

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

(Regulation 2018)

Fifth Semester

TEXTILE TECHNOLOGY

U18TXT5005: Protective Textiles

COURSE OUTCOMES**CO1:** Outline suitable textile materials in protective textiles**CO2:** Interpret the various protective textile products in defence**CO3:** Acquire on material, design and construction of ballistic protective textiles**CO4:** Interpret on types, finish and construction of chemical protective textiles**CO5:** Outline on other protective textiles used in military applications**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 the advantages of protective textiles. | CO1 | [K ₁] |
| 2. What are military combat clothing systems? | CO1 | [K ₂] |
| 3. Mention the specific density of glass and PTFE fibers. | CO2 | [K ₂] |
| 4. List the two important properties of thermal resistant gloves and aprons. | CO2 | [K ₂] |
| 5. What are the two conflicting requirements of ballistic protection materials? | CO3 | [K ₄] |
| 6. Which types of manufacturing techniques are used in ballistic helmets? | CO3 | [K ₃] |
| 7. Why non-porous materials are used in chemical/biological protection applications? | CO4 | [K ₂] |
| 8. What are nuclear protective fabrics? | CO4 | [K ₂] |
| 9. List the importance of radiation protective textiles. | CO5 | [K ₄] |
| 10. What types of fabrics are used in clean rooms textiles? | 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) Describe the classifications of protective textiles with examples. | 8 | CO1 | [K ₁] |
| b) Elaborate the importance and material selections for camouflage textiles. | 8 | CO1 | [K ₁] |
| 12. a) Explain the thermal behavior of fibers for protective textiles. | 8 | CO2 | [K ₄] |

b)	List and explain the any one high strength fibers with its properties and suitability.	8	CO2	[K ₂]
13.	Analyze the fibers and fabrics preferred for ballistic protection textiles.	16	CO3	[K ₃]
14.	List and explain the materials preferred for chemical protective clothing.	16	CO4	[K ₁]
15.	Describe the materials preferred and property requirements for the development of protection against extreme climatic conditions textiles.	16	CO5	[K ₂]
16. a)	Describe the functional requirements of flame resistance properties of textile materials.	8	CO1	[K ₃]
b)	List the typical military textile and apparel items.	8	CO1	[K ₂]
