

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2020

Subject Code:3152608

Date:29/01/2021

Subject Name:Synthetic Rubbers

Time:10:30 AM TO 12:30 PM

Total Marks: 56

Instructions:

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Mention the basic microstructures of Polybutadiene Rubber (PBR) with their structures. (03)
- (b) Draw the flow diagram for solution polymerization of Polybutadiene rubber (PBR). (04)
- (c) List the basic grades of Isoprene Rubber (IR). Explain the synthesis of any one in detail. (07)
- Q.2** (a) Which properties of Polychloroprene rubber get affected by polymerization temperature? Mention in brief. (03)
- (b) Write the commercially available types of Polychloroprene rubber with their characteristics. (04)
- (c) Discuss about the effect of monomer ratio on various properties for Ethylene Propylene Diene Methylene Rubber (EPDM). (07)
- Q.3** (a) Why Butyl rubber has an excellent Air impermeability property? Give reason. (03)
- (b) Write the available types of Halogenated Butyl rubber and write about its synthesis. (04)
- (c) List out the possible curing systems for Butyl rubber. Explain about any one in detail. (07)
- Q.4** (a) Give the abbreviation for Butyl rubber and also mention its important properties and applications. (03)
- (b) Write about the advantages of Halogenated Butyl rubber over Conventional Butyl rubber. (04)
- (c) Draw the flow diagram for synthesis of Butyl rubber and explain in detail. (07)
- Q.5** (a) Mention the reaction mechanism for synthesis of Styrene Butadiene Rubber. (03)
- (b) Give differences between E-SBR and S-SBR. (04)
- (c) Discuss about the significance of monomer ratio on properties of Acrylonitrile Butadiene Rubber. (07)
- Q.6** (a) Write about the advantages and disadvantages of Carbon Black Master Batch SBR (CBMBSBR). (03)
- (b) What do you mean by Cold SBR? How it is advantageous over Hot SBR? (04)
- (c) Name the polymerization method used for large scale production of Acrylonitrile Butadiene Rubber. Explain it in detail. (07)
- Q.7** (a) What is RTV in Silicone rubber? Write in short. (03)

- (b) Mention basic methods for the characterization of Rubber blends. (04)
(c) Write a detailed note on Liquid Silicone Rubber. (07)
- Q.8** (a) Give the classification of Silicone rubber based on side group substituent. (03)
(b) List the techniques to carry out blending of Elastomers. (04)
(c) Describe in detail about Extrusion of Silicone Elastomers. (07)

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