

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2022

Subject Code:3172616

Date:16-01-2023

Subject Name:Silicone Rubber Technology

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Write the structural features of Silicones. (03)  
(b) Draw the flow chart of manufacturing of Silicone Rubber. (04)  
(c) Discuss in detail about the Versatility of Silicone Rubber. (07)

- Q.2** (a) Write about the monomers used in silicone chemistry. (03)  
(b) Give the advantages of Direct synthesis process. (04)  
(c) Discuss in detail about fundamentals and chemistry of Direct synthesis process. (07)

**OR**

- (c) Explain in detail about the Composition of the Gas Phase. (07)

- Q.3** (a) Write about the major groups of Si-C bonds in the monomer. (03)  
(b) Draw the flow chart of Grignard syntheses Process. (04)  
(c) Discuss in detail about the Compounding of heat vulcanizing Silicone rubbers. (07)

**OR**

- Q.3** (a) Give the importance of Organometallic synthesis. (03)  
(b) Write the name and dosage of heat ageing agent, electrical conductivity filler, self-adhering stocks used in silicone compound. (04)  
(c) Explain the syntheses with organic compounds of the alkali metals (07)

- Q.4** (a) Write full name of FIPG for Silicone rubber industry. Explain its technology in brief. (03)  
(b) Write about One pack-RTV silicon rubber with its basic characteristics and applications. (04)  
(c) What is RTV-1? Describe the curing for RTV-1 with reaction mechanism. (07)

**OR**

- Q.4** (a) What are soft spots? Why it occurs during Silicon rubber processing? (03)  
(b) Write any four processing problems and their causes during Silicone rubber molding. (04)  
(c) Write about the basic types of RTV-2. Explain about any one with reaction mechanism. (07)

- Q.5** (a) Give basic classification of Silicone rubbers as per ASTM D1418. (03)  
(b) Mention general characteristics and limitations of Silicone rubber. (04)  
(c) Explain in detail about crosslinking of Silicone Water based Elastomers with schematic representation (07)

**OR**

- Q.5** (a) Write about Particle Coalescence and film formation for water-based Silicone Elastomer (03)
- (b) Give reaction mechanism for Peroxide vulcanization of Silicon rubber and explain it. (04)
- (c) Describe in detail about compression molding of Solid Silicon rubber (07)

\*\*\*\*\*