[Total No. of Questions - 9] [Total No. of Printed Pages - 2]
(2066)

16139(J)

B. Tech 6th Semester Examination

Theory of Textile Structure (NS)

TE-322 June-16

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 five questions in all, select one question from each sections A, B, C and D. Section E is compulsory.

SECTION - A

1. Explain different packing geometries in yarn. (20)

2. Derive the relationship

$$\boxed{v_y = \left(\frac{\tan^2 \alpha}{4\pi T_l T^2}\right) \times 10^5}$$ T is the twist level (turns per unit length), and α is the surface twist angle, v_y is the specific volume of yarn. (20)

SECTION - B

3. Explain how do you chacterize migration in yarn? Explain the fibre parameters responsible for migration. (20)

4. Explain extension of yarn under small load. Analyse of tensile forces of yarn under stress (20)

SECTION - C

5. Explain Pierce geometrical model and relationship between h, p, c. (20)

[P.T.O.]

6. Explain the following:

   (a) Crimp interchange, (b) Jammed Structure, (c) concept of similar cloth. (20)

SECTION - D

7. What do you understand by 'Drape' of a fabric? Describe the method of measurement of 'Drape Co-efficient' by Cussik's Tester. (20)

8. With reference to fabric bending testing, write the formulae for 'Bending Length' and 'Flexural Rigidity'. In the above testing, why the angle used is 41.5°? (20)

SECTION - E

9. (i) Define cover factor.

   (ii) Define drape coefficient.

   (iii) Define bending rigidity of yarn.

   (iv) Define bending length of a fabric.

   (v) Define specific volume of yarn.

   (vi) Define packing fraction.

   (vii) Define Twist multiplier.

   (viii) Define twist angle.

   (ix) Define zero gauge length.

   (x) Define index of blending irregularity. (2×10=20)