

22583

24225

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (8) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. Attempt any FIVE :

10

- (a) Define 'Non-woven'.
- (b) Draw flow-chart for manufacturing of non-wovens.
- (c) Define 'Technical Textiles'.
- (d) List down various essential properties of Geo-textiles.
- (e) State meaning of extracorporeal device. List down few examples.
- (f) List down requirement of polymers used for producing fibres and yarns intended to be used for producing medical textiles.
- (g) List down any four agro-textile products and state their functions.
- (h) State various types of raw materials used for production of technical textiles.

Write any two applications using the materials.



- 2. Attempt any THREE :** **12**
- (a) Give detailed classification of non-wovens.
 - (b) Explain the web formation process of non-woven manufacturing with the help of a neat diagram.
 - (c) List down different types of raw materials used for production of technical textiles. State essential characteristics they must possess for being eligible for usage in technical textile production.
 - (d) Elaborate 'Drainage' function of 'Geo-textile' with the help of a neat diagram.
- 3. Attempt any THREE :** **12**
- (a) List down polymer extrusion based technologies. Explain working principle of any one of them with the help of a schematic diagram.
 - (b) Explain historical background of non-wovens. Explain the characteristics of non-woven structures.
 - (c) Elaborate 'Filtration' function of a geo-textile with the help of a neat diagram.
 - (d) Give detailed classification of medical textiles.
- 4. Attempt any THREE :** **12**
- (a) List down various methods used for thermal bonding. Explain manufacturing of thermal bonded non-woven using any one thermal bonding method with the help of a neat schematic diagram.
 - (b) Elaborate characteristics and physical and chemical properties of fibers and yarns used for production of technical textile with help of an example.
 - (c) Explain the term Geo-grid, and Geo-net. Explain the type of raw materials used for manufacturing of the same. Elaborate the properties they must possess and give application of them.
 - (d) List down various types of implantable materials used in medical textiles. Explain raw materials used, desirable properties of raw material manufacturing process, application of any one of them.
 - (e) Explain raw material used, desirable properties of raw material, manufacturing process details and application of following agro-textiles :
 - (i) Anti-hailstorm net
 - (ii) Ground cover (Mulch mat)

5. Attempt any TWO :**12**

- (a) List down different fibers used for production of non-woven fabrics. State characteristics of different types of non-wovens. State applications of each type of non-wovens.
- (b) Elaborate needle punched non-woven fabric production with the help of a neat labelled diagram.
- (c) Explain types of fibers/yarns used, manufacturing process, desirable functional properties, end uses of following agro-textile products :
 - (i) Horticulture and floriculture
 - (ii) Animal Husbandry
 - (iii) Fishing and aquaculture
 - (iv) Harvesting nets
 - (v) Packing materials

6. Attempt any TWO :**12**

- (a) Elaborate types of fibres/yarns used, manufacturing process, essential properties of fabric, end uses of following geotextile products :
 - (i) Geo-composites
 - (ii) Geo-membrane
 - (iii) Geo-cell
 - (iv) Geo-mattress
 - (b) Explain types of fibres/yarns used, essential properties of raw material, manufacturing processes, end uses of various healthcare and hygiene products.
 - (c) Elaborate in detail raw material used, manufacturing process, end uses of following agro-textile products :
 - (i) Shade nets
 - (ii) Bird protection nets
 - (iii) Root ball net
 - (iv) Wind protection nets
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