[Total No. of Questions - 9] [Total No. of Printed Pages - 3] (2064)

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B. Tech 6th Semester Examination

Knitting Technology

TE-6002

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 any one question each from sections A, B, C and D. Answer all subparts of section E which is compulsory. Use of non-programmable calculators is permitted.

SECTION - A

1. Enumerate in details, the manufacturing process and properties of woven and knitted fabrics. (20)

2. Give a comparison of warp and waft knitting processes and properties of fabrics manufactured. Also mention a few end uses of fabrics produced in each process. (20)

SECTION - B

3. (a) What are the features of an interlock fabric? (3)

   (b) Describe the functions of different parts of bearded needle with appropriate sketch. (5)

   (c) Draw two repeats of 2×2 rib fabric giving notations of loop diagram and graphic representation. (3)

   (d) How many cam tracks are used in dial and cylinder of an interlock machine? Justify your answer. (3)

(e) What are the different types of stop motions used in a circular knitting machine? Write their functions. (6)

4. (a) Elucidate the knitting action of a plain single jersey circular knitting machine with diagrams. (8)

(b) How float stitch can be manufactured? Draw a neat sketch of a float stitch and describe its features. What are its utility in a knitted fabric? (8)

(c) Draw the complete notation of loop diagram of a pique structure. (4)

SECTION - C

5. (a) Enumerate the principle and function of a positive feed. Device with an appropriate sketch. (6)

(b) A wet-relaxed plain knitted fabric is made from 30 tex yarn, has a stitch length of 3.2 mm and k_s value 2160. Estimate areal density of fabric in SI unit. (6)

(c) Calculate the length of fabric manufactured on a plain single jersey machine knitted at 16 courses per cm on a 20 gauge, 30 inch diameter machine having 100 feeders. The machine operates for 8 hours at 30 rpm and 90% efficiency. Also calculate the width of the fabric. (5+3=8)

6. (a) With a line diagram describe the passage of yarn and fabric through a hand operated flat V-bed machine. (10)

(b) Elucidate the concept of loop length in knit structures as developed by Doyle and Munden. Then develop the relationships: Courses per inch = k_c/l and Wales per inch = k_w/l. (8)

(c) If a plain fabric is produced with 30 tex yarn and 3.0 mm stitch length, estimate its tightness factor. (2)

SECTION - D

7. (a) Explain the knitting action of Tricot warp knitting machine with suitable diagram. (10)

   (b) Draw lapping diagram and write the features of following warp knitted fabrics:

   (i) Reverse locknit, (ii) Sharkskin (10)

8. (a) Enumerate the functions of chain links and their numbering systems in formation of warp knitted structures. (10)

   (b) Describe, in details the features and differences between Tricot and Raschel machines. (10)

SECTION - E

9. Answer the following questions in brief:

   (a) What is 'laddering effect' in plain knits?

   (b) Draw the notations of full cardigan structure.

   (c) State the function of beard in a bearded needle.

   (d) Draw the notation of loops in 'Punte di-Roma' structure.

   (e) What do you understand by 3-way technique?

   (f) What are the principal features of pure fabric?

   (g) What is a guide bar and what are the different motions given to it?

   (h) Name four products of warp knitting process.

   (i) What is the phenomenon of 'Press off' in circular knitting machine?

   (j) State the functions of a raising cam. (2×10=20)