THE OPEN UNIVERSITY OF SRI LANKA

DIPLOMA IN INDUSTRIAL STUDIES

FINAL EXAMINATION - 2006/2007

TTX4242 KNITTED GARMENT TECHNOLOGY 047

DURATION - THREE HOURS

DATE: 04 March 2007 TIME: 0930 - 1230 Hours

**Total Number of Questions = 10** **Number of Questions to be answered = 06**

**Answer Question 1, which is compulsory and additional five (05) questions.**

**Question 1 carries twenty-five (25) marks and Questions 2 to 10 carry fifteen (15) marks each.**

01. a. Draw a simple diagram of a latch needle and name the parts of the needle. (03 marks)

b. Briefly explain how opening and closing of hook is realised in a compound needle. (03 marks)

c. What is the difference between a full cardigan and half cardigan fabrics? (02 marks)

d. Briefly state how the loop length of a knitted fabric could be determined. (02 marks)

e. With suitable diagrams explain the various spreading methods that are used with respect to knitted fabrics. (03 marks)

f. To obtain quality fabric panels, it is necessary to fulfil certain requirements. What are these requirements? (03 marks)

g. How are the wales of purl stitch different to the wales of other knit stitches? (03 marks)

h. What are the two ways by which panel widening could be done in fully fashioned knitted garments? (02 marks)

i. Write two reasons for which welts are knitted on garment panels. (02 marks)

j. Which is the most suitable stitch type that can be used for sewing two knitted fabrics together? Why? (02 marks)

02. a. With suitable diagrams explain the steps involved in formation of knitted loops, when bearded needles are used. (08 marks)

b. Draw the diagram of a cam box used in flat knitting machine and indicate how a normal stitch, a tuck stitch and a miss stitch are formed. (07 marks)

03. a. Explain the difference between the process of producing rib fabrics and interlock fabrics in a circular knitting machine inclusive of the needle and cam arrangements. (09 marks)

b. Draw the lapping diagram of the following warp knit structures. (06 marks)

i. Front Bar = 2-3/1-0 Back Bar = 1-0/1-2

ii. Front Bar = 2-0/0-2 Back bar = 6-6/0-0

04. a. A wet relaxed plain knitted fabric is made from 40 tex yarn. If the stitch length is 5 mm, estimate the area density of the fabric. Consider $K_s$ to be 2160.

(04 marks)

b. A knitter wishes to make a fabric on a particular machine so that it has a specified width and area density after wet treatment. The details available are as below:

Fabric specification: Plain knitted fabric to be wet finished to 58cm width (tubular) and 290 g/m$^2$

Machine: 56cm diameter, 4 needles /cm

From the information provided, calculate the stitch length and the linear density of the yarn. You may take $K_w$ to be 42.2 and $K_s$ to be 2360. (11 marks)

05. a. Usually garment blanks are subjected to steam treatment before cutting and seaming. Briefly explain the objectives of this exercise. (05 marks)

b. Spirality is one of the problems associated with circular weft knitted fabrics. Briefly explain what you understand by this phenomenon. (05 marks)

c. Briefly explain how stitch size, thread tension and stitch consistency affect the aesthetics and performance of seams. (05 marks)

06. a. Explain a method by which the dimensional stability of knitted fabrics could be measured. (06 marks)

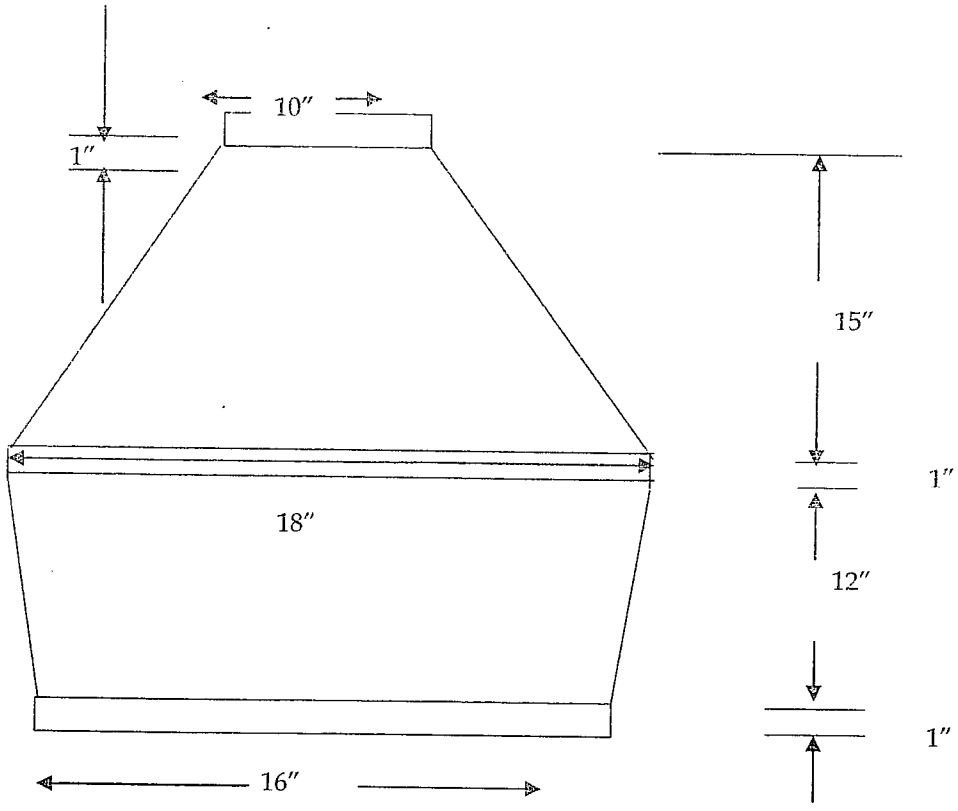
b. Give the advantages and disadvantages of the following cutters used in the manufacture of cut and sewn garments using knitted fabrics. (3 x 03 = 09 marks)

a. Hand shears

b. Band cutting machine

c. Die cutter

07. Prepare a knitting statement for a fully-fashioned garment panel knitted for the given specification below. (15 marks)




Courses per inch = 20 Wales per inch = 15

08. a. Explain the purpose of the following knitted structures: locking courses, roving courses, draw thread, and rib border. (06 marks)

b. Explain how wale shaping and course shaping are achieved in the manufacture of integral garments. (09 marks)

09. a. Explain the operating principle of a linking machine. (07 marks)

b. "Plain knitted fabrics are best assembled by using cup seaming machines". Discuss this statement. (08 marks)

10. Write short notes on the following:

a. Shrinkage in fully fashioning (03 marks)

b. Overlap and underlap in warp knitting (04 marks)

c. Relaxation shrinkages of knitted fabrics (05 marks)

d. Cover factor of knitted fabrics (03 marks)