



**B.TECH. DEGREE EXAMINATIONS: NOV/DEC 2023**

(Regulation 2018)

Third Semester

**TEXTILE TECHNOLOGY**

U18TXI3202: Yarn Manufacturing Technology I

**COURSE OUTCOMES**

- CO1:** Discuss the concepts and mechanisms of opening and cleaning of blowroom machines.  
**CO2:** Explain the principle and mechanism of fibre individualization in carding.  
**CO3:** Describe the concept of fibre parallelization in draw frame.  
**CO4:** Discuss the concept and mechanism in comber process.  
**CO5:** Explain the principle and working of speed frame.

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions: -**

**PART A (10 x 2 = 20 Marks)**

**(Answer not more than 40 words)**

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|--|-----------------------|
| 1. State the difference between Saw Gin and Roller Gin.  | CO1 [K <sub>2</sub> ] |
| 2. What are the main objectives of Blow Room process?  | CO1 [K <sub>1</sub> ] |
| 3. Where does “actual carding” take place? Explain the process in brief.   | CO2 [K <sub>2</sub> ] |
| 4. Provide two examples of additional carding devices and explain them in brief.   | CO2 [K <sub>1</sub> ] |
| 5. What are the various means by which top roller pressure is applied in Draw Frame. Also, state the ranges of shore hardness of top roller cots used. | CO3 [K <sub>2</sub> ] |
| 6. What are the “fibre material” factors affecting draft of a drafting arrangement in a Draw Frame?  | CO3 [K <sub>3</sub> ] |
| 7. List the functions of a Top Comb in Combing process.  | CO4 [K <sub>3</sub> ] |
| 8. Define the following terms: Combing Head, noil, semi-combed, combed, highly combed and super combed.  | CO4 [K <sub>2</sub> ] |
| 9. What are the functions of top and bottom aprons in the drafting zone of a Roving Frame?   | CO5 [K <sub>2</sub> ] |
| 10. Differentiate the terms- bobbin lead and flyer lead. Suggest which of these is preferred in short-staple spinning system.                          | CO5 [K <sub>2</sub> ] |

**Answer any FIVE Questions: -**

**PART B (5 x 16 = 80 Marks)**

**(Answer not more than 400 words)**

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|-----|----|---|----|-----|-------------------|
| 11. | a) | Explain with diagram, the functioning of Unimix   | 12 | CO1 | [K <sub>2</sub> ] |
|     | b) | What are various contaminants present in raw cotton? What is the recommended positioning of contaminant detectors in Blow Room?   | 4  | CO1 | [K <sub>4</sub> ] |
| 12. | a) | List out various objectives of a Carding machine.   | 2  | CO2 | [K <sub>2</sub> ] |
|     | b) | Explain with diagram, the operating principle of a Card.  | 14 | CO2 | [K <sub>2</sub> ] |
| 13. | a) | Explain 3-over-3 and 3-over-4 drafting systems used in Draw Frames with diagram   | 8  | CO3 | [K <sub>2</sub> ] |
|     | b) | Discuss open-loop and close-loop Autolevellers in the context of draw frame sliver control.   | 8  | CO3 | [K <sub>3</sub> ] |
| 14. |    | Discuss with diagram, the sequence of combing operation in a rectilinear comber.  | 16 | CO4 | [K <sub>4</sub> ] |
| 15. | a) | What is the function of False Twister and Presser Arm in flyer of a Roving Frame?   | 8  | CO5 | [K <sub>3</sub> ] |
|     | b) | Calculate Production of a Roving frame per shift of 8 hours in Kilograms from the following parameters:<br>Spindle Speed: 1200 rpm<br>TPI: 1.35<br>Roving Hank: 1.200 Nec<br>Efficiency: 85%<br>Utilisation: 450 min<br>No of spindles per machine: 252 | 8  | CO5 | [K <sub>3</sub> ] |
| 16. | a) | Explain with schematic block diagram, various components of a modern ginning unit.  | 8  | CO1 | [K <sub>2</sub> ] |
|     | b) | Explain with diagram, the functioning of Single Roller (McCarthy) Gin.  | 8  | CO1 | [K <sub>2</sub> ] |

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