17347

21819

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Figures to the right indicate full marks.

(4) Abbreviations used, convey usual meaning.

Marks

1. Answer any FIVE : **5 × 4 = 20**

(a) (i) Define 'fibre'. **(1)**

(ii) Explain the term 'regenerated' fibre. Give two examples. **(3)**

(b) Describe two physical and two chemical properties of 'viscose rayon'.

(c) (i) Define : **(3)**

(1) Condensation polymer

(2) Addition polymer

(3) Ring-opened polymer

(ii) Classify the polymers **(1)**

(1) Polyesters

(2) PAN

(d) Explain with reactions, principle involved in determination of 'SAP' value.

(e) Name types of 'softeners' used for textiles. State specific properties of any one softener used.

(f) Explain in general purpose of 'treatment' of textiles.

(g) Describe bleaching of synthetic fibre/yarn in general.

2. Answer any TWO : 2 × 8 = 16

(a) (i) Explain the term 'Morphology'. **(2)**

(ii) Describe and draw morphological structure of 'cotton' fibre or 'jute' fibre. **(6)**

(b) (i) Define 'sizing'. **(2)**

(ii) Name 'sizing ingredients' and explain their function. **(6)**

(c) (i) Explain the purpose of 'desizing'. **(3)**

(ii) Describe 'enzymatic disizing'. **(5)**

3. Answer any TWO : 2 × 8 = 16

(a) (i) Write reaction and reaction conditions involved in the manufacture of Nylon 6. Classify the polymer with justification. **(3)**

(ii) Comment on the water solubility of the reactants. **(1)**

(iii) Explain in general hydrogen bonding in polyamides. State its consequences. **(4)**

(b) Explain with examples, role of 'antistatic agents' used in textiles. Write any two physical and chemical properties each.

(c) Distinguish in general between batch and continuous bleaching.

4. Answer any TWO : **2 × 8 = 16**

(a) With the help of a flow-sheet describe manufacturing process of acetate rayon. Write any four properties of acetate rayon. **(3, 5)**

(b) (i) Describe resistance properties of PAN fibres with respect to processing chemicals and dyes.

(ii) Explain field of applications of PAN fibres.

(c) (i) Describe keeping properties of starch.

(ii) Explain a testing method for evaluation of adhesives.

5. Answer any TWO : **2 × 8 = 16**

(a) (i) Write reaction and reaction conditions involved in the manufacture of PET fibre. Why is DMT preferred over TPA ? Name biproduct of the process.

(ii) State properties and applications of PET fibres.

(b) (i) Define Iodine value of a softener. **(1)**

(ii) With the help of reactions, describe stepwise procedure to determine IV. **(2, 5)**

(c) (i) Explain with the help of reactions, mechanism of bleaching with hydrogen peroxide. Write typical formulation for the same.

(ii) Explain with reactions, bleaching action of :

(1) Sulphur dioxide

(2) Sodium hypochlorite

P.T.O.

6. Answer any FOUR : **4 × 4 = 16**

(a) Compare properties of wool and silk.

(b) State specific applications of acetate rayon.

(c) Compare properties of 'PE and PP fibres'.

(d) Elaborate on chemistry of sizing ingredients.

(e) Compare yarn singeing and fabric singeing.

(f) Describe the process for scouring of cotton.
