

Printed Pages : 4



TT402

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 160409

Roll No.

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B. Tech.

(SEM. IV) THEORY EXAMINATION, 2014-15
TEXTILE FIBRE - II

Time : 3 Hours]

[Total Marks : 1000

Note : attempt questions from all sections as per instructions.

SECTION – A

- 1 Attempt ALL parts of this question. Each part $2 \times 10 = 20$ carries 2 marks.
- (a) Write few examples of manmade fibres.
 - (b) What are synthetic fibres? Give examples.
 - (c) Define the term “coagulation” in manmade fibre manufacture.
 - (d) What is dry spinning technique?
 - (e) How solidification is done in melt spinning?
 - (f) Define Denier and Tex.
 - (g) Why spinnerets are used in the production of manmade fibres?

- (h) What is the role of coagulation bath in wet spinning ?
- (i) Mention the raw materials for the production of polyester fibre.
- (j) What are the raw materials for the production of nylon 6.6?

SECTION–B

2 Attempt any three parts of this question. **10×3=30**

Each part carries 10 marks:

- (a) Why two steps are important in PET polymerization? Discuss the routes in PET production and compare TPA route over DMT route.
- (b) Draw both longitudinal and cross-sectional view of the following fibers :
 - (i) Polyester
 - (ii) Viscose
 - (iii) Acrylic
 - (iv) Nylon
- (c) Discuss "Dry Spinning" and "Wet Spinning" with a neat labelled diagram. Write the advantages of these spinning techniques.
- (d) Draw both longitudinal and cross-sectional view of following fibres.
 - (i) Viscose
 - (ii) Polyester
- (e) Distinguish between “Addition Polymerization” and “Condensation Polymerization”. What are characteristics of fibre forming polymer?

SECTION – C

Attempt all questions of this section. Each question carries 10 marks.

3 Attempt any TWO of the following : **5×2=10**

- (a) Discuss the “dry spinning technique” used in acrylic fibre manufacturing.
- (b) “Ester Interchange” and “Direct Esterification” in polyester manufacturing.
- (c) Discuss the “Melt spinning technique” used for nylon 6 fibre.

4 Attempt any ONE of the following : **10×1=10**

- (a) Explain the steps involved in viscose fibre formation.
- (b) Explain the working of “Screw Type Melt Extruder”.

5 Attempt any ONE of the following : **10×1=10**

- (a) Discuss VK tube method for polymerization of Nylon 6 with the help of diagram.
- (b) Discuss the following.
 - (i) LOY, POY, HOY, FOY
 - (ii) Refractive Index
 - (iii) Delustrant
 - (iv) Process variables in a melt spinning operation

6 Attempt any one of the following : **10×1=10**

- (a) How high molecular weight PET fibres are produced.
- (b) Discuss the following with a neat labelled diagram, wherever necessary:
 - (i) Additives for specialty polyester fibre
 - (ii) Manifold and Spin Pack.

7 Attempt any ONE of the following : **10×1=10**

- (a) Explain solution polymerization in acrylic fibre formation.
 - (b) Discuss the following with a neat labeled diagram, wherever necessary.
 - (i) Properties and uses of polyethylene and polypropylene fibres
 - (ii) Spin Pack and Manifold
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