

## Minor-I TTL 361 (Textile Testing)

30-08-2014

Max Marks-20

8.00-9.00 pm

Attempt all questions.

1. 1000 fibres were tested for fibre length. It was found that the mean length was 1000 mm and the length distribution followed normal distribution. Number of fibres having a minimum length of 1196 mm was found to be 25. Find out: [3]
  - a) S.D. of the dispersion.
  - b) Number of fibres falling in the range - mean+2.58 SD and mean -1.32 SD
  - c) % of fibres outside the range – mean+1 SD and mean-1.64 SD
2. A yarn has a nominal mean count of 100 and SD of 10. When a sample of 50 bobbins is tested, the SD is found to be 12. Is the variability of sample greater than the bulk? [2]
3. The standard deviation of a 60s count yarn is known to be 6 counts. What size of sample is necessary in order that the warning limit is 5 % of the mean? [2]
4. 60 leas of 40s cotton yarn were tested for lea strength. The 95% confidence interval was  $100 \pm 2.94$  lb. Calculate the number of tests required to give the maximum error of 10%. [2]
5. How is ransom sampling of a lot of fibres biased in favour of longer fibres? How can this bias be eliminated? [1]
6. Plot the comb sorter diagram and the Fibrograph for a polyester sliver with a fibre cut length of 38 mm. calculate the uniformity ratio. [3]
7. In the expression for floating fibre%, the distance between the drafting rollers is not a factor. Comment. [1]
8. What is fiber maturity?
9. Gives one example each of continuous variate and a discontinuous variate?
10. Explain the working principle of a photoelectric stapler (no diagram is needed). What would happen if a coterminous fringe is used for testing? 2
11. Draw a comb sorter diagram for a typical cotton fibre lot. Indicate short fibre % and the dispersion in it.
12. How would you differentiate between mature, immature and dead fibres in cotton? What problem arise due to dead fibres?
13. What is the significance of standard error of the mean?
14. 60 leas of 40s cotton yarn were tested for lea strength. The 95% confidence interval was  $100 \pm 2.94$  lb. calculate the number of tests required to give the maximum error in standard deviation of 1%.