

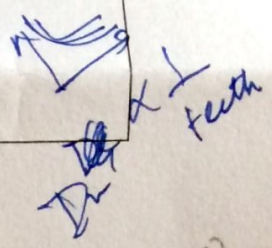
Major Test I
TXL 222 Yarn Manufacture II

Total marks = 55

INSTRUCTION

Date : 22.11.2018

- Answer all questions
- Hand writing should be legible
- Do not write on the back side of the front page of answer sheet
- Answers should be properly numbered
- Do not miss to write your entry number



- Q1. (i) Draw the nature of ring rail movement per traverse cycle. Why is it so?
 (ii) Why lappet guide is moved upward during bobbin formation in ring spinning?
 (iii) What causes apron to slip in ring drafting system? How it can be prevented?
 (iv) Why the ring frame drafting system is neither horizontal nor vertically mounted?
 (v) What are the limitations of raising traveller speed?
 (vi) Why bobbin leading frame is preferred over flyer leading in cotton roving frame?
 (vii) Explain, how comber performance is affected by direction of presentation of fibre hooks.
 (viii) Explain the presence of short fibres in combed sliver and long fibres in comber noil?
 (ix) Explain the combing treatment a fibre receives along its length as it crosses the combing zone.
 (x) Why bobbin speed regulation is required in roving frame but not in ring frame?

$T_{pm} = \frac{ms \text{ (RPM)}}{V \text{ (m/min)}}$
 $V = \frac{1000}{0.002}$
 5904×2000

$$TM = \frac{t_{pi}}{J_{Ne}} = \frac{t_{pi} \sqrt{F_{ex}}}{15904} =$$

(10 x 3 = 30)

2. A ring frame is running at a spindle speed of 13,500 rpm. The delivery rate is 15m/min. Find out nominal and the actual twist (turns/inch) at the maximum (4.6cm) and minimum winding diameter (2.5cm) of the package. (5)
3. The flyer of a roving frame is running at 1000 rpm and producing roving of 576 tex with Twist multiplier 8.613 tex system. At bobbin diameter 7.5 cm, it was found that the coils in 10 cm is 40. Find out (i) traverse rate of the bobbin rail currently and also if the roving coils are made to touch each other on the bobbin. [For roving diameter calculation in mm assume $k = 7.42 \times 10^{-2}$] (5)
4. Deduce the equation relating volume of roving in a roving bobbin assuming bare bobbin diameter as 'b', full bobbin diameter as 'd_B', length of cylindrical portion of full bobbin as 'H' and height of tapered portion as 'l'. (5)
5. A ring spinning machine is producing yarn of 12 Ne. The draft and teeth of draft change pinion are 20 & 40 respectively. If it is decided to spin 16Ne yarn from the same roving how much draft is needed and what should be number of teeth in draft change pinion? (5)
6. A ring frame is spinning 20s Ne yarn from a roving of 1.0 Ne. The re is sudden need to prepare the machine to spin 60s Ne yarn from 1.5 Ne roving. What changes are required in the machine and process parameters to spin the yarn successfully. (5)