



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

(Regulation 2018)

Fifth Semester

**FASHION TECHNOLOGY**

U18FTT5003: Knitting Technology

**COURSE OUTCOMES**

- CO1:** Recognize the weft knitted fabric production processes.
- CO2:** Outline the structure and properties of various weft knitted fabrics.
- CO3:** Acquire know ledge on the structure and properties of various advanced weft knitted fabrics.
- CO4:** Recognize the structure and properties and in warp knitting.
- CO5:** Recognize the Latest developments in warp knitting.
- CO6:** Acquire knowledge on the application of knitted structures for Technical Textiles.

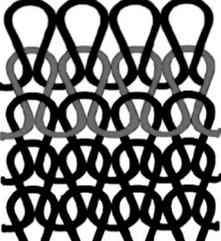
**Time: Three Hours**

**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. Why knitted garments are preferable for casual wear and activewear?  | CO6 | [K <sub>1</sub> ] |
| 2. Are yarn monitoring devices essential in a weft knitting machine?  | CO1 | [K <sub>3</sub> ] |
| 3. What is the relation between stitch length and the areal density of knitted fabric?  | CO1 | [K <sub>1</sub> ] |
| 4. Outline the needle gaiting procedure and possibilities of manufacturing a 1x1 rib structure from an interlock knitting machine.    | CO2 | [K <sub>2</sub> ] |
| 5. Summarize the salient feature of Ottoman Rib structure fabrics.  | CO3 | [K <sub>2</sub> ] |
| 6. Compare and contrast the benefits of seamless garments over seam finished garments.  | CO5 | [K <sub>2</sub> ] |
| 7. Name the appropriate knitting elements applicable for warp knitting and relate them with weft knitting.                            | CO4 | [K <sub>1</sub> ] |
| 8. Draw open and close loop warp knitted structure and write the principle to manufacture the same.                                   | CO4 | [K <sub>2</sub> ] |
| 9. How do the 'swing' and 'shog' actions of needle support and help to produce different varieties of Rachel warp knitted structures? | CO4 | [K <sub>2</sub> ] |
| 10. List the scientific improvement and technical developments materialized in the warp knitting machines.                            | CO5 | [K <sub>4</sub> ] |

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

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|-----|----|--|-----|-------------------|
| 11. | a) | Categorize the fundamental terms and their principles associated with knitted fabric and knitting machines. Explain each with suitable examples.   | CO1 | [K <sub>4</sub> ] |
|     | b) | Name a knitting machine that will be manufacturing open-width weft knitted fabrics that are used for garment collar and cuff applications. Draw the passage of the machine and explain each part with a suitable diagram.  | CO1 | [K <sub>3</sub> ] |
| 12. | a) | List the derivatives of weft knitted rib structures. Discuss the procedures and techniques for manufacturing half-cardigan and full-cardigan rib structures with suitable diagram.   | CO2 | [K <sub>3</sub> ] |
|     | b) | Analyze the following knitted structure and recommend the different knitting notations and representations available for it. Explain each notation and representation with suitable diagrams.  | CO2 | [K <sub>4</sub> ] |
|     |    |   |     |                   |
| 13. | a) | Calculate the production per shift of 8 hours for a 2x2 rib knitting machine from the following data:<br>Fabric width = 41 inches, GSM = 460, Yarn count = 24s, Stitch length = 2.90 mm,<br>Cylinder Dia = 32, Cylinder Gauge = 18, Cylinder RPM = 15,<br>No. of feeder = 62 and Efficiency= 80% | CO3 | [K <sub>5</sub> ] |
|     | b) | Design the anatomy of a full length sock. Elaborate on its manufacturing procedure and the significant importance of each part to maintain the proper shape and size.  | CO3 | [K <sub>6</sub> ] |
| 14. | a) | Explain the working principles of the Raschel warp knitting machine with a suitable diagram.   | CO4 | [K <sub>2</sub> ] |
|     | b) | Classify the five basic principles and methods to develop different types of warp knitted structures. Analyze the processes for developing the thread path notation diagram with a suitable diagram.   | CO4 | [K <sub>4</sub> ] |
| 15. | a) | What are the basic net opening structures that can be possible in warp knitting? Explain the principle and the method of manufacturing open net structure in Raschel warp knitting.  | CO5 | [K <sub>5</sub> ] |
|     | b) | Draw the thread path notation of 1 and 1 lap, 2 and 1 lap, 3 and 1 lap, 4 and 1 lap of tricot structure with guide bar movement. Also, write the procedure to attain the structures.   | CO5 | [K <sub>2</sub> ] |
| 16. | a) | Among the four major classifications of fabric manufacturing systems, prioritize the most relevant two systems for domestic and specific applications. Compare the two selected fabric manufacturing systems related to their manufacturing process, fabric properties and applications.         | CO6 | [K <sub>5</sub> ] |
|     | b) | Fabric defects directly influence the garment manufacturing process and performance. Justify and group the knitted fabric's defects. Suggest remedial action to minimize or rectify the fabric defects.  | CO6 | [K <sub>3</sub> ] |

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