

B.TECH. DEGREE EXAMINATIONS: NOVEMBER 2009

Fifth Semester

TEXTILE TECHNOLOGY

U07TT501: Process & Quality Control in Yarn Manufacture

Time: Three Hours

Maximum Marks: 100

Answer ALL the Questions:-

PART A (10 × 1 = 10 Marks)

1. Quality control is done at
 - A. Winding
 - B. Testing laboratory
 - C. Spinning and winding
 - D. All stages of yarn manufacturing

2. Statistical quality control is used for
 - A. Collecting statistics of quality data
 - B. Maintaining the quality at minimum cost
 - C. Provide quality data to general manager
 - D. Controlling the waste %

3. Maturity in cotton will
 - A. Increase the production
 - B. Improve the evenness of the yarn
 - C. Reduce the nep level in the yarn
 - D. Reduce the yarn realization

4. Blending irregularity is measured in
 - A. Uster evenness tester
 - B. Uster AFIS instruments
 - C. Polyester cotton blended yarn
 - D. 100% cotton yarn

5. Better yarn realization will
 - A. Improve the quality
 - B. Increase the selling price of the yarn
 - C. Reduce the cost of production
 - D. improve the production

6. Combing efficiency will be improved by
 - A. Increasing the efficiency of the machine
 - B. Improving the length of comber sliver
 - C. Increasing Noil %
 - D. Increasing the detaching roller setting

7. Count variation will increase if the
- A. Count is coarser
 - B. Higher yard to yard variation in lap
 - C. Higher yard to yard variation in drawing sliver
 - D. Higher U% in roving
8. Thick places in yarn will depend on
- A. Lap weight
 - B. Quality of carding
 - C. Cleaning of the ring frame
 - D. Fibre control during drafting
9. Production per spindle in ring frame will improve
- A. with Better evenness of yarn
 - B. With higher spindle speed
 - C. With better humidification system
 - D. Lesser thick and thin places in the yarn
10. Better machinery maintenance of machinery
- A. Will increase the waste
 - B. Improve the quality and production
 - C. Reduce the oil and grease consumption
 - D. Increase the speed of machine

PART B (10 × 2 = 20 Marks)

11. What is process control?
12. What do you understand by norms?
13. What is fibre quality index?
14. What is the object of blending?
15. What is yarn realization?
16. What do you understand by invisible loss during yarn manufacturing?
17. What is the importance of maintaining count during yarn manufacturing?
18. What is periodic variation?
19. Calculate production per spindle for a shift of 8 hours in 40^s carded count having the spindles speed of 15000 rpm, TPI of 28.6 and ring frame efficiency of 91%.
20. What is the use of a snap study in ring frame department?

PART C (5 × 14 = 70 Marks)

21. a). (i) . What factors to be considered while identifying process variable and product characteristic for process control. (4)

(ii). Give process variable and product characteristics to be considered in blow room, cards, draw frames, speed frames and ring frames. (10)

(OR)

b). (i). What is the role of quality control in yarn manufacturing? (6)

(ii). What is the meaning of ‘t’ test and ‘F’ test. Explain it with an example. (8)

22. a). (i). What is the object of mixing the cotton? (6)

(ii). What is the concept of fibre quality index and how you will use it to control the quality of mixing. (8)

(OR)

b). (i). Define nep and discuss the causes of nep generation. (7)

(ii). Discuss the any two of the online monitoring systems. (7)

23. a). A mill is producing 40^s combed yarn using the following mixing (14)

Variety	Mixing %	Trash Content in %
Shankar 4	50%	5.0
H4	30%	6.5
MCU 5	20%	4.8

While processing the mixing is having a trash content of 4.0% after step cleaner, 2.6% after ERM Cleaner, 1.8% after RKS beater, 1.5% in the lap and 0.3% in the card sliver. The mill is having a blow room line consisting of step cleaner, ERM cleaning, RKS beater and three bladed beaters. Calculating the cleaning of the blow room line, carding machine and individual cleaning points in blow room.

(OR)

- b). (i). What is combing efficiency? (4)
- (ii). How you will estimate the comber noil percentage. (5)
- (iii). How you will find out the card waste % in the carding department. (5)

- 24 a). (i). What is the importance of maintaining the count during yarn manufacturing? (4)
- (ii). What do you understand by with in bobbin and between bobbin counts variations and describe the method of assessing it in a mill. (10)

(OR)

- b). (i). Describe the yarn faults during yarn manufacturing. (6)
- (ii). How yarn faults are classified and assessed in Uster classimat analysis. (8)

25. a). (i). What is the use of productivity indices to a spinning mill? (7)
- (ii). Explain the role of maintenance in improving the machine productivity and quality. (7)

(OR)

- b). (i). Explain the role of humidity in improving the productivity and quality. (7)
- (ii). What is an end break in ring spinning? Describe the causes for the same. (7)
