



RN-6289

**B. E. II (Sem. III) (T.P./T.T.) Examination**  
**May / June – 2010**  
**Polymer Chemistry (Old Scheme)**

Time : 3 Hours]

[Total Marks : 100

**Instruction :**

(1)

नीचे दशावलि निशानीवाणी विगतो उत्तरवडी पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="B. E. 2 (Sem. 3) (T.P./T.T.)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="Polymer Chemistry (Old Scheme)"/>	<input type="text"/>
Subject Code No. : <input type="text" value="6"/> <input type="text" value="2"/> <input type="text" value="8"/> <input type="text" value="9"/>	<input type="text" value="Student's Signature"/>
Section No. (1, 2,.....) : <input type="text" value="1&amp;2"/>	

- (2) Answers to the **two** sections must be written in **separate** answer books.
- (3) Figures to the **right** indicate full marks.
- (4) Tie **two** sections **separately**.

**SECTION I**

- Q.1 a)** Answer the following **objective** questions. **(10)**
- i) What are phenolics?
  - ii) State one draw back of Kevlar fibres.
  - iii) Poly acrylamide is soluble in water.-True or false, if false suggest suitable solvent.
  - iv) Poly m-phenylene iso phthalamide is nothing but -----.
  - v) What is action of caustic boil on polyester?
  - vi) Fully aliphatic polyesters have very limited applications.-True or False.
  - vii) Give an example of amino acid based raw material of nylon.
  - viii) Natural rubber is obtained from ----- of rubber tree.
  - ix) The process by which a network of cross links is introduced in rubber is called as-----.
  - x) ----- is repeat unit of starch.
- b)** Describe elaborately the techno-chemical aspects of polyacrylamide. **(10)**
- Q.2 a)** Describe various methods of disposal of polymers. **(10)**

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[Contd...

- b) Give a brief account on the chemistry of PMMA. (05)

OR

- Q.2 Describe in detail the manufacturing, properties and applications of urea formaldehyde and melamine formaldehyde resins. (15)

- Q.3 Write short notes on any three of the following (15)

- a) Silicone Elastomers
- b) Butyl Rubber
- c) Foaming
- d) HDPE

SECTION II

- Q.4 a) Answer the following objective questions: (10)

- i) Polymer chloride finds extensive use in certain formulations called \_\_\_\_\_ and \_\_\_\_\_.
- ii) \_\_\_\_\_ is known as Teflon.
- iii) When two repeat units are distributed alternately through the chain the polymer is called \_\_\_\_\_ Copolymer.
- iv) Natural rubber is a highly \_\_\_\_\_ and \_\_\_\_\_ material.
- v) Polyvinyl acetate is \_\_\_\_\_ with an alkali to give polyvinyl alcohol.
- vi) The \_\_\_\_\_ groups present in a polymer may be converted to \_\_\_\_\_ groups by reduction.
- vii) The \_\_\_\_\_ process was discovered by Goodyear in 1839.

- b) Explain Emulsion polymerization in detail. (05)

- c) Explain about X-Ray diffraction method for testing of polymers. (05)

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

$$\bar{M}_w = \frac{1}{\left(\frac{kc}{R\theta}\right)_{C, \theta \rightarrow 0}}$$

- b) Explain Addition & substitution reaction in detail. (05)

OR

**Q.5** a) What is Mark – Hauwink equation? Explain Viscometric method with diagram. (10)

b) What do you understand by IR spectroscopic method? (05)

**Q.6** Write short notes on **any four** of the following. (15)

a) Bulk polymerisation

b) Hydrogenation reaction.

c) Cyclization reaction.

d) Cross linking reaction.

e) Acidolysis reaction

g) Number Average Molecular Weight.

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