Roll No. ......................       Total Pages : 4

**BT-6/M-20**                          **36140**

KNITTING TECHNOLOGY
Paper–TT-308 N

Time : Three Hours]                    [Maximum Marks : 75

**Note :** Section-A (Question No. 1) is compulsory. Answer any
*one* question from each of the remaining four sections.
All questions carry equal marks.

### SECTION–A

1. (a) Draw the structure of a weft knitted loop and label its
parts.

   (b) Distinguish between 'rib gaiting' and 'purl gaiting'.

   (c) Define the term 'machine pitch'.

   (d) State the function of the sinker ring used in single jersey
weft knitting machines.

   (e) Draw a typical sinker used in raschel warp knitting
machines and state its function.

   (f) Define the term 'feeder density' and give its typical
range.

   (g) Give the square paper notations of knitted loop stitch,
tuck stitch and float stitch.

   (h) State what is meant by the term 'balanced structure' in
weft knitted fabrics?

   (i) Draw the point paper notation of 'eightlock' weft knitted
structure.

(j) Define the terms 'wale density' and 'course density'.

(k) State the 'law of amplification' related to weft knitted fabric geometry.

(I) Mention and describe any *one* knitted fabric defect.

(m) Mention any *two* yarn quality requirements for knitting.

(n) State whether True or False : 'Presser bar is used in tricot warp knitting machines'.

(o) State whether True or False: 'overlap followed by underlap in the opposite direction gives open lap'. 15

## SECTION–B

**2.** Give a comparison between knitted and woven fabrics processes, machinery and fabric properties. 15

**3.** Draw a typical straight stem latch needle and give the function of the different parts of the needle. Hence, by the help of suitable diagrams discuss the knitting cycle of latch needle in weft knitting machines. 15

## SECTION–C

**4.** (a) Discuss the structure and production of tuck stitch. Explain its effect on fabric properties and give its uses.

10

(b) Explain the phenomenon of 'laddering' in plain knit structures. 5

**5.** Discuss by the help of suitable diagrams the structure and production of purl weft knitted fabrics. 15

## SECTION–D

**6.** (a) Derive suitable mathematical expressions for fabric width, fabric areal density in grams/m$^2$ and fractional cover for plain weft knitted fabrics. Hence, define the term tightness factor and state its significance. 10

(b) Estimate the wales per cm and courses per cm for a fully relaxed plain weft knitted fabric with a stitch density of 220 per cm$^2$. Assume standard *k*-values for your calculation. 5

**7.** (a) Explain the three relaxed states of knitted fabrics and the associated structural changes in the fabric. Hence, give the relationships between the *k*-values and the different fabric constructional parameters for a relaxed plain knitted fabric. 7

(b) Calculate the productivity in number of courses per minute and the production in meters per hour of a plain circular weft knitting machine producing plain fabric with 16 courses/cm at 85% running efficiency. Consider the total number of feeders to be 66 and the machine speed to be 25 rpm. 8

## SECTION–E

**8.** (a) Give a comparison between Raschel and Tricot warp knitting machines. 6

(b) Give a brief description of the different knitting elements in a tricot warp knitting machine. 9

**9.** (a) Discuss the knitting cycle of a Raschel warp knitting machine by the help of suitable diagrams. 12

(b) Discuss the structure and properties of 'Sharkskin' warp knitted structure. 3

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