



B.TECH DEGREE EXAMINATIONS: NOV/DEC 2024

(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 reference to the types of sport.
CO4: Analyze the requirements of Cold weather sports clothing
CO5: Acquire knowledge on the material requirements of snow weather sports clothing
CO6: Acquire knowledge on 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)

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|---|-----|-------------------|
| 1. Interpret the phenomenon of moisture transportation in textile fibers. | CO1 | [K ₂] |
| 2. Classify the different types of fabric parameters which influences summer clothing | CO1 | [K ₂] |
| 3. Compare the properties of chain stitched seams and welded seams | CO2 | [K ₃] |
| 4. Interpret the principle of shape formation in whole garment knitting machine. | CO2 | [K ₂] |
| 5. Apprise the level of thermal conductivity in textile materials and the mode of heat dissipation through them. | CO3 | [K ₃] |
| 6. Interpret the phenomenon of water vapor diffusion and liquid moisture transport in fabrics. | CO3 | [K ₂] |
| 7. Brief about the physiological parameters used for thermal comfort monitoring in cold weather clothing. | CO4 | [K ₂] |
| 8. Choose the heat trapping principles applied in 2 layered cold weather clothing. | CO4 | [K ₂] |
| 9. Justify the difference in thermal insulation needs between high metabolic activity accompanied by high air speed and high metabolic activity accompanied by low air speed at high altitudes. | CO5 | [K ₂] |
| 10. Rank the below mentioned functions of swimming goggles in the order of priority. | CO6 | [K ₃] |
| i. Impact absorption, ii. UV protection, iii. Water repellent, iv. Resistance to corrosion, v. fit, vi. Crack resistance due to continuous exposure to flowing water | | |

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

11.	a)	Classify the different types of Sportswear and explain the four major functions of sportswear.	8	CO1	[K ₂]
	b)	Resolve the fiber parameters and fabric parameters which contribute to thermal comfort and breathability in sports garment.	8	CO1	[K ₂]
12.	a)	Predict the fitting requirements, fabric stretchability, the right stitch class and seam classes for the following sports with justification: i. Pole vault outfit, ii. Swimsuit and iii. Gym workout suit	8	CO2	[K ₃]
	b)	Welded seams are produced with qualities of Air tight and water impregnable, Predict the factors affecting the Air tight quality and water impregnability of welded seams.	8	CO2	[K ₃]
13.	a)	Elaborate on the role of active thermal regulation textiles and passive thermal regulation textiles in thermal regulation. Explain in detail any one for each category.	8	CO3	[K ₂]
	b)	Discuss about the factors affecting thermal balance in Sportswear	8	CO3	[K ₂]
14.	a)	Explain the three major functions of 2.5 layered Cold weather clothing with neat sketch	8	CO4	[K ₂]
	b)	Write a note on the four factors affecting transient heat transport to environment and discuss the formula used for calculating the thermal resistance of fabric material.	8	CO4	[K ₂]
15.	a)	The climbing conditions of the Mount Everest trekking team is given as follows <ul style="list-style-type: none"> • Altitude: 7,500 meters • Wind Speed: 12 km/h (moderate) • Temperature Range: -5°C to 3°C • Humidity: 30% (dry conditions) • Activity Level: High metabolic activity due to strenuous climbing Analyze the climber's clothing requirements in terms of number of layers required for thermal insulation, moisture transport, mobility, protection from cold winds and UV light.	8	CO5	[K ₄]
	b)	Resolve the Skiing clothing design requirements used for recreational purposes and highlight the material characteristics.	8	CO5	[K ₄]
16.	a)	Evaluate the helmet functions of Shell layer and inner lining layer that absorbs external impact forces in American football.	8	CO6	[K ₅]
	b)	Appraise the functional characteristics of Scuba diving mask components with a neat sketch.	8	CO6	[K ₅]
