



**B.E/B.TECH DEGREE EXAMINATIONS: NOV/DEC 2024**

(Regulation 2018)

Fourth Semester

**TEXTILE TECHNOLOGY**

U18TXT4001: Yarn Manufacturing Technology II

**COURSE OUTCOMES**

- CO1:** Explain the basic principles of different spinning system  
**CO2:** Compare the basic principles of different spinning system  
**CO3:** Plan the outline spinning system based on end use applications  
**CO4:** Calculate the production as well as draft of all the spinning systems  
**CO5:** Modern development in all spinning systems

**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. List out various components of a ring spinning drafting system.  | CO1 | [K <sub>1</sub> ] |
| 2. What are the various types of rings used in the ring spinning process?                                       | CO1 | [K <sub>2</sub> ] |
| 3. List two important yarn properties that are better with Compact spun yarn in comparison with ring spun yarn. | CO2 | [K <sub>2</sub> ] |
| 4. Which principle is used in making a compact spun yarn from RoCoS device?                                     | CO2 | [K <sub>2</sub> ] |
| 5. Discuss the end use applications of Rotor spun yarn.   | CO3 | [K <sub>2</sub> ] |
| 6. What is the purpose of Opening Roller in the rotor spinning process?   | CO3 | [K <sub>2</sub> ] |
| 7. Draw two-nozzle Airjet spinning system.  | CO4 | [K <sub>2</sub> ] |
| 8. What is compound yarn?   | CO4 | [K <sub>1</sub> ] |
| 9. What is a SIRO SPUN yarn?  | CO5 | [K <sub>2</sub> ] |
| 10. What is a fancy yarn?   | 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) Discuss various steps involved in the cop building mechanism in ring spinning.                                | 8 | CO1 | [K <sub>4</sub> ] |
| b) Explain the spinning drafting mechanism in detail. A 3 over 3 drafting system may be assumed for the explanation. | 8 | CO1 | [K <sub>3</sub> ] |

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|-----|----|--|---|-----|-------------------|
| 12. | a) | Discuss how spinning geometry helps in compact yarn formation with specific reference to spinning triangle, spinning angle, and spinning length.   | 8 | CO2 | [K <sub>5</sub> ] |
|     | b) | Illustrate the Suessen EliTex and EliTwist compacting systems.   | 8 | CO2 | [K <sub>3</sub> ] |
| 13. | a) | Explain the operating principle of Rotor spinning machine from feed to delivery.   | 8 | CO3 | [K <sub>3</sub> ] |
|     | b) | Discuss in brief automation possibilities in modern rotor spinning machines.   | 8 | CO3 | [K <sub>4</sub> ] |
| 14. | a) | Explain how yarn is produced from DREF 2000 friction spinning system. State a few applications where DREF yarn can be used.  | 8 | CO4 | [K <sub>3</sub> ] |
|     | b) | Describe Air Vortex Spinning (MVS). What is the maximum speed achieved with the current generation of machines?  | 8 | CO4 | [K <sub>3</sub> ] |
| 15. | a) | Explain the operating principle of two-for-one twister with diagram.   | 8 | CO5 | [K <sub>3</sub> ] |
|     | b) | Illustrate the yarn structure of BOBTEX multi component yarn and discuss how the yarn is manufactured.   | 8 | CO5 | [K <sub>4</sub> ] |
| 16. | a) | Calculate Production of a Ring frame per shift of 8 hours in Kilograms from the following parameters:<br>Spindle Speed: 18000 rpm; TPI: 34.5; Count: 60 Nec; Efficiency: 91%;<br>Utilisation: 470 min. Shift time: 480 min<br>No of spindles per machine: 1824 | 8 | CO1 | [K <sub>3</sub> ] |
|     | b) | Explain in brief the following modern developments: Auto doffer, Link Coner and ECOrized Suction Tube.   | 8 | CO1 | [K <sub>4</sub> ] |

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