Roll No. ..... Total Pages : 03

July-22-00257

B. Tech. EXAMINATION, 2022

Semester IV (CBCS)

MAN MADE FIBRE

TE-401

Time : 3 Hours *Maximum Marks : 60*

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all, selecting *one* question from each Section A, B, C and D. Q. No. **9** is compulsory.

Section A

1. Discuss the synthesis of caprolactam from phenol and aniline. **10**

2. Briefly explain the complete production sequence of polyester fiber. Also, discuss the manufacturing of PET throught TPA and DMT route ? **10**

Section B

3. Discuss the construction and importance of quenching chamber and spinneret. **10**

4. Explain any *two* physical fundamental of fiber spinning process in detail. **10**

Section C

5. Explain the principle of Dry-Jet wet spinning with the suitable diagram. Where is it used and why ? **10**

6. Discuss various drawing system. Explain effect of drawing on structure and properties of fibers. **10**

Section D

7. Write a note on antistatic fibers and flame retardant fiber production. **10**

8. Define different parameters used to measure the quality of filament yarn and staple fibers. How fiber tenacity and shrinkage force is measured ? **10**

(Compulsory Question)

9. Attempt all questions :

   (a) What are merits of man-made fibers over natural fibers ?

   (b) What is regenerated cellulosic fibers ?

   (c) What is spin finish ? Why is it needed ?

   (d) What is gel spinning ?

   (e) What is heat setting ? Why is it necessary ?

   (f) Differentiate between Nylon 6 and Nylon 66.

   (g) What is Dope ?

   (h) What is cationic dyeable polyester fiber ?

   (i) Write about flame retardant polyester.

   (j) State properties required for fiber forming materials. **10×2=20**