

Quiz 1 TXL222: Yarn Manufacture-II

Total Marks: 20

Date: 06/09/2023

Duration: 30 min

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$$\frac{13\frac{1}{2}}{20}$$

Attempt all the questions. Each question has 1 mark and there could be one or more than one correct answer. Clearly indicate the correct answer (s).

$$20 \times 1 = 20$$

- Q1. The correct sequence(s) of operation(s) for a rectilinear cotton comber (from beginning towards the end of the combing cycle) in backward feeding system is/are:

BCP
FCP

- A - Nippers forward → Rotary combing → Piecing → Detaching → Top combing
- B - Feeding → Rotary combing → Web Return → Detaching → Top combing ✓
- C - Feeding → Web Return → Piecing → Detaching → Returns of nipper assembly ✓ $\frac{1}{2}$
- D - Nippers backward → Feeding → Rotary Combing → Nippers forward → Detaching

- Q2. In case of backward feed system, the comber noil increases with

E + S_{1,2}

- A - Increase in detachment setting ✓
- B - Decrease in feed length
- C - Increase in fibre length
- D - Increase in feed length ✓

1

The correct statement(s) is/are:

- (A) (B) (C) (D)

5

- Q3. It is important to have _____ (P) _____ number of processes between card and comber in cotton combing system to remove _____ (Q) _____. The correct combination, amongst the following, when P and Q respectively denote

- A. Odd and Trailing hooks
- B. Even and Neps
- C. Odd and Short fibres
- D. Even and Leading hooks

1

1

Relatively better cleanliness of combed sliver is achieved in _____(P) _____ feed comber and higher productivity is achieved in _____(Q) _____ feed comber. The correct combination, amongst the following, when P and Q respectively denote

- A. Backward and Forward ✓
- B. Forward and Backward
- C. Backward and Backward
- D. Forward and Forward

1

5. For a rectilinear cotton comber, working with backward feed, the correct pair(s) of statements during forward movement of nippers is/are,

- A. Nippers closing down and feed roller rotates
- B. Nippers closing down and feed roller does not rotate ✗
- C. Nippers opening up and feed roller rotates
- D. Nippers opening up and feed roller does not rotate ✓

0

6. For a rectilinear cotton comber, the correct statement(s) among the following is/are

- A. Top comb only combs out the leading part of the fibre fringe
- B. Top comb is responsible for removal of short fibres and impurities
- C. Top comb removes fibre hooks
- D. Top comb only combs out the trailing part of the fibre fringe

1

7. In a rectilinear cotton comber, the change in the boundary length while the feeding is changed from backward to forward is 5 mm. What is the degree of combing if the detachment setting is 30 mm and the distance between the cylinder comb action point and nippers is 10 mm?

$$E = 30$$
$$S = 5$$

$$\left(E + \frac{S}{2}\right) - \left(E - \frac{S}{2}\right)$$

$$S = 5$$

- A. 10
- B. 4 ✓
- C. 5
- D. 3

1

✓

8. The eccentric shaft in a rectilinear cotton comber prevents the false draft caused due to

- A. Forward and backward movement of detaching rollers
- B. Up and down movement of top comb
- C. Opening and closing of nipper assembly
- D. Forward and backward movement of nipper assembly.

1 ✓

✓

9. With reference to comber lap formation process in cotton combing, the correct statement(s) amongst the following is/are

- A. Comber lap with high evenness is required to reduce the fibre breakage
- B. Comber lap with high evenness is required to reduce the long fibre loss ✓
- C. Comber lap with high fibre parallelization is required to reduce the fibre breakage $\frac{1}{2}$
- D. Comber lap with high fibre parallelization is required to reduce the long fibre loss ✓

10. With reference to quality of comber lap in cotton combing, the correct statement(s) amongst the following is/are

- A. With the increase in fibre parallelization in comber lap, the yarn cleanliness improves X
- B. With the increase in fibre parallelization in comber lap, the yarn cleanliness deteriorates
- C. For longer fibre length, the comber lap mass per unit length should be lower ✓
- D. With the increase in thickness of comber lap, the overall yarn quality improves

$\frac{1}{2}$

11. The main task(s) of a roving frame, amongst the following, is/are,

- A. Attenuation of fibre strand -
- B. Removal of short fibres ✓
- C. Imparting twist in the fibre strand $\frac{1}{2}$
- D. Individualization of fibres X

✓

12. In a roving frame, if the boon is rotating at a higher speed than the flyer, as the winding progresses,

- A. Bobbin speed should increase consistently
- B. Bobbin speed should decrease consistently ✓ 1
- C. Bobbin speed should remain constant
- D. Flyer speed should remain constant

$$n_b = \omega_f$$

$$\alpha \propto n_b - \omega_f$$

$$\Delta n = \omega_b - \omega_f$$

3

$$\text{d}n_{\text{lin}} = \frac{\omega}{d} n_b - \omega_f$$

- ✓ 13. The approximate feed length (mm) of a cotton comber, with feed roller of diameter of 30 mm and 20 teeth of ratchet attached with feed roller shaft is:

- A. 3.6
- B. 4.7
- C. 5.5
- D. 5.9

$$2 \times \frac{30}{2} \times \frac{1.57}{3.14} \times \frac{1}{20}$$

$$\begin{array}{r} 1.57 \\ \times 3 \\ \hline 4.71 \end{array}$$

- ✓ 14. The feed per nip of a cotton comber is 6.9 mm with 16 teeth in the ratchet wheel of the feed roller. The approximate feed length (mm) with 20 teeth ratchet wheel is approximately,

