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Total Number of Pages: 02

B.Tech.
PCTX4201

**3rd Semester Back Examination 2017-18
FIBRE SCIENCE AND TECHNOLOGY - I**

BRANCH(S): TEXTILE

Time: 3 Hours

Max Marks: 70

Q.CODE : B1228

Answer Question No.1 which is compulsory and any five from the rest.

The figures in the right hand margin indicate marks.

- Q1 Answer the following questions: (2 x 10)**
- a) Define a textile Fibre.
 - b) L/D ratio means _____, Among the natural fibres its highest in case of.
 - c) What is monomer of cotton, write its chemical formula?
 - d) The Degree of Polymerization (DP) of Textile grade polyester is about _____, and the glass transition temperature is about _____.
 - e) The moisture regain of Cotton is about _____ and that of Polyester is _____?
 - f) The Cellulose content in cotton fibre is around _____, While the keratin content in wool is about _____.
 - g) State the basic differences between staple fibre and filament.
 - h) What is uniformity ratio?
 - i) Why Moisture regain is higher than moisture content?
 - j) How can you distinguish wool and silk from microscopy?
- Q2**
- a) What are the essential & desirable properties of a textile fibre? (5)
 - b) Discuss the morphological structure of cotton with neat diagram and some important physical characteristic of cotton fibre. (5)
- Q3**
- a) Discuss the anatomy and molecular arrangement of wool and their properties. (5)
 - b) i) Convert the following gm/Tex to CNT/Dtex ii) RKM (5)
- Q4** Define Span length and Effective length. Describe the measurement of fibre length of cotton by Baer Shorter diagram. (10)
- Q5**
- a) Describe the reaction involved in manufacturing of PET with conditions (5)
 - b) Discuss manufacturing process of making Viscose fibres. (5)
- Q6**
- a) What is the difference between Melt spinning and wet spinning with examples. (5)
 - b) Explain how drawing affects crystallinity and orientation. (5)
- Q7**
- a) Explain in details of a process to determination of maturity of cotton fibre. How it affects the yarn performance? (5)
 - b) Describe wool scouring process. (5)

Q8 Write short note on any TWO :

(5 x 2)

a) Match the following.

- | | | |
|------|--------------------------|-----------------------------|
| i) | Nylon 66 fibre | a. Scaly surface |
| ii) | Low density polyethylene | b. Cellulosic fibre |
| iii) | Polypropylene fibre | c. Lowest melting temp |
| iv) | Wool fibre | d. High melting temp. |
| v) | Silk fibre | e. Triangular cross section |
| vi) | Jute fibre | f. The lightest fibre |

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- b)** Jute Retting
c) Degumming of Silk
d) Various Fibre cross sections