

# 313357

**12526**

**3 Hours / 70 Marks**

Seat No. 

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answer with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.
- (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any FIVE of the following: **10****
- a) Define Latex.
- b) List any four sources of Natural Rubber.
- c) Name any four synthetic rubbers.
- d) Define Thermoplastic Elastomer.
- e) Define vulcanization.
- f) State principle of rubber extrusion process.
- g) Enlist the types of test for elastomers.

P.T.O.

- 2. Attempt any THREE of the following: 12**
- a) Differentiate between Natural and Synthetic Rubber.
  - b) Elaborate :-
    - i) Tapping
    - ii) Preservation of process of latex.
  - c) State any four properties and applications of Neoprene Rubber.
  - d) Explain reclaim rubber and state its advantages.
- 3. Attempt any THREE of the following: 12**
- a) Explain manufacturing of styrene butadiene Rubber.
  - b) State important characteristics and applications of Nitrile Butadiene Rubber (NBR).
  - c) State any four applications of :-
    - i) Eppm rubber
    - ii) Silicone rubber.
  - d) Select the rubber and state the compound recipe for tyre.
- 4. Attempt any THREE of the following: 12**
- a) State the need and principle of Mastication Process.
  - b) Explain metal oxide vulcanization.
  - c) Explain the effect of vulcanization on the properties of rubber.
  - d) Explain hot air vulcanization tech. Name the products to be vulcanized.
  - e) Explain working of Rheometer to measure the rheological properties of rubber.
- 5. Attempt any TWO of the following: 12**
- a) State function and example of following additives used in rubber compounding :-
    - i) Filler
    - ii) Antioxidants
    - iii) Processing aid.

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**Marks**

- b) With neat sketch explain various steps in rubber compression moulding.
- c) Describe construction and working of banbury mixer with neat sketch.

**6. Attempt any TWO of the following:**

**12**

- a) Explain the terminologies with resp to calendering process :-
    - i) Skimming
    - ii) Fractioning
    - iii) Topping.
  - b) Explain the test procedure for hardness test and State it's significance.
  - c) Explain in brief latex technology with sequence of operation.
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