



B.TECH DEGREE EXAMINATIONS: NOV/DEC 2023

(Regulation 2018)

Seventh Semester

TEXTILE TECHNOLOGY

U18TXT7001: Technical Textiles

COURSE OUTCOMES

- CO1:** Describe the scope and classification of technical textiles.
- CO2:** Outline the fibres, yarns and fabric types used in technical textiles.
- CO3:** Classify the properties required for fabric constituent to use in Agro textiles, Geo textiles and filtration textiles.
- CO4:** Deduce role of textile materials in the medical textiles product development.
- CO5:** Outline the functions and various requirements of protective textiles, sports textiles and transportation textiles.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match list I with list II and select the correct answer using the codes given below:

CO1 [K₄]

List I <u>Applications</u>	List II <u>Technical Textiles division</u>
A. Paraglider fabrics	i. Mobiltech
B. Engine components	ii. Packtech
C. Nappies	iii. Medtech
D. Coffee bags	iv. Sporttech

- | | A | B | C | D |
|-----------|----------|----------|----------|----------|
| a) | iv | i | iii | ii |
| b) | iii | iv | ii | i |
| c) | ii | iv | iii | i |
| d) | iii | ii | i | Iv |

2. Infer and correlate the following items with the correct options given below, CO4 [K₄]
1. Collagen
 2. Casein
 3. Calcium alginate
 4. Chitin
- a) 1-Egg shell, 2-Laminariae, 3-Shrimps and 4-Bovine skin b) 1- Bovine skin, 2-Shrimps, 3- Egg shell and 4- Laminariae
- c) 1-Bovine skin, 2-Egg shell, 3-Laminariae and 4-Shrimps d) 1-Egg shell, 2- Bovine skin, 3-Laminariae and 4-Shrimps
3. Choose the fibre that has excellent abrasion resistance. CO2 [K₁]
- a) Polyester b) Polypropylene
- c) Fibreglass d) Polyamide
4. Identify the statements which are true about, “raw materials, characteristics and properties of the seat belt”. CO5 [K₃]
1. Soft and flexible - width direction
 2. Rigid - length direction
 3. Edges must be scuff resistant and resistant to UV degradation
 4. Initially seat belts were made from nylon, but now they are use polyester too.
- a) 1,2 b) 1,4
- c) 2,3 d) 3,4
5. Role of Geotextiles has been discussed in the following points, the set of correct statements are, CO3 [K₃]
1. Should be capable of filtering most of the soil particles carried in the runoff.
 2. Puncture and tear resistance to prevent damage by floating debris.
 3. Silt fences and silt curtains are sediment control systems.
 4. Silt fence is a permanent vertical barrier to prevent soil erosion.
- a) 1,2,3 b) 1,2,4
- c) 1,3,4 d) 2,3,4
6. Predict the manufacturer name, who are pioneer in manufacturing various sports textile products. CO2 [K₂]
- a) Vardhaman b) Lenzing
- c) Naiva d) Dupont
7. Determine the correctness of the following Assertion [A] & Reason [R] CO5 [K₃]
- Assertion (A): Chemical barrier properties are assessed by various types of tests.
- Reason (R): Three types of tests used for chemical protective fabrics: Degradation resistance, Penetration resistance and Permeation resistance

PART B (10 x 2 = 20 Marks)
(Answer not more than 40 words)

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|--|-----|-------------------|
| 11. Appraise on the phrase “Technotex in India”. | CO1 | [K ₃] |
| 12. Interpret on the camouflage textiles and its scope in army fields. | CO1 | [K ₂] |
| 13. Give the technical details of Breathable/Ventile fabrics. | CO2 | [K ₁] |
| 14. Outline the fabric properties required for agro textiles. | CO2 | [K ₁] |
| 15. Distinguish between water repellent and water-proof textile materials. | CO3 | [K ₁] |
| 16. What do you mean by Blinding of Filter Fabric? | CO3 | [K ₂] |
| 17. Write down the use of specialty fibres for medical wounds. | CO4 | [K ₁] |
| 18. Appraise on wound dressing materials. | CO4 | [K ₂] |
| 19. Name any four fibres used in upholstery application in car interiors. | CO5 | [K ₁] |
| 20. Pen down on textile reinforced composites in sports products. | CO5 | [K ₂] |

Answer any FIVE Questions:-
PART C (5 x 14 = 70 Marks)
(Answer not more than 300 words)

- | | | | |
|--|------|-----|-------------------|
| 21. a) Outline and explain the different sectors of technical textile. | (07) | CO1 | [K ₂] |
| b) Explore the National and International market scenario of Technical Textiles | (07) | CO1 | [K ₃] |
| 22. a) Discuss in detail about the medical textile fibres and their classification. | (07) | CO2 | [K ₂] |
| b) Pen down about the fibres and fabrics contribution in Technical Textiles. | (07) | CO2 | [K ₂] |
| 23. a) Elucidate with necessary diagrams, all technical details on Solid-Liquid Separation. | (07) | CO3 | [K ₃] |
| b) Discuss in detail about the functions of Geotextiles with all the suitable diagrams. | (07) | CO3 | [K ₃] |
| 24. a) Pen down the characteristics of textiles to be used as chemical protective jacket. | (07) | CO5 | [K ₃] |
| b) Elaborate on the survival textiles used in extreme hot and uncertain situations. | (07) | CO5 | [K ₃] |
| 25. a) Discuss in detail about the role of Alginate and Collagen fibres in medical textiles. | (07) | CO4 | [K ₃] |
| b) Describe the textiles used in soft tissue and cardiovascular implants. | (07) | CO4 | [K ₃] |
| 26. a) Enumerate the salient features of seat belt and air bag. | (07) | CO5 | [K ₃] |
| b) Discuss in detail about the design and properties of Bullet proof vest. | (07) | CO4 | [K ₃] |
