



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

(Regulation 2018)

Fifth Semester

**TEXTILE TECHNOLOGY**

U18TXT5005 : Protective Textiles

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- CO1:** Outline suitable textile materials in protective textiles.
- CO2:** Interpret the various protective textile products in defense.
- 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. What is the primary purpose of protective textiles?   | CO1 | [K <sub>1</sub> ] |
| 2. Differentiate UV from visible wave band.  | CO1 | [K <sub>2</sub> ] |
| 3. What are high-performance fibers, and why are they suitable for protective clothing?  | CO2 | [K <sub>1</sub> ] |
| 4. How do different fabric types in garment construction vary for various protective end uses, such as cold protection and ballistic protection? | CO2 | [K <sub>2</sub> ] |
| 5. What are the two main types of body armors, and how do they differ?   | CO3 | [K <sub>2</sub> ] |
| 6. Infer the primary working mechanism of soft body armor?   | CO3 | [K <sub>3</sub> ] |
| 7. Outline on any two types of chemical protective clothing and provide an application for each.   | CO4 | [K <sub>1</sub> ] |
| 8. Illustrate an example of a functional finish used to enhance chemical protection, and explain its function.                                   | CO4 | [K <sub>3</sub> ] |
| 9. What properties should high-visibility textiles possess for effective use?  | CO5 | [K <sub>1</sub> ] |
| 10. Justify that breathability an important property for UV protection textiles?   | CO5 | [K <sub>3</sub> ] |

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

11.	a)	Demonstrate the classification of protective textiles.	8	CO1	[K <sub>4</sub> ]
	b)	Discuss on camouflage textiles.	8	CO1	[K <sub>3</sub> ]
12.	a)	Explain the general requirements of properties of high performance fibers for protective textiles.	8	CO2	[K <sub>2</sub> ]
	b)	Explain on the chemical composition and physical structure of carbon and aramid fibers.	8	CO2	[K <sub>2</sub> ]
13.		Describe the properties of ceramic fibers for ballistic protection.	16	CO3	[K <sub>2</sub> ]
14.		Demonstrate the types of chemical protective clothing.	16	CO4	[K <sub>4</sub> ]
15.	a)	Illustrate on the protection against extreme climatic conditions.	8	CO5	[K <sub>2</sub> ]
	b)	Discuss on respiratory protection textiles.	8	CO5	[K <sub>3</sub> ]
16.	a)	Infer from the biological protection textiles.	8	CO5	[K <sub>4</sub> ]
	b)	Explain on the textiles meant for protection against radiation.	8	CO5	[K <sub>2</sub> ]

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