M.TECH DEGREE EXAMINATIONS: JANUARY 2011
First Semester
TEXTILE TECHNOLOGY
TTX502: Yarn Formation Mechanics and Structure

Time: Three Hours   **Maximum Marks: 100**
Answer ALL questions:-
PART A (10 x 2 = 20 Marks)

1. Give the number of fibres in the cross section if the hank of material is 0.17 Ne and the micronaire value is 4.0 micrograms/inch
2. Give the formula to determine floating fibre%.
3. Give the formula for index of blend irregularity.
4. Define intensity of opening.
5. Classify the structure of fasciated yarn.
6. What is meant by additional twist factor (ATF) in self twist spinning?
7. Define packing density in yarn.
8. Give the three possible ways of yarn twisting.
9. Define S_3 value in hairiness.
10. Give the relationship between CV% and PMD.

PART B (5 x 16 = 80 Marks)

11. a) Explain in detail the importance of fibre fineness and its effect on yarn quality.
(OR)
  b) Explain in detail the influence of the fibre length on yarn quality.

12. a) Explain in detail the factors involved in compatibility of blend fibres.
(OR)
  b) Explain in detail the ideal drafting theory and also explain the concept of actual draft and mechanical draft.

13. a) Explain with neat sketch the fibre disposition and layer formation at rotor groove.
(OR)
  b) With neat sketch explain the forms of self twist yarn and explain different double twist systems in self twist spinning.

14. a) Explain the concept of idealized yarn structure and derive the geometrical relationship for idealized yarn structure.
(OR)
  b) Explain in detail the migration behavior of fibre in yarn and derive an expression for migration frequency.

15. a) Classify yarn faults and explain the principle of classimat system.
(OR)
  b) Explain in detail the experimental studies and models of yarn strength.

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