B. Tech.

(SEM. VI) EXAMINATION, 2006-07

TECHNOLOGY OF ELASTOMERS

Time : 3 Hours] [Total Marks : 100

Note : Attempt all questions. All questions carry equal marks.

1 Attempt any four parts of the following : 4×5

(a) What do you understand by Elastomers? Write specific properties of them. Give four examples.

(b) Define Accelerator. How these can be classified on basis of chemical nature? Give examples of each category.

(c) What do you understand by Non-sulphur Vulcanization? Name few rubbers which are cured by these types of materials.

(d) What is the importance of Physical Testing of rubbers?

(e) What is the importance and utility of Reclaimed Rubber in the industry?

(f) Why Age Resistors are added in the rubbers?

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Attempt any **four** parts of the following: 4×5

(a) Discuss the production of Ribbed Smoke Sheets from latex.

(b) Why Compounding of Rubbers is done before processing? Name the essential components of a Rubber Compound.

(c) Name various processes for manufacturing C-Black. Describe anyone of these giving the size of C-Black obtained.

(d) What do you know about the Structure of the Filler? How it affects the properties of the vulcanizates?

(e) Describe the Mastication Process of Rubber. What is its importance in rubber compounding?

(f) What do you understand by Graft Rubber? Give its applications.

Attempt any **two** parts of the following: 2×10

(a) How Butyl Rubber is synthesized in the industry? Draw a neat flow sheet and discuss important features. Give important properties of Butyl Rubber.

(b) Describe the synthesis of SBR by Emulsion Polymerization with a flow diagram. Why the Solution SBR is better than Emulsion SBR? Give main properties of these rubbers.

(c) Write down the structure of monomers used for synthesis of Nitrile Rubbers. How compositions of polymers affect its properties?
4 Attempt any two parts of the following: 2×10
(a) Write short notes on any two of the following:
   (i) ChloroButyl Rubbers
   (ii) Constant Viscosity Rubbers
   (iii) Gutta-Percha
   (iv) Bound Rubbers.
(b) Describe the chemistry of synthesis of Ethylene Propylene Rubbers. How the properties of polymers can be varied by changing the composition of monomers in the polymer? Why a diene monomer is added into it? Give examples of Diene imonomers used.
(c) Why the Silicon Rubbers are used in variety of applications? Discuss the various raw materials used in its synthesis, its vulcanization scheme, properties and applications.

5 Attempt any two parts of the following: 2×10
(a) Describe in brief any two of the following:
   (i) Compression Moulding of Rubbers
   (ii) Injection Moulding of Rubbers
   (iii) Continuous Vulcanization of Rubbers.
(b) Describe the manufacturing process for production of surgical gloves.
   OR
(b) Describe the process of manufacturing Rubber Hoses in the industry.
(c) Describe Banbury Mixer or Two Roll Mill for Rubber Compounding with the help of a diagram.