

**Scheme – I**  
**Sample Question Paper**

**Program Name** : Diploma in Textile Technology

**Program Code** : TC

**Semester** : Fourth

**Course Title** : Synthetic Substrates

**Max. Marks** : 70

22457

**Time** : 3 Hrs.

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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.
- (5) Preferably, write the answers in sequential order.

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

**10 Marks**

- a. Define the terms i) polymer ii) Degree of polymerisation
- b. Write the names of four regenerated fibres.
- c. List the names of chemicals used in viscose rayon manufacturing process.
- d. Write the chemical formula of i) Terephthalic acid ii) Dimethylene terephthalate.
- e. Write the end uses of nylon 66 fibre
- f. List the names of raw materials used for acrylic fibre manufacturing process.
- g. List the end uses of carbon fibre.

**Q.2 Attempt any Three of the following.**

**12 Marks**

- a. Compare between dry spinning and wet spinning on the basis of solvents used.
- b. Describe the objective of 'conditioning of wood pulp' in viscose rayon manufacturing process.
- c. Explain chemical reaction taking place while condensation polymerization of polyester.
- d. Explain melt spinning process of nylon with neat outline sketch.

**Q.3) Attempt any Three of the following.**

**12 Marks**

- a. Explain modifications done in spinnerets for manufacturing modified polyesters.
- b. Choose relevant method for synthesis of caprolactum.
- c. Describe modifications done in spinning process for flame retardant acrylic fibre.

d. Differentiate between LDPE and HDPE based on their physical properties.

**Q.4) Attempt any Three of the following.**

**12 Marks**

- a. select relevant spinning process for lyocell fibres.
- b. explain end of polyester microfibers based on their fineness
- c. differentiate between acrylic fibre and modacrylic fibre based on the monomer content
- d. write the process flow for carbon fibre manufacturing by taking acrylonitrile as a precursor
- e. Justify the statement 'acrylic fibre cannot be melt spun'

**Q.5) Attempt any Two of the following.**

**12 Marks**

- a. Choose the relevant spinning process for thermoplastic polymers.
- b. Choose relevant method for density determination of natural fibres.
- c. Select process parameters for polycondensation process of polyester fibre.

**Q.6) Attempt any Two of the following.**

**12 Marks**

- a. Select the relevant spinning process for thermoset polymers.
- b. Select relevant applications of low pilling polyester
- c. Explain relevance of elasticity of lycra fibre to its physical property.

**Scheme – I**  
**Question Test Paper - I**

**Program Name : Diploma in Textile Technology**

**Program Code : TC**

**Semester : Fourth**

**Course Title : Synthetic Substrates**

**Max. Marks : 20**

**22457**

**Time : 1 Hour**

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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.
- (5) Preferably, write the answers in sequential order.

**Q.1 Attempt any FOUR.**

**08 Marks**

- a) Define the term i) polymer ii) functionality of polymer
- b) State four physical properties of polyester fibre
- c) State names of four chemicals used in viscose rayon manufacturing process
- d) Sketch a labeled diagram of wet spinning process.
- e) Describe the term fibrillation in lyocell fibres
- f) State four end uses of micropolyester.

**Q.2 Attempt any THREE.**

**12 Marks**

- a) Explain the importance of conditioning of wood pulp in viscose rayon manufacturing process.
- b) Explain one chemical test for determination of accessible region of polyester fibre
- c) Explain advantages of lyocell fibre over viscose rayon based on fibre properties.
- d) Explain the role of additives in flame retardant polyester.

**Scheme – I**  
**Question Test Paper - II**

**Program Name : Diploma in Textile Technology**

**Program Code : TC**

**Semester : Fourth**

**Course Title : Synthetic Substrates**

**Max. Marks : 20**

**22457**

**Time : 1 Hour**

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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.
- (5) Preferably, write the answers in sequential order.

**Q.1 Attempt any FOUR.**

**08 Marks**

- a) State physical properties of nylon 66 fibre.
- b) State the physical properties of acrylic fibre.
- c) State four end uses of polyethylene fibre.
- d) Name four end uses of carbon fibre
- e) Name the list of raw materials for nylon 6 fibres
- f) State two chemical properties of polypropylene fibre.

**Q.2 Attempt any THREE.**

**12 Marks**

- a) Select carbon fibre for relevant application based on its melting point.
- b) State various application of lycra fibre based on its elasticity
- c) Explain the importance of precursor selection in properties of carbon fibre
- d) Justify the statement acrylic fibre cannot be melt spun.