[Total No. of Questions - 9] [Total No. of Printed ges - 4]
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16058(D) - 0 DEC 2016

B. Tech 3rd Semester Examination

Fabric Manufacture-I (NS)

TE-214

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 : The question paper consists of five sections A, B, C, D and E. The candidates are required to attempt five questions in all selecting one question from each of section A, B, C, D. and all the subparts of the questions in Section E.

SECTION - A

1. (a) Classify winding machines on the basis of mode of package rotation. Discuss any two types along with their merits and demerits. (2+4+4=10)

   (b) State the principle of two disc type tensioner in both additive and combined modes. (4)

   (c) The same yarn is wound through two different types of tensioners A and B at the same winding speed. The measured output tension (T_0) values at two different input tension (T_i) values for both the tensioners are given in below table. Assess the performance of each tensioner and suggest the type of tensioner in each case.

T_i (gms)	T_0 (gms)	
	A	B
10	21	21
15	26	26.5

(6)

2. (a) Discuss the function of yarn tensioner, yarn clearer and unwinding accelerator. How the patterning in Drum winding machine can be avoided? (6+4=10)

   (b) A 30 tex yarn is to be wound into a cheese of 125 mm traverse length in a random winding machine having drum diameter of 100 mm. The empty and full package diameter is to be kept at 40 mm and 200 mm respectively. If the angle of wind is (angle between two crossing yarns in the package) 29.7°, package density is 0.5gm/cc and drum speed is 3500 r.p.m., calculate

   (i) the drum scroll required for full package.

   (ii) the length of yarn in a full cheese.

   (iii) the time required to build a cheese at 100%. (10)

SECTION - B

3. (a) What do you understand by the term weavability of yarns and list the various weaving stresses and strains that might affect it. Hence highlight the importance of sizing through a typical sizing-weaving curve. (4)

   (b) 1000 lbs of oven dry unsized cotton warp is to be sized in a Slasher sizing machine at a size pick up of 120% and size percentage of 12%. Given, the M.R.% of the unsized warp is 8% and that required in the dried sized warp is 8.5%. Calculate the total steam required in lbs for drying the warp if the specific steam consumption of the dryer used is 1.6. (6)

   (c) Discuss the steps of sectional warping with a suitable example. State its merits, demerits and application area. (10)

4. (a) Define the term size pick up and size percentage. Explain the effect of viscosity, size concentration, condition of the squeeze roller and size roller nip on the above two parameters. (12)

   (b) Discuss about the different types of creel available for warping machine. (8)

SECTION - C

5. (a) Define primary motions of a loom. (6)

   (b) Draw a loom timing diagram showing the primary motions for early and late shedding. (6)

   (c) Distinguish between knotting and splicing techniques which are applied in drawing-in warp threads. (8)

6. (a) Explain different types of shed along with their advantage and disadvantages. (10)

   (b) What are the different types of heald wires used in drawing-in department? Explain their advantages and disadvantages and specific use. (10)

SECTION - D

7. (a) Explain the disadvantages of shuttle picking. (6)

   (b) Draw the shuttle velocity curves during checking and explain different zones in the curve. (6)

   (c) Explain cone underpick mechanism with neat sketch. (8)

8. (a) What is sley eccentricity? Discuss the advantages and disadvantages of high sley eccentricity ratio. (8)

   (b) What is the position of crank shaft at half maximum displacement if eccentricity ratio is 0.2? (8)

   (c) Write a short note on shuttle checking device. (4)

SECTION - E
(All question are compulsory)

9. (a) A cotton yarn of 20 Ne has a fault area of length 6 cm and count 10 Ne. Under which grade of Uster Classimat system will you place it?

   (b) The objective of sizing zero twist and low twist continuous filament yarn.

   (c) Define clearing efficiency and write down the typical values for mechanical and electronic type clearer.

   (d) What do you mean by sley dwell?

   (e) State the function of traverse reed used in sectional warping machine.

   (f) What is the function of traverse reed used in sectional warping machine?

   (g) Why do we go for Heald Staggering?

   (h) PVA is preferred in blend with starch for sizing of warp meant for shuttleless weaving - Why?

   (i) What is reed count and heald count? Give examples.

   (j) What are the reasons of shuttle trap in the shed? (10×2=20)