

B.TECH. DEGREE EXAMINATIONS: NOVEMBER 2009

Fifth Semester

TEXTILE TECHNOLOGY

U07TT502 Nonwovens

Time: Three Hours**Maximum Marks: 100****Answer ALL the Questions:-****PART A (10 x 1=10 Marks)**

1. The Nonwoven is designated as wet laid if the fibrous content is
(A) Equal to 50% (B) More than 50% (C) Less than 50% (D) More than 30%
2. The world usage of fibres for non woven production is maximum for
(A) Polyester (B) Polypropylene (C) Viscose rayon (D) Polyamide
3. Air laid fabric exhibits isotropy in
(A) All directions (B) All directions except X direction
(C) Machine direction (D) Cross direction
4. Fibre produced by solvent spinning is
(A) Viscose rayon (B) Cellulose acetate (C) Tencel (D) Polyamide
5. 'Jet marking' is observed on nonwoven fabric which is made by
(A) Needle punching (B) Hydroentangling
(C) Stitch bonding (D) Melt blowing
6. Increased pressure on polymer molecules results in
(A) Higher melting temperature (B) Lower melting temperature
(C) No change in melting temperature (D) Change in glass transition temperature
7. Three dimensional pile on the surface of nonwoven fabric is produced by
(A) Singeing (B) Shearing (C) Flocking (D) Polishing
8. Fabric surface is physically modified by
(A) Plasma treatment (B) Microencapsulation
(C) Laser etching (D) Electrochemical
9. Sieving test is meant for measuring
(A) Pore volume (B) Pore surfaces
(C) Largest apparent opening size (D) Constriction pore size

10. Pore volume distribution is determined by

- (A) Porometry (B) Porosimetry (C) Image analysis (D) Calorimetry

PART B (10 x 2 = 20 Marks)

11. Polypropylene fibres are predominant in nonwoven production. Justify.
12. List out different mechanical web bonding methods.
13. Briefly write the role of worker and stripper in carding machine.
14. State the advantages of wet lay technology.
15. What is thermal bonding?
16. Give the characteristic properties of melt blown fabric.
17. How does the plasma treatment help in nonwoven finishing?
18. How is the shrinkage potential of nonwoven fabric reduced?
19. What are the structural classifications in stitch bonded fabric?
20. Define specific permeability of nonwoven.

PART C (5 x 14=70 Marks)

21. (a) (i) Give an overview of nonwoven manufacturing technologies. (7)
- (ii) Discuss in detail the products and applications of nonwoven fabrics. (7)

(OR)

- (b) (i) Give a detailed account on the fibres used with their specifications and consumption pattern in nonwoven production. (7)
- (ii) Elaborate the market structure and development of nonwoven fabric. (7)
22. (a) (i) Explain the mechanism of carding in nonwoven production with necessary diagram. (7)
- (ii) Discuss in detail the physical properties and practical applications of airlaid fabric.

(OR)

- (b) (i) Explain the preparations required for manmade fibres in wet lay process. (7)
- (ii) Describe different bonding systems employed in wet laid fabric production. (7)

D) Calorimetry

- (i) Explain the process of needle punching with necessary diagram. (7)
- (ii) Discuss in detail the applications of needle punched fabrics. (7)

(OR)

- (b) (i) Explain the melt blowing process technology with necessary sketches. (7)
- (ii) Discuss in detail the structure and properties of spun bonded fabrics. (7)

24. (a) (i) Describe the various wet processes employed for finishing nonwoven fabric. (7)
- (ii) Discuss in detail various chemical finishes applied on nonwoven fabrics. (7)

(OR)

- (b) (i) Describe different types of mechanical finishes followed in nonwoven fabric production. (7)
- (ii) Discuss in detail various surface finishing methods of nonwoven fabrics. (7)

25. (a) (i) Give a detailed account on structural parameters and mechanical properties of nonwoven fabrics. (7)
- (ii) Discuss in detail the fabric bond structure of needle punched fabrics. (7)

(OR)

- (b) (i) Give a detailed account on the influence of fibre orientation distribution on the properties of nonwovens. (7)
- (ii) Explain how the wetting characteristics of nonwoven fabric are determined. (7)
