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B. Tech 3rd Semester Examination

Textile Fibres (N.S.)

TE-212

Time : 3 Hours

Max. Marks : 100

*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 :** Section-E is compulsory. Attempt any four questions from Section A, B, C and D at least one question from each section.

**SECTION - A**

1. (a) Classify various natural fibres on the basis of origin. Give one example each. Discuss the major uses of following fibres—  
(i) Jute (ii) Wool (iii) Flax (iv) Bamboo and (v) Casein fibres.  
(10)
- (b) What do you mean by regenerated fibres? Classify the various regenerated fibre depending on their chemical nature. Discuss the difference between cotton and viscose fibres.  
(10)

OR

2. (a) What do you mean by naturally coloured cotton and organic cotton? Discuss in brief Jute cultivation process.  
(10)
- (b) What are the desirable properties of a fibre to be used as textile fibre? What are the advantages of synthetic and regenerated fibres over natural fibres.  
(10)

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**SECTION - B**

3. (a) Discuss in brief sequence of operations involved in viscose fibres. Compare the properties of modal and viscose fibres. **(10)**
- (b) Discuss in brief the structure of silk fibres. What do you mean by reeling operation? **(10)**

OR

4. (a) Discuss the physical and chemical properties of wool fibres. How the physical properties of wool fibres are utilized in its various end uses? **(10)**
- (b) Discuss the physical properties of following fibres—  
(i) Casein fibres. (ii) Bamboo fibres (iii) Tinsel fibres. **(10)**

**SECTION - C**

5. (a) Discuss the principle of manufacture of Nylon 6 and Nylon-66. **(10)**
- (b) Discuss the properties of Polyester fibre and its uses. **(10)**

OR

6. Discuss the following and give justifications:
- (a) Polyester fibers are hydrophobic in nature.
- (b) Strength of polyester fibres is higher.
- (c) Pilling of polyester fabrics is higher.
- (d) Abrasion resistance of polyester fabrics is higher.
- (e) Titanium di-oxide are used in polyester fibre manufacturing. **(4×5=20)**

**SECTION - D**

7. (a) Discuss the end uses and properties of Kevlar fibres. (10)
- (b) Draw the cross sectional view of the following Fibres—  
(i) Cotton (ii) Polyester (iii) Trilobal (iv) Silk (v) Acrylic fibres. (10)

OR

8. (a) Give example and uses of following types of fibres—  
(i) Unconventional natural fibres (ii) Inorganic fibres  
(iii) Elastomeric fibres (iv) Polyolefine fibres (iv) High performance fibres. (10)
- (b) How the following fibres will behave during burning—  
(i) Wool (ii) Polyester (iii) Cotton (iv) Silk (v) Nylon. (10)

**SECTION - E**

9. Attempt all subparts—
- (a) What do you mean by 'Kemp'?
- (b) What is medullation in wool?
- (c) What do you mean by high Wet Modulus fibres?
- (d) Why does strength of viscose fibre reduce after wetting?
- (e) What do you mean by maturity of cotton fibres?
- (f) Name solvents of polyester and acrylic fibres.
- (g) What do you mean by micro-denier fibres?
- (h) What are the uses of Casein fibres?
- (i) What is the difference between Nomex and Kular fibres?
- (j) What is oxy-cellulose? (10×2=20)