

22457

11920

**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 answers with neat sketches wherever necessary.  
(4) Figures to the right indicate full marks.  
(5) Assume suitable data, if necessary.  
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

**1. Attempt any FIVE of the following:**

**10**

- Define 'Polymerization' and 'degree of polymerization'.
- State the functions of additives in viscose rayon mfg.
- State the end uses of Lyocell fibre.
- State the raw materials used in synthesis of polyester.
- Define the term "average molecular weight".
- State any two physical properties of acrylic fibre.
- Name different types of industrial fibres.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Describe the concept of direct melt spinning.
  - b) Describe with flow chart manufacturing process of viscose rayon fibre.
  - c) Explain important physical and chemical properties of polyester.
  - d) Describe procedure to use end-group analysis method to determine the average molecular weight of nylon.
- 3. Attempt any THREE of the following:** **12**
- a) Explain chemical reaction taking place while condensation polymerisation of polyester.
  - b) Choose relevant method for synthesis of nylon 6.
  - c) Differentiate between acrylic and modacrylic fibres based on their Physical, Chemical properties.
  - d) Select relevant precursor used for manufacturing of carbon fibres with justification.
- 4. Attempt any THREE of the following:** **12**
- a) Choose the relevant spinning technique for nylon 66 fibre.
  - b) Justify the statement 'Viscose rayon is regenerated fibre'.
  - c) Choose relevant raw materials for manufacturing of lycra fibre.
  - d) Describe physical and chemical properties and uses of carbon fibres.
  - e) Give a method to perform quantitative analysis of acrylic fibre from binary blended fabric sample.

**5. Attempt any TWO of the following: 12**

- a) Suggest spinning speed requirements for LOY, HOY and MOY yarns with justification.
- b) Choose relevant method for determination of moisture content of textile fibres.
- c) Select relevant applications of hollow fibre and low pilling polyester fibres.

**6. Attempt any TWO of the following: 12**

- a) Draw neat sketch for showing the process of polymer solidification.
  - b) Describe the important properties and applications of antistatic and flame retardant nylons.
  - c) Select the co-polymers for manufacturing of modacrylic fibres with justification.
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