



Study Programme : Bachelor of Industrial Studies Honours
Name of the Examination : Final Examination
Course Code and Title : **TAX4441 - Knitted garment Technology**
Academic Year : 2023/2024
Date : 19th February 2025
Time : 0930-1230hrs
Duration : **3 hours**

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **Eight (8)** questions in **Five (5)** pages.
3. Write down your Index Number in all the pages of answer scripts.
4. Answer the question one (Q1), which is compulsory and five (05) more questions from Q2 to Q8. Question one (Q1) carries 25 marks and questions two (Q2) to eight (Q8) carry fifteen (15) marks each.
5. Answers to each question should commence on a new page. If a question has many parts, all the parts should be answered in the chronological order under the same question.
6. Write down the answered question numbers on the answer book.
7. Answers should be in clear hand writing.
8. Do not use red colour pens to write the answers.

Compulsory Question

(Q1)

- a) What do you mean by "Blank" under cut stitch shaped garment manufacturing method? (02 marks)
- b) Write three (03) functions of a sinker. (03 marks)
- c) What are the two (02) main inherent disadvantages of plain knit fabrics. (02 marks)
- d) Draw the point paper notation and yarn path diagram for "Purl Moss" stitch. (02 marks)
- e) Write the two (02) guide bar motions used to deliver the yarns to the needles in warp knitting. (04 marks)
- f) A warp knit fabric initially has 18 wales/cm and 35 courses/cm with a stitch length of 2.5 cm. If an identical fabric is produced with 22 wales/cm and 40 courses/cm, what would be the new stitch length? (03 marks)
- g) Name any of three (03) relaxation states of knitted fabrics. (03 marks)
- h) Describe one (01) key difference between one-way spreading and two-way spreading. (02 marks)
- i) State the purpose of incorporating the following elements in the sequence of the fully fashioned garment piece knitting process? (02 marks)
- i) Locking courses
 - ii) Draw thread
- j) State the difference between British standard and Federal standard definitions on seams. (02 marks)

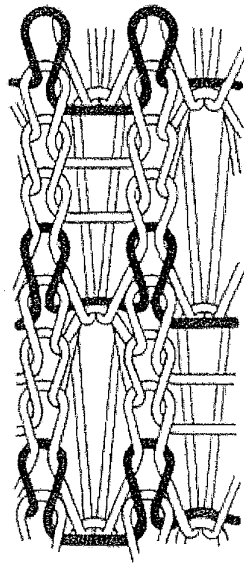
Answer any five (05) questions from the following seven (07) questions

(Q2)

- a) Define warp knitting and weft knitting and provide loop diagrams to illustrate each. (04 marks)
- b) Briefly explain why pillar lapping alone does not result in fabric formation in warp knitting. (03 marks)
- c) Compare and contrast **Fully Cut and Sewn Garments** with **Fully Fashioned Garments** in terms of production method, production rate, labor involvement and fabric waste. (08 marks)

(Q3)

- a) Briefly explain the loop formation process using a latch needle, outlining the key steps with suitable diagrams. (08 marks)
- b) Draw the point paper notation and yarn path diagram for the following loop diagram. (07 marks)



(Q4)

Imagine you are tasked with knitting a plain knitted fabric that will be wet finished to a 50 cm tubular width. Use a knitting machine with a 48 cm diameter and a needle density of 6 needles/cm. And also you are given that the relaxation constants k_s , k_c and k_w are 2160, 53 and 41 respectively in metric system.

Calculate;

- i) The stitch length (06 marks)
- ii) Area density of the fabric (06 marks)
- iii) The required length of yarn to produce 1500m² assuming the wastage of 5% of yarn, during manufacturing & the count of the yarn is 60Tex (03 marks)

(Q5)

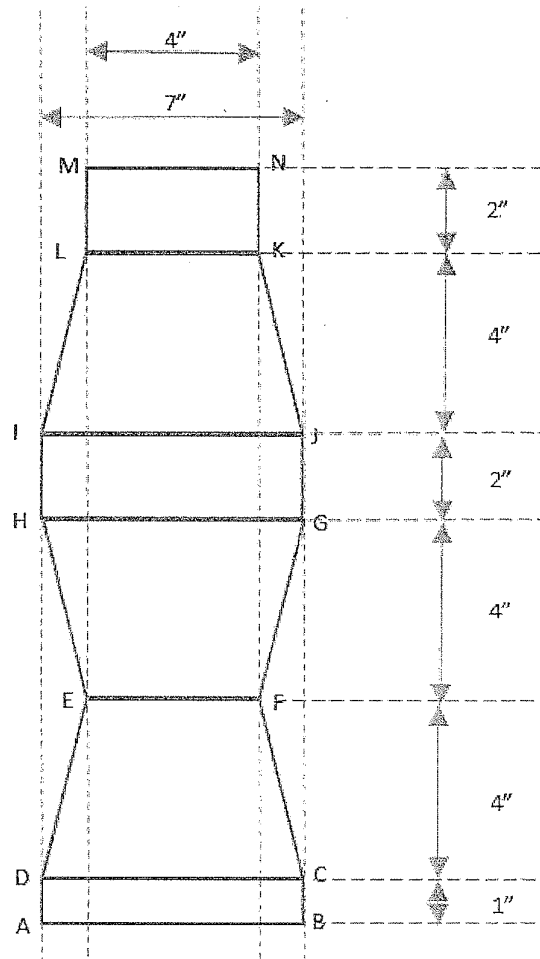
- a) Briefly explain three (03) precautions that should be taken when spreading knitted fabrics (06 marks)
- b) Briefly describe (04) advantages of computerized methods over manual methods in marker making? (04 marks)
- c) Briefly describe the problem of fused cut fabric edges and mention two (02) steps to minimize this issue. (05 marks)

(Q6)

- a) Compare the production parameters of flat knitting machines and circular knitting machines in the production of blanks for cut stitch-shaped garments focusing on fabric waste and size flexibility. (06 marks)
- b) State four (04) techniques practiced to shape the fabric in the production of integral garments. For any of those two (02) techniques, briefly explain the method of shaping, its purpose and how it contributes to the garment's design. (09 marks)

(Q7)

Imagine you are designing a fully fashioned garment component, as shown in the diagram below. The fabric specification requires 20 courses per inch and 15 wales per inch. Based on these specifications, prepare a knitting statement for the garment component ensuring that all the calculations are clearly shown. (15 marks)



(Q8)

a) Briefly describe how linking machines and cup seaming machines join knitted garment pieces, focusing on how each machine handles the fabric during the joining process. (06 marks)

b) In the context of designing knitted athletic wear, select the appropriate sewing stitch category for each application below, providing a brief justification for your selection for each. (09 marks)