

M.TECH. DEGREE EXAMINATIONS: NOVEMBER 2009

Second Semester

TEXTILE TECHNOLOGY

P07TX201: Yarn Quality Analysis

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions:-

PART A (10 × 2 = 20 Marks)

1. Differentiate between U% and CV%.
2. Draw the irregularity chart for random and periodic variations.
3. What is the significance of Variance – Length curve?
4. How will you calculate the initial cut length of a cotton and wool fibre for tracing the faulty process with the help of VL curve?
5. What are harmonics? How this can be eliminated?
6. Calculate the speed of the defective roller with the following details.
 - a. Diameter of roller - 1.57 inches
 - b. Spectrogram Peak - 80 cm
7. What is the significance of pre tensioning in tensile testing of yarn? Specify the value of pre tension.
8. What is the influence of rate of extension of single yarn strength tester in the yarn strength?
9. What is the influence of yarn imperfections in knitting performance?
10. How does hairiness influence the yarn weaving performance?

PART B (5 × 16 = 80 Marks)

11. a) Enlist the properties of diagram and explain with suitable examples how short, long and periodic faults can be interpreted with the help of diagram.

(OR)

- b)(i) Calculate the index of irregularity of a cotton yarn with a micronaire value of 3.0, having a measured irregularity of 13.5%. (4)
- (ii) Explain how faults have been classified based on their mass and length. Enumerate the causes and remedies for short and long thick faults. (12)

12. a) What do you mean by V-L curve? Explain the analysis of V-L curve with suitable example assuming necessary data.

(OR)

b) Discuss in detail the effect of specimen length and total length on mass variation measurement.

13. a) What is the effect of oval shaped roller in the spectrogram? Explain how the problem of spindle eccentricity in speed frame can be identified and analysed.

(OR)

b) Discuss the various categories of periodic faults and their causes.

14. a) Discuss the various parameters influencing the tensile strength of a yarn in a single yarn strength tester.

(OR)

b) (i). Explain the method of measuring creep and stress relaxations. (8)

(ii) Define work of rupture and discuss its significance. (8)

15. a) Discuss how the yarn characteristics influence the performance of post spinning and fabric manufacturing processes.

(OR)

b) Discuss in detail the effect of yarn quality on fabric wear, appearance and comfort.
