is difference between silicon and silicone ?

(b) Explain DTA and TGA. **10**

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

(b) Describe the preparations, properties and applications of polymethyl methacrylate. **5**

OR

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

3 Write short notes on any **three** of the following : **15**
(a) Recycling and incineration
(b) X-ray diffraction
(c) Sulphur vulcanization
(d) Melamine formaldehyde.

SECTION – II

4 (a) Fill in the blanks : **10**
(i) _____ is an example of natural polymer.
(ii) _____ and _____ techniques have monomer in droplet form.
(iii) _____ polymer is hydrolyzed with an alkali to give polyvinyl alcohol.
(iv) In substitution reaction we need _____ polymer.
(v) In step polymerisation the polymer build up proceed through a reaction between _____ of the monomer.
(vi) The _____ process was discovered by Goodyear in 1839.
(vii) _____ is known as 'Teflon'.
(viii) The _____ group present in a polymer may be converted to _____ group by reduction.

(b) Give the structure, properties of cellulose, and example nitro cellulose and CMC in detail. **10**

5 (a) Explain Emulsion polymerisation in detail. **5**
(b) Discuss light scattering process in detail. **10**

OR

5 (a) Explain end group analysis technique in detail. **10**
(b) Explain polymer geometry in detail. **5**

6 Write short notes on any **three** of the following : **15**
(a) Addition and substitution reactions.
(b) Acidolysis and cross-linking reaction.
(c) Any one plastic technology in detail.
(d) Polymer tenacity in detail.