

THE OPEN UNIVERSITY OF SRI LANKA

DIPLOMA IN INDUSTRIAL STUDIES

FINAL EXAMINATION - 2005/2006

TTX4242 KNITTED GARMENT TECHNOLOGY

DURATION - THREE HOURS



057

DATE: 19 March 2006

TIME: 0930 - 1230 Hours

Total Number of Questions = 10

Number of Questions to be answered = 06

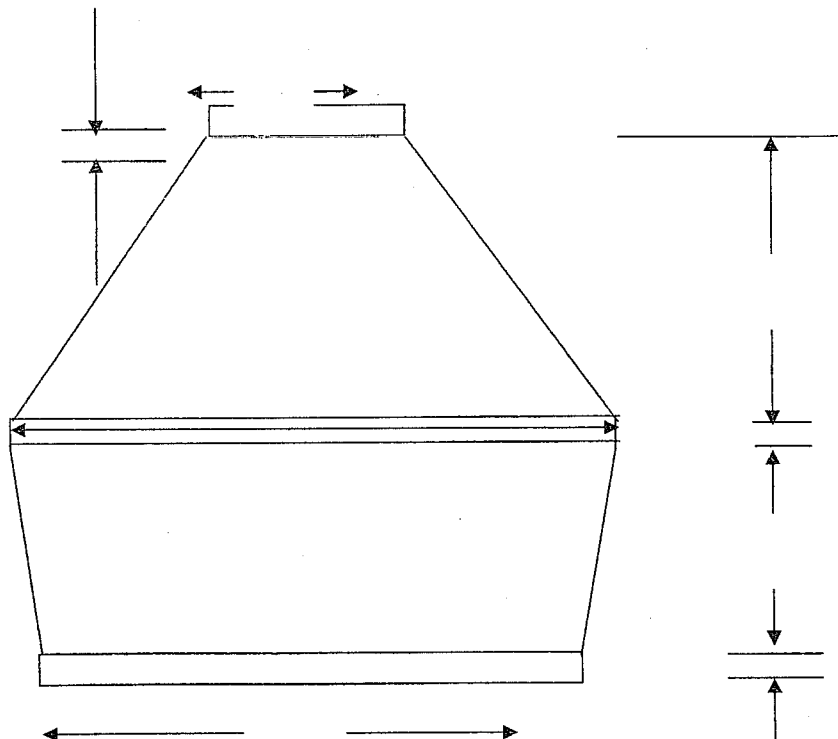
Answer Question 1, which is compulsory and additional five (05) questions.

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

01. a. With the help of simple diagrams, briefly explain how opening and closing of the hook is realised in a compound needle. (04 marks)
- b. State the three possible functions performed by the sinkers. (03 marks)
- c. With the help of a simple diagram briefly explain a method to introduce a tuck stitch during knitting cycle. (03 marks)
- d. State what you understand by "Finished Relaxed State" with reference to knitted fabrics. (02 marks)
- e. Estimate the number of courses/cm and wales/cm in a knitted fabric having a stitch density of $90 / \text{cm}^2$. Consider the fabric is wet relaxed so that the k_c/k_w is 1.29 (03 marks)
- f. What are the two stages in which the shrinkage of knitted fabrics must be considered during production of knitted garments? (02 marks)
- g. With suitable diagrams explain the various spreading methods that are used with respect to knitted fabrics. (02 marks)
- h. State one advantage and one disadvantage of producing cut stitch shaped knitted garments. (02 marks)
- i. What are the two reasons for which rib borders are knitted on garment panels? (02 marks)
- j. Briefly explain why chain stitch is used in assembling knitted garments and not lock stitch. (02 marks)

02. a. With suitable diagrams explain the steps involved in formation of knitted loops, when latch needles are used.. (08 marks)
- b. Briