

SARDAR PATEL UNIVERSITY VALLABH VIDYANAGAR-388120		
M.Sc.(Chemistry) Examination, IIIrd Semester (under CBCS)		
Date: 05/01/2021 Tuesday	PS03EIPC21	10.00am -12.00 pm (Two Hours)
	Selected Topics in Polymers-I	Total Marks: /70/

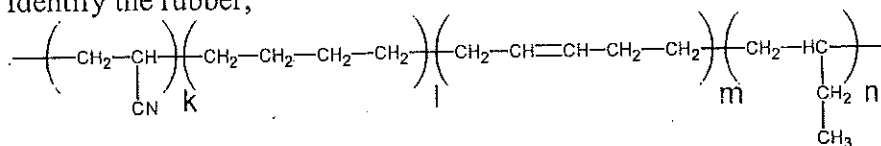
Note: Figures to the right indicates maximum marks.

QUE.1 Give the appropriate answer of the following Multi Choice Question.

8

[A]

- i. In which of the following forms, glucose is stored in plants?
(a) amylose (b) starch (c) cellulose (d) glycogen
- ii. The end product of hydrolysis of "Starch" by amylase is ...
(a) soluble starch (b) dextrin (c) glucose (d) maltose
- iii. Terylene is an example of
(a) polystyrene (b) polyester (c) polyamide (d) polyene
- iv. The spinning rate of viscose rayon is...
(a) same as nylon-6 (b) higher than nylon-6
(c) lower than nylon-6 (d) none of these
- v. Acids such as formic acid (HCOOH) or acetic acid (CH₃COOH) or salts, such as sodium silicofluoride used as _____ for production of natural rubber.
(a) creaming agent (b) separating agent (c) coagulating agent (d) precipitating agent
- vi. Sulphur monochloride, Selenium, Tellurium, Thiuram sulphides, polysulphite polymers etc. may be used for which purpose?
(a) accelerators (b) reinforcing agent (c) vulcanizing agent (d) plasticizers.
- vii. The copolymer of Isobutylene and Isoprene is also known as:
(a) Nitrile rubber (b) Butyl rubber (c) Neoprene rubber (d) EPDM rubber
- viii. Identify the rubber;



- (a) NBR (b) NNBR (c) SBR (d) HNBR

[B] Answer the following questions as per "do as directed".

16

Fill in the Blanks (No.1 to 8)

1. For water solubility, polymer must have _____ which can form H-bond with water molecule.
2. Synthetic polymers has _____ BOD value.
3. Polymers that do not ionize in water solution are classified as _____.
4. In the manufacture of corn starch, SO₂ used in soaking process to inhibit the _____.
5. The second important source of cellulose is _____.

6. Viscose rayon and Acetate fibers are well known examples of _____.
7. The finishing operation after spinning of the fiber, soaking in glycols is in order to improve _____.
8. Rayon was also called _____.

Write the following sentence whether "True" or "False" (No.9 to 16).

9. Rubber was investigated by Priestler in 1770.
10. Creaming can be done by adding, 0.25 wt.% ammonium alginate and 0.5 wt.% ammonium oleate to the latex.
11. Reinforcing agent like Acetylenic black products are electrically insulator.
12. Silicone rubber is toxic and hence not suitable for medical purposes.
13. High cis-polybutadiene rubber having high proportion of cis (~92%) and small proportion of vinyl monomer (~5%)
14. SBR has more resistance to abrasion and weathering than NR.
15. Gutta percha, the cis- form of polyisoprene is used as insulating material in deep sea cables and golf ball covers.
16. Breon, chemigum, Europrene Hycar, Nipol are the trade names of NBR.

QUE.2 Answer the following questions in short (attempt any 7 out of 9). 14

1. Give the uses of white dextrin and British gum.
2. Define the term: Gelatinization temperature of Starch.
3. List out the main conditions that affect the fibers quality.
4. Which are the main fundamental problems of natural fibers that restrict its use as reinforcement for the polymer composites?
5. What is elastomer?
6. How the commercial extraction of natural rubber can be done by creaming?
7. Give the name of antioxidants used for refining of crude rubber.
8. Mention the properties of Polybutadiene rubber.
9. What is EPDM rubber? How it can be cross-links?

QUE.3 List out the properties of water soluble polymers and discuss any two in detail. 8

OR

Explain the manufacture, properties and applications of N-vinyl pyrrolidone.

QUE.4 Describe briefly about cellulose acetate. 8

OR

Write on the following:
(i) Saran (ii) Vinyon

QUE.5 Classify the elastomers and write a note on Polyisobutylene. 8

OR

Describe vulcanization of silicone rubber with its properties and applications.

QUE.6 Elaborate polybutadiene rubber. 8

OR

Write a note on Hypalon rubber with its commercial applications.

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