

[Total No. of Questions - 9]
(2123)

[Total No. of Printed Pages - 2]

1392

B. Tech 5th Semester Examination

Non-Woven and Non-Conventional Fabric Manufacture (O.S.)

TE-5004

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt one question from section A, B, C and D. All questions of Section E are compulsory.

SECTION - A

1. Define Non-Woven fabric. Classify Non-Woven fabrics. Give a comparison of non-woven manufacturing process with other fabric manufacturing process. Briefly explain the different stages in non-woven manufacturing process. **(2+4+4+10=20)**
2. What are the properties derived in a binder? Explain factors determining adhesive characteristics. Briefly describe different types of binders with their chemical formulations. **(4+6+10=20)**

SECTION - B

3. Explain the problems faced in Air-laid process. Explain general properties of air-laid fabrics. Describe the working of a cross-lapper with diagram. Explain the wet-laid process with diagram. **(4+4+4+8=20)**
4. Explain the working of needle punching loom with diagram. Describe a felting needle with diagram. Explain the role of machine variable, fibre variables, fabric variables in determining the fabric characteristics. **(6+4+10=20)**

1392/150

[P.T.O.]

SECTION - C

5. Explain the essential characteristics of a binder used for thermal bonding process. Explain flow-through air bonding with diagram. Describe the characteristics of hydro-entangled fabric. Explain the advantage of spunlace process. **(4+6+6+4=20)**
6. Explain torsion bar picking mechanism with diagram. Explain the different stages in projectile weaving process with diagram. **(10+10=20)**

SECTION - D

7. Explain the problems faced in jet-weaving. Explain the working of weft supply system in a water jet loom with diagram. Explain the working of waterjet loom with diagram. **(4+8+8=20)**
8. Describe different types of rapier head drive with diagram. Explain the working of Dornier rigid rapier loom with diagram. **(10+10=20)**

SECTION - E

9. Attempt all questions.
- (i) Define dewar principle.
 - (ii) Give the dimension of a gripper.
 - (iii) Define positive let-off.
 - (iv) Explain profile reed.
 - (v) Define needling density.
 - (vi) Define leno-selvedge.
 - (vii) Define glass-transition temperature.
 - (viii) Define melt blown non-woven.
 - (ix) What is a web supporting substrate.
 - (x) Explain a gear pump. **(2×10=20)**