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The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Textile and Apparel Technology

Study Programme	: Bachelor of Industrial Studies Honours
Name of the Examination	: Final Examination
Course Code and Title	: **TAX4441/TAX4542/TTX4242 Knitted Garment Technology**
Academic Year	: 2019/2020
Date	: 13th October 2020
Time	: 13:30-16:30
Duration	: 3 hours

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of Eight (08) questions in Five (05) pages.
3. Write down your Index Number in all the pages of the answer script.
4. **Answer compulsory question one (Q1) and additional five (05) questions.**
5. Question one (Q1) is compulsory and carries twenty five (25) marks.
6. Question two (Q2) to eight (Q8) carry fifteen (15) marks each.
7. Answer for 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.
8. Write down the answered question numbers in the space given in the answer book.
9. Answers should be in clear hand writing.
10. Do not use red colour pen.

Compulsory question

(Q1)

a. Draw the yarn path diagrams and point paper notations of one repeat of the following weft knitted structures. (02 Marks)

   i. 2x2 rib structure

   ii. Purl structure

b. Briefly explain how the following stitches are introduced to weft knitted structures. (02 Marks)

   i. Float stitch

   ii. Tuck stitch

c. Briefly explain how you calculate the stitch length of a 1 x 1 rib fabric sample. (02 Marks)

d. Define the following terms related to warp knitting. (03 Marks)

   i. Rack

   ii. Run-in

   iii. Stitch length

e. Briefly explain the differences between garment panels of woven and knitted fabrics. (03 Marks)

f. State four (04) types of cutting equipment that are employed to cut knitted fabrics. (02 Marks)

g. Explain the following fashioning statement and calculate the angle of the fabric shape. (03 Marks)

   - 7 fashioning x 3 courses x 2 loop spaces with one loop transfer

h. Explain how sewing thread tension affects the stitch formation and the quality of knitted garments. (03 Marks)

i. With the use of suitable diagrams, briefly explain the following terms related to fully fashion garment production method.

   i. Panel Widening

   ii. Panel Narrowing (03 Marks)

j. Draw lapping diagram for the guide bar movements represented by the following chain notation. (02 Marks)

   i. 1-0/1-2

   ii. 1-1/0-0/2-2

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

(Q2) (a) Compare warp knitting and weft knitting considering at least five (05) features. (07 Marks)

(b) Compare "Cut stitch shaped" and "Fully-fashioned" garment production methods highlighting their advantages and disadvantages. (08 Marks)

(Q3) (a) Describe the functions of sinkers. (05 Marks)

(b) Compare the most important stages of loop formation (knitting actions) performed by **latch** and **bearded** needles. Use suitable diagrams where necessary. (10 Marks)

(Q4) (a) Finished relaxed plain knitted fabric made from 38 Tex worsted yarns is having an average stitch length of 3.1mm. Calculate the following parameters if the relaxation constants, K_c and K_w are 56 and 42.2 respectively in metric units.

i. Courses per centimeter (02 Marks)
ii. Wales per centimeter (02 Marks)
iii. Stitch density (02 Marks)
iv. Area density of the fabric (02 Marks)
v. Cover factor (02 Marks)

(b) A warp knitted fabric "A" was produced with 20 wales/cm and 35 courses/cm. The stitch length of fabric A is 2.1cm. If an identical fabric "B" was produced with 15 wales/cm and 32 courses/cm, what would be the stitch length of fabric B? (05 Marks)

(Q5) (a) Compare the below given properties of "Plain" and "Interlock" knitted fabrics.

a. Appearance of the technical face and back of the fabric
b. Extensibility in wale direction and course direction
c. Thickness and warmth
d. Ability to unravel a yarn
e. Edge curling (10 Marks)

(b) Draw the point paper notation and yarn path diagram for the following loop diagram (Figure 1). (05 Marks)

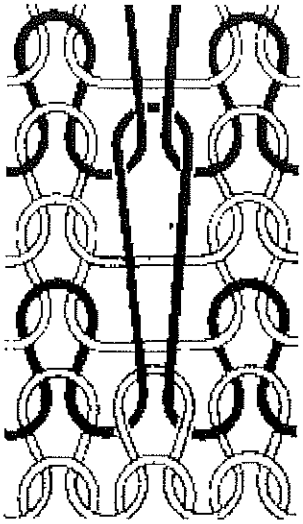

Figure 1

(Q6) (a) Explain the important knitting stages of a compound needle used in warp knitting. (10 Marks)

(b) Draw lapping diagrams and guide bar threading diagrams for the guide bar movements represented by following chain notations to produce a warp knitted fabric.

a. Front bar chain notation 1-0/1-2/2-3/2-1
b. Back bar chain notation 2-3/2-1/1-0/1-2 (05 Marks)

(Q7) (a) Explain the factors to be considered and recommended during each of the following production stage of knitted garment production.

i. Pattern making
ii. Spreading
iii. Cutting (09 Marks)

(b) Explain how assembling of knitted garment panels are performed by **cup seaming machine**. (06 Marks)

(Q8) Prepare a knitting statements for the knitting of the fully-fashioned garment component shown in the Figure 2.

Courses per inch = 25

Wales per inch = 18

The requirements are given below in the diagram. Calculate and write the fashioning statement to achieve the given fabric sample. (15 Marks)

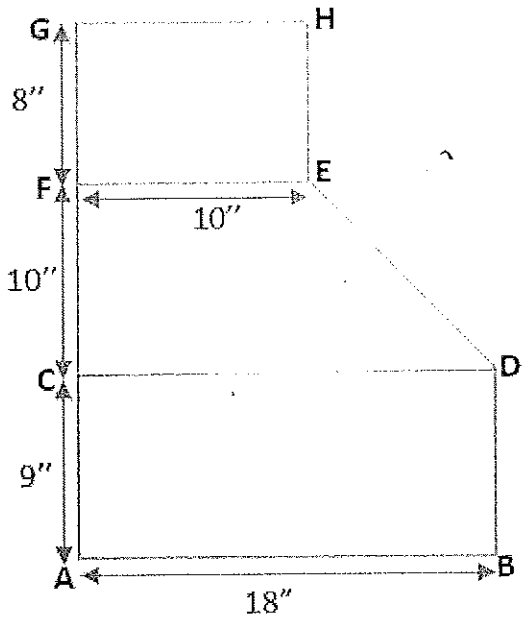

Figure 2