- A. 3.6
- B. 4.7
- C. 5.5

1

$$\begin{array}{r} 1.72 \\ 6.9 \times 205 \\ \hline 16 \times \end{array}$$

$$\begin{array}{r} 1.72 \\ \times 5 \\ \hline 8.60 \end{array}$$

$$f_1 = \frac{20}{16} f_2$$

$$\begin{array}{r} 1.38 \\ 16 \times 6.9 \\ \hline 268 \\ = 1.38 \times 4 \\ \hline 5.52 \end{array}$$

- ✓ 15. In a rectilinear cotton comber, the detachment setting is 20 mm and the feed per nip is 5 mm. In case of backward feeding, a fibre with 23 mm length

- A. Always goes to the combed sliver
- B. Always goes to the comber noil
- C. May go to the combed sliver or comber noil
- D. Is detached without cylinder combing

$$0 \quad E + S_{1/2}$$

$$20 + S_{1/2}$$

$$22.5$$

$$23 > E + S_{1/2}$$

- ✓ 16. In a comber, the mass variation of combed sliver can be reduced significantly by

- A. Doubling a number of combed slivers in the drafting system
- B. Adjusting the deflecting volute
- C. Collecting the fibre web from one side in the web pan
- D. Removing higher percentage of short fibres

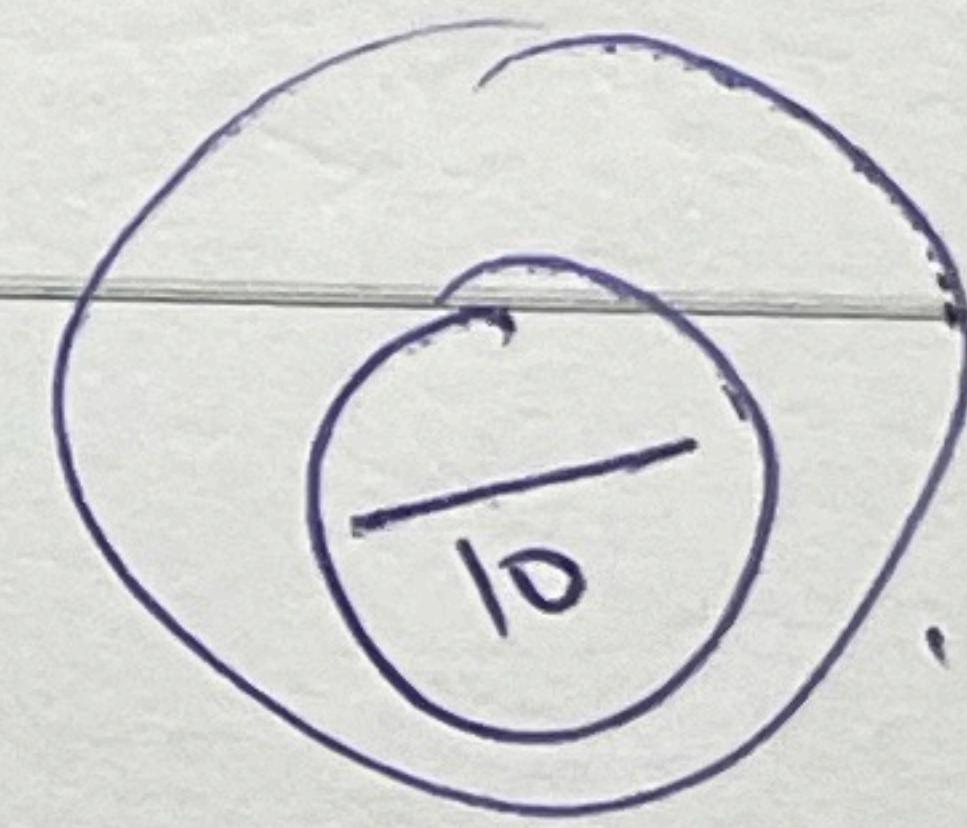
$$\frac{1}{2}$$

- ✓ 17. The ribbon lap machine leads to improved combing performance due to

- A. Formation of a stronger lap
- B. Formation of a lap with low longitudinal mass variation
- C. Formation of a lap with low cross-sectional mass variation
- D. Reduction of lap splitting

1

18. A false twister is used in the roving frame to
- A. Increase the twist in the roving
 - B. Increase the strength and compactness of roving
 - C. Reduce roving stretching/breakage at the winding point x
 - D. Reduce roving stretching/breakage near the front drafting rollers ✓
19. A roving frame has been switched on with the same flyer and bobbin speed (900 rpm) but in the opposite direction. The front drafting rollers' surface speed was maintained at 30 m/min and the bare bobbin diameter was 3 inches. Which of the following statement (s) is/are correct:
- A. Bobbin building is possible 1
 - B. Bobbin building is not possible
 - C. Bobbin building is possible at a very high winding rate
 - D. Bobbin building is possible at a low winding rate
20. In a speed frame, the flyer top has an internal diameter of 10 mm. The flyer is rotating at 1000 rpm and the delivery speed is 50 m/min. Considering roving diameter of 2 mm and no slippage between the roving and the flyer top, what will be amount of twist (turns per meter) in the unsupported length of roving between the drafting rollers and flyer top?
- A. 20 x
 - B. 100 o
 - C. 120
 - D. 10



..... End of Question Paper