



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

(Regulation 2018)

Fifth Semester

**FASHION TECHNOLOGY**

U18FTT5004: Sports Textiles

**COURSE OUTCOMES**

- CO1:** Acquire knowledge on the raw materials used in Sportswear manufacture.
- CO2:** Recognize the methods of manufacturing sportswear and its advancements.
- CO3:** Acquire knowledge of the comfort properties of Sportswear with respect to the types of sport.
- CO4:** Analyze the requirement of cold weather sports clothing.
- CO5:** Acquire knowledge on the material requirements of snow weather sport clothing.
- CO6:** Acquire knowledge on the smart, intelligent textiles and Sports accessories.

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**  
**PART A (10 x 2 = 20 Marks)**  
**(Answer not more than 40 words)**

- |   |     |                   |
|---|-----|-------------------|
| 1. Differentiate between absorbency and adsorbency property of textile fibers   | CO1 | [K <sub>3</sub> ] |
| 2. Illustrate the proportion of holes that constitute a mesh fabric and their role.                                       | CO1 | [K <sub>2</sub> ] |
| 3. Infer the need for compression clothing in sports like weightlifting and swimming.                                     | CO2 | [K <sub>2</sub> ] |
| 4. Predict the material constraints affecting the fabric choice, if it were to be used for welding process.               | CO2 | [K <sub>3</sub> ] |
| 5. Brief about the concept of biomimetics with an example.  | CO3 | [K <sub>2</sub> ] |
| 6. Illustrate the heat exchange mechanisms by which heat is transmitted from one material to another.                     | CO4 | [K <sub>2</sub> ] |
| 7. Conclude on what basis, textile materials are classified as poor conductors of heat.                                   | CO4 | [K <sub>4</sub> ] |
| 8. Infer the characteristics of penguin feather arrangement by which they are able to survive in snow weather conditions. | CO5 | [K <sub>2</sub> ] |
| 9. Classify the different types of Sports accessories   | CO6 | [K <sub>2</sub> ] |
| 10. List the characteristics of boxing glove.   | CO6 | [K <sub>2</sub> ] |

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

- |     |    |  |   |     |                   |
|-----|----|--|---|-----|-------------------|
| 11. | a) | Explain the contributing properties of textile fibers along with their expected functionalities in sportswear.   | 8 | CO1 | [K <sub>2</sub> ] |
|     | b) | Justify the preference for warp knit fabrics when it comes to sportswear design of sprinting Athletes in tropical conditions.  | 8 | CO1 | [K <sub>4</sub> ] |
| 12. | a) | Determine the process parameters for producing welded seams using heat with reference to hot air welding principle and its advantages over conventional seams.   | 8 | CO2 | [K <sub>4</sub> ] |
|     | b) | Compare the three types of Compression silhouettes with appropriate seam and stitch class used for their construction.   | 8 | CO2 | [K <sub>3</sub> ] |
| 13. | a) | Resolve the factors affecting thermal balance & fluid balance in the human body and describe the thermal strain indices considered in sports clothing design.  | 8 | CO3 | [K <sub>4</sub> ] |
|     | b) | Conclude the different Liquid moisture and vapor transport management techniques applied in clothing by way of choosing the following textile parameters: Fiber fineness, filament shape and fabric structure. | 8 | CO3 | [K <sub>4</sub> ] |
| 14. | a) | Write a note about the phenomenon of thermal resistance of a fabric material and justify how layering concept contributes to thermal insulation.   | 8 | CO4 | [K <sub>2</sub> ] |
|     | b) | Elaborate about the functions of a 2 layered cold weather sports jacket.   | 8 | CO4 | [K <sub>2</sub> ] |
| 15. | a) | Determine the material choices used in different layers and outer shell layer of extreme cold weather jackets used in trekking mount Everest peak.   | 8 | CO5 | [K <sub>5</sub> ] |
|     | b) | Conclude the factors affecting the design of professional cross country skiing outfit where speed of skiing is given prime importance  | 8 | CO5 | [K <sub>4</sub> ] |
| 16. | a) | Give an account of the protective functions and comfort functions considered in cyclist helmet design.   | 8 | CO6 | [K <sub>2</sub> ] |
|     | b) | Analyze the characteristics of scuba diving mask with reference to the functional roles of each component.   | 8 | CO6 | [K <sub>4</sub> ] |

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