



B.E/B.TECH DEGREE EXAMINATIONS: APRIL / MAY 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. What are the various types of spindle drive? Which among them is used as a norm currently? | CO1 | [K ₁] |
| 2. Why is a double apron drafting system with long bottom apron preferred over short bottom apron? | CO1 | [K ₂] |
| 3. Which yarn properties of compact yarn are found to be better than that of normal ring spun yarn and why? | CO2 | [K ₂] |
| 4. What are the major process improvements provided by compact yarn in the subsequent processes? | CO2 | [K ₂] |
| 5. List out the six major basic operations of a rotor spinning process. | CO3 | [K ₁] |
| 6. How automatic rotor cleaning is carried out? | CO3 | [K ₂] |
| 7. What are the three distinct operations of yarn formation in the friction spinning system. | CO4 | [K ₁] |
| 8. What is Core spun yarn? | CO4 | [K ₁] |
| 9. How is Two-for-one twisted yarn produced? | CO5 | [K ₂] |
| 10. Mention the principle of SIRO spinning process. | CO5 | [K ₂] |

Answer any FIVE Questions: -
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

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|-----|----|---|---|-----|-------------------|
| 11. | a) | Explain functional importance of spindle and various components of Spindle structure. What are the advantages with modern spindle shaft? | 8 | CO1 | [K ₃] |
| | b) | What are the various types of Rings? Mark flange and ring diameter in a ring profile. | 4 | CO1 | [K ₂] |
| | c) | Explain the process of fibre lubrication in rings. | 4 | CO1 | [K ₄] |
| 12. | a) | Discuss spinning geometry on yarn formation with specific reference to spinning triangle, spinning angle, and spinning length. | 8 | CO2 | [K ₅] |
| | b) | Illustrate the Rieter ComforSpin and RoCos compacting systems. | 8 | CO2 | [K ₃] |
| 13. | a) | Illustrate the opening unit functions of rotor spinning box including trash removal. | 8 | CO3 | [K ₃] |
| | b) | Discuss the functions of the following with diagram: fibre transportation to rotor, fibre deposition on the rotor and yarn formation and twist insertion. | 8 | CO3 | [K ₄] |
| 14. | a) | Explain how yarn is produced from DREF 3000 friction spinning system. State a few applications where DREF yarn can be used. | 8 | CO4 | [K ₃] |
| | b) | Describe how Air Vortex yarn (MJS) is spun? List out various advantages of Air Vortex yarn. | 8 | CO4 | [K ₃] |
| 15. | a) | Explain the operating principle of Bobtex spinning machine with diagram. | 8 | CO5 | [K ₃] |
| | b) | Explain the theory behind self-twisting yarn production. Describe in brief how Repco spinner operates. | 8 | CO5 | [K ₄] |
| 16. | a) | Explain with diagram the various thread guide devices-thread guide, balloon control ring and separator. | 8 | CO1 | [K ₃] |
| | b) | Describe the cop buildup mechanism. | 8 | CO1 | [K ₄] |
