

22455

11920

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.

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| 1. Attempt any FIVE of the following : | 10 |
| (a) Differentiate between Natural & Synthetic rubber. | |
| (b) Name any two preservatives used in Latex. | |
| (c) State any four applications of silicon rubber. | |
| (d) State the principle of mastication. | |
| (e) State the need of vulcanization. | |
| (f) Draw a neat labelled diagram of compression moulding machine. | |
| (g) State any four advantages of Thermoplastic Elastomer (TPE). | |
| 2. Attempt any THREE of the following : | 12 |
| (a) Describe the sources of natural rubber and give composition of latex. | |
| (b) State any four important properties and applications of neoprene rubber. | |
| (c) Describe the construction and working of a two roll mill with a labelled sketch. | |
| (d) Suggest the calendering process for single side coating. Explain the method. | |
| 3. Attempt any THREE of the following : | 12 |
| (a) State any four molecular requirements of rubbery material. | |

- (b) Suggest the rubber materials for the following products :
- (i) Truck Tyre
 - (ii) Gasket
 - (iii) Conveyor belt
 - (iv) Inner tube of a tyre
- (c) State the longform of EPDM rubber. State its four important properties.
- (d) State function and example of following additives :
- (i) filler
 - (ii) plasticizer
- 4. Attempt any THREE of the following : 12**
- (a) Describe the method of microwave vulcanization.
 - (b) Explain manufacturing of styrene butadiene rubber by any one method.
 - (c) Describe the transfer moulding process for moulding a rubber product.
 - (d) Suggest a rubber material for the production of inner tube of a tyre. Explain its manufacturing process and properties.
 - (e) Suggest the rubber and compound recipe for O'Ring.
- 5. Attempt any TWO of the following : 12**
- (a) Describe a hardness test and solubility test for a rubbery product.
 - (b) Describe the construction and working of ram extrusion of rubber with neat sketch.
 - (c) Explain the skimming and fractioning methods for rubber calendaring.
- 6. Attempt any TWO of the following : 12**
- (a) Describe the mechanism of peroxide vulcanizate. State its advantages and limitations.
 - (b) Explain the functions and give examples of the following :
 - (i) antioxidant
 - (ii) antiozonants
 - (iii) processing aid
 - (c) Explain in brief latex processing technique.
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