M.TECH DEGREE EXAMINATIONS: DECEMBER 2008

First Semester

TEXTILE TECHNOLOGY

P07TX102 Yarn Formation Mechanics and Structure

Time: Three Hours   **Maximum Marks: 100**

Answer ALL Questions:-

PART A (20 x 1 = 20 Marks)

1. Which of the following fibre is difficult to be drafted

   A. Cotton   B. Silk   C. Wool   D. Polyester

2. Heat setting of synthetic fibres is done for

   A. Dimensional stability   B. Making heavy denier filaments
   C. Imparting crimps   D. Improving Comfort

3. The fibre which posses difficulty during mechanical processing and prone to static charge is
   A. Cotton   B. Silk   C. Wool   D. Polyester

4. Blending delay time is related with

   A. Time delay during manual mixing
   B. Delay time during stack mixing
   C. Delay time during carding process
   D. the Concept used in Uni-blend and Uni-mix machines

5. Comber noil will be more in

   A. Backward feed and narrow detaching distance
   B. Backward feed with wider detaching distance
   C. Forward feed and narrow detaching distance
   D. Forward feed and wider detaching distance

6. Air jet spinning is

   A. an Open end spinning system
   B. a False twist spinning system
   C. Condensed yarn spinning system
   D. a Short staple fibre spinning system

7. Super lap (Combing preparatory) sequence is normally used for

   A. Courser combed yarn production   B. Fine Combed yarn preparation
   C. Combed and Blended yarn production D. Long staple fibre yarn production

8. Back doubling in rotor spinning

   A. Induce irregularity   B. Improve evenness
   C. No effect on the yarn   D. Enhance uniform twist

9. Feed ratio in friction spinning

    A. Out-put to in-put ratio
    B. In-put to Out-put ratio
    C. Surface speed of drum to delivery rate
    D. Delivery rate to surface speed of drum

10. production rate of Ring spinning is

    A. 15 meters/ minute   B. 300 meters/ minute
    C. 3000 meters/ minute   D. 30000 meters/ minute

11. Flats speed of High production Carding machine is

    A. 2-7 inches/ minute   B. 20-70 inches/ minute
    C. 200-700 inches / minute   D. 10-100 inches/ minute

12. Packing fraction of yarn is

    A. Bulk density of yarn/Fibre density
    B. Fibre density/Bulk density of yarn
    C. Yarn volume/ fibre volume
    D. Inverse of yarn diameter and linear density

13. Comparatively the tenacity of twisted multi filaments with Untwisted filaments is

    A. Lesser   B. Greater   C. No change D. First increase and than decrease

14. The length of capacitance in the evenness tester is

    A.8mm   B.8 cmtr   C. 1 cmtr   D. 0.5 mm

15. Twist per unit length of DREF yarn can be measured by

    A. Twist to break and untwist to break method   B. By untwisting method
    C. By simple pendulum method   D. Not possible to measure

16. A single fibre in the Carding cylinder is rotates approximately

    A.20-30 Times   B.200-500 times   C.1000 times   D. about 2 million times

17. Hoop stress is a one of a limitation for

    A. Scutcher unit   B. Drafting unit
    C. Simplx bobbin winding   D. CRT type yarn testing instruments

18. Changeing speeds of Ring spindle in Invertor type drive is

    A.By altering frequency   B.By altering voltage
    C.By altering Current   D.By altering Watts

19. Core yarn Sheath slippage is higher in

    A. Rotor spun yarns   B.Friction spun yarns C.Bobtex yarns   D.Ring spun yarns

20. Spinning tension will be higher in

    A. Rotor Spinning   B.Friction Spinning   C.Air vortex spinning D.Ring Spinning

PART B (5X16=80 Marks)

21.(a) A man made fibre twisted yarn having 10 twist per meter of twist with surface helix angle of fibre 45°. This yarn is subjected to deformation under constant volume condition. σ_y is 0.5. The lateral contraction of the yarn is -15%. Find out the helix angle of the fibre after deformation. (16)

(OR)

21(b). Enumerate on the idealized yarn helical structure with suitable assumption. (16)

22.(a). (i) Tabulate the classification of Neps and explain in detail on the nep formation and its removal (10)

    (ii) State the quality requirements for the combing preparatory (6).

(OR)

22.(b). Compare various on spinning systems based their yarn structure and state the limitations and advantages of each system (16)

23.(a).(i) State and discuss on the ring and traveler heat generation and dissipation (10)

    (ii) Why Bobbin lead principle is adopted in speed frame machines than Flyer lead principle? (6)

(OR)

23.(b).(i) Discuss on the tracer fibre technique to observe the path of fibre in the yarn.(12)

    (ii) Calculate packing fraction of a Cotton yarn, which has specific volume 1.1cm3 (4)

24. (a) Discuss on the factors influencing on the drafting wave irregularity.

(OR)

24. (b) Explain in detail on the factors affecting the comber noil extraction % (16)

25. (a) Write short notes on Variance length curve and Index of irregularity (16)

(OR)

25. (b)Enumerate on the Classimate faults and give remedy for each type of faults. (16)

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