



KC-8131
B. E. II (Sem. III) (Textile Processing)
Examination
November / December – 2012
Polymer Chemistry
(New Scheme)

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

<p>नीचे दृशायेक निशानीवाणी विगतो उत्तरवही पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination :</p> <p>B. E. II (Sem. III) (Textile Processing)</p> <p>Name of the Subject :</p> <p>Polymer Chemistry (New)</p> <p>Subject Code No. : 8 1 3 1 Section No. (1, 2,.....): 1&2</p>	<p>Seat No. :</p> <table border="1" style="width: 100%; height: 20px;"><tr><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td></tr></table> <div style="border: 1px solid black; border-radius: 15px; height: 60px; margin-top: 10px; display: flex; align-items: center; justify-content: center; padding: 10px;">Student's Signature</div>						

(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)

- i) Cellulose is thermoplastic polymer. - True or False.
- ii) Butyl rubber is produced by ----- polymerization of isobutylene.
- iii) Give one example of polyoleffin.
- iv) Thermocoal is nothing but-----.
- v) Give the chemical structure of polyvinyl acetate.
- vi) ----- is repeat unit of cellulose.
- vii) Give an example of amino acid based raw material of nylon.
- viii) Poly m-phenylene iso phthalamide is nothing but -----.
- ix) The process by which a network of cross links is introduced in rubber is called as-----.

- x) Fully aliphatic polyesters have very limited applications due to-----.
- b) Give a critical review on manufacturing, properties and applications of HDPE. (10)
- 2 a) Describe elaborately various techno-chemical aspects of polyacrylamide. (10)
- b) Give a brief account on the chemistry of Urea formaldehyde resin. (05)

OR

- 2 Describe elaborately various techno-chemical aspects of polyamides. (15)
- 3 Write short notes on **any three** of the following (15)
- a) Applications of styrene and its copolymers
- b) Polymethyl methacrylate.
- c) Epoxy resin
- d) Sulphur vulcanization.

SECTION II

- 4 a) **Fill in the blanks:** (10)
- i) Bakelite is an example of ----- polymer.
- ii) The ----- process was discovered by Goodyear in 1839.
- iii) ----- polymer is known as teflon.
- iv) With saturated polymers we can carry out ----- reaction.
- v) Natural rubber is a highly ----- and ----- material.
- vi) The ----- and ----- polymerization techniques have monomer droplets.
- vii) The ----- groups present in a polymer may be converted into ----- groups by reduction.
- b) Define following: (10)
- i) Polymerisation, ii) Reduced Viscosity, iii) Tacticity of polymers, iv) Monomer and v) Graft copolymer.
- 5 Answer any **three** of the following. (15)
- a) What is light scattering? Derive the equation to determine weight average molecular weight of polymer.

- b) Explain Anionic and Cationic polymerization in detail.
- c) Discuss Step polymerization reaction mechanism in detail.
- d) Describe the biodegradation of polymers.

6 Answer any **three** of the following **(15)**

- a) Write a note on Emulsion polymerization.
 - b) Explain acidolysis reaction.
 - c) Explain Addition & Substitution reaction.
 - d) What are Elastomers? Explain any one technique to prepare types of polymer.
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