[Total No. of Questions - 9] [Total No. of Printed Pages - 2]

Dec-22-0142

TE-302 (Natural Fiber)

B.Tech-3rd (CBCS)

Time : 3 Hours **Max. 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. Section E is compulsory.

SECTION A

1. Classify the textile fibres and discuss their various essential and desirable properties. (10)
2. Explain the various type of polymerization and involved chemical reactions in the polymerization process. Describe properties of fibres based on their chemical and physical properties of polymers. (10)

SECTION B

3. Describe chemical and physical properties of cotton along with neat diagram showing its morphological structure. (10)
4. How does bast fibres differ with cotton in chemical composition and properties?

   Discuss ramie fibre cultivation, extraction and its chemical and physical properties. (10)

SECTION C

5. Describe wool fibre in detail. Compare it with silk based on their chemical composition, physical structure and properties. (10)
6. Write detailed note on regenerated protein fibres, their manufacturing process and properties. (10)

SECTION D

7. Describe various stages involved in viscose fibre production in detail along with neat line diagram of fibre spinning unit. Mention changes occurred in cellulose polymeric structure in each stage of fibre production with recipe of spinning bath. (10)
8. Describe procedure of fibre identification based on microscopic view and chemical dissolution test. Draw longitudinal and cross section microscopic view of different fibres. (10)

SECTION E

Compulsory question

9. a. Write brief note on historical evaluation of cotton.
   b. Define organic cotton and its importance.
   c. Write short note on sisal.
   d. Define spider silk and mention its properties.
   e. What do you mean by heat of wetting of textiles? Mention the fibre which is having maximum heat of wetting.
   f. What do you mean by directional friction effect and associated problem with it?
   g. Mention degree of polymerization of cotton, jute and regenerated cellulosic fibres.
   h. Which natural fibres has high wet strength? Explain the reason behind it.
   i. Why is application of Jute in textile limited even though it is one of the strongest natural fibre? Explain.
   j. What do you mean by high tenacity viscose fibres? Mention their applications.

(10×2=20)