

**QUESTION – 1 Write the Followings**

- (i) Explain in detail the steps involved in latex preservation and stabilization **7 Marks**
- (ii) Describe the production and grading of natural rubber sheets **7 Marks**

**OR**

- (i) What is modified natural rubber? Explain its types and applications **7 Marks**
- (ii) Compare the properties and applications of neoprene, nitrile rubber, and EPDM **7 Marks**

**QUESTION – 2 Write the Followings**

- (i) Explain the basic structure and morphology of thermoplastic elastomers. **7 Marks**
- (ii) Write short notes on commercial grades and applications of polyurethane-based TPEs **7 Marks**

**OR**

- (i) Describe the manufacture and uses of thermoplastic polyester elastomers **7 Marks**
- (ii) Discuss the properties and advantages of polyamide thermoplastic elastomers. **7 Marks**

**QUESTION – 3 Write the Followings**

- (i) What are the various systems of vulcanization? Explain conventional and efficient vulcanization **7 Marks**
- (ii) Explain the mechanism of radiation curing in rubbers and peroxide mechanism. **7 Marks**

**OR**

- (i) Discuss the effect of vulcanization on the physical properties of rubber. **7 Marks**
- (ii) Explain the factors affecting compound design for hardness and elasticity **7 Marks**

**QUESTION – 4 Write the Followings**

- (i) Explain the process of rubber mixing and the types of mixers used in the industry **7 Marks**
- (ii) Outline the steps involved in the manufacturing of conveyor belts and hoses **7 Marks**

**OR**

- (i) Discuss the process of moulding and curing in rubber manufacturing **7 Marks**

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- (ii) Write short notes on:
- i. Rubber-metal bonded items
  - ii. Footwear manufacturing process

7 Marks

**QUESTION – 5 Attempt any Seven out of Twelve**

2x7 = 14 Marks

1. Crumb rubber is obtained from:
  - a) Air-dried sheet
  - b) Latex coagulum
  - c) Smoked sheet
  - d) None of the above
2. \_\_\_\_\_ rubber has excellent resistance to oils and fuels.
3. Ethylene thiourea accelerator is use for fast curing accelerator for Reclaim rubber. (True/False)
4. The vulcanization of rubber improves its \_\_\_\_\_ resistance.
5. Vulcanization decreases the elasticity of rubber. (True/False)
6. Which synthetic rubber is also commonly known as Hypalon  
(a) SBR (b) EPDM (C) Neoprene (d) CSPE
7. TPEs can be repeatedly melted and reshaped without major degradation (T/F)
8. Write down the monomers of Epichlorohydrins.
9. Write down the name of any two Organic Accelerator.
10. Amorphous Sulphur is a soluble in Carbon disulphide. (True/False)
11. The main purpose of calendering in rubber processing is to:
  - a) Grind rubber
  - b) Form rubber sheets of uniform thickness
  - c) Remove air bubbles
  - d) Mix compounds
12. The major components of rubber compounding include polymer, filler, and \_\_\_\_\_.

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