[Total No. of Questions - 9] [Total No. of Pr. ed Pages - 3]
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B. Tech 7th Semester Examination

Non-Conventional Yarn Manufacture (NS)

TE-414

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 : Attempt five questions in all. Select one question from each section A, B, C, D. Section E is compulsory.

SECTION - A

1. (a) Explain the structure and properties of Air-jet and Friction spun yarns in detail. (10)

   (b) Explain the fibre characteristics in order of their importance for Friction spinning and Air-jet spinning. (10)

2. (a) Describe the Tenacity and breaking extension of Ring and Rotor spun yarns. (10)

   (b) Explain the twisting method in Rotor and Friction spinning system with the help of suitable diagrams. (10)

SECTION - B

3. (a) What is the function of navel in rotor spinning? What are different forms of a navel? Discuss in detail the effect of a navel on rotor yarn characteristics. (10)

   (b) Explain some modern developments in Rotor spinning system. (10)

4. (a) Explain the principle Air-jet spinning system and Vortex spinning system with the help of a neat diagram. (10)

   (b) What are the wrapper fibres in rotor spinning? Explain how these are formed. What is the effect of peripheral twist extent on wrapper fibres? (10)

SECTION - C

5. (a) Explain the principle of compact spinning. Briefly explain different methods used to condense fibres strand emerging out from the front roller. (10)

   (b) Describe the passage of the material through the Dref-III machine with the help of a suitable diagram. (10)

6. (a) Describe the Structural difference between compact and ring spun yarn. Briefly explain the improvement in the properties of compact spun yarn. (10)

   (b) Explain the effect of jet pressure and yarn linear density on Air-jet yarn. (10)

SECTION - D

7. (a) Explain the operating principle of electrostatic spinning system with the help of a suitable diagram. What are disadvantages of electrostatic spinning? (10)

   (b) Describe the operating principle of Self-Twisting Technique with the help of a neat diagram. Explain the advantages of this spinning system. (10)

8. (a) Explain the operating principle of Siro spinning system with the help of a suitable diagram. (10)

   (b) Explain the operating principle of Air-vortex spinning with the help of a suitable diagram. What are disadvantages of this spinning system? (10)

[P.T.O.]

SECTION - E

9. Attempt all questions.

(a) Why friction spun yarn has lowest tenacity among all other yarns?

(b) What are the advantages of new spinning system?

(c) What is the function of doffing tube in rotor machine?

(d) Why the Air jet yarn has lowest breaking extension whereas the friction spun yarn has highest?

(e) State the fibre characteristics in order of importance for different spinning systems.

(f) Why it is not possible to spin course yarn on Air jet spinning system?

(g) Give an empirical relationship between staple length and rotor diameter.

(h) What is the role of "Torque Stop" in rotor spinning?

(i) Briefly explain the implication of honey dew on working of rotor spinning.

(j) Define Peripheral Twist Extend (PTE). (10×2=20)