

Total No. of Questions : 12]

SEAT No. :

P1169

[4659] - 329

[Total No. of Pages : 3

B.E. (Polymer Engineering)

B : RUBBER TECHNOLOGY (Elective - IV)

(2008 Pattern) (Semester - II)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Answer to the two sections should be written in separate answer books.*
- 2) *Answer any three questions from each section.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right side indicate full marks.*
- 5) *Use of Calculuator is allowed.*
- 6) *Assume suitable data, if necessary.*

SECTION - I

- Q1)** a) Write a short note on shortage hardening and crystallization of natural rubber. [6]
- b) What are the molecular requirements for a material to exhibit rubbery characteristics? [6]
- c) Discuss the thermodynamic theory of rubber elasticity. [6]

OR

- Q2)** a) What is rebound resilience w.r. t rubbers? How is it measured? Describe the test to measure the same. [6]
- b) What are the different stages in raw rubber technology? [6]
- c) Discuss any two rubbers w. r. t. preparation, structure, properties, compounding and applications. [6]

P.T.O.

Q3) a) Comment on the mixing machineries used for rubbers. Discuss with neat figures. [8]

b) Discuss the types of mix cycles used with rubbers. [8]

OR

Q4) a) Write note on any two additives used with rubbers. [8]

b) Discuss the basics of adhesion of rubbers to metal. [8]

Q5) a) Discuss the kinetics of rubber vulcanization. [8]

b) List the various methods of vulcanization and discuss. [8]

OR

Q6) a) Write a note on the Oscillating Disc Rheometer with a neat sketch of the rheograph. [8]

b) Discuss the various non-sulphur vulcanization systems. [8]

SECTION - II

Q7) a) Discuss extrusion of rubbers. [9]

b) Write a note on calendaring of rubbers. State some faults in calendaring with reasons and remedies. [9]

OR

Q8) a) Differentiate between injection molding of rubbers and thermoplastic polymers. [9]

b) Discuss in details compression molding of rubbers. State its advantages. [9]

Q9) a) Comment on the various components of a rubber tyre. State the role of each component. [8]

b) Discuss the steps in making of natural rubber latex gloves. [8]

OR

Q10)a) How are rubber hoses manufactured? [8]

b) With a neat flow chart explain the manufacture of rubber conveyor belts.[8]

Q11)a) Discuss two tests for testing of raw rubber. [8]

b) Discuss a test for determination of low temperature properties of rubbers.[8]

OR

Q12)a) How is permeability tested in rubber samples? Discuss. [8]

b) Discuss the method to find compression set in rubbers. [8]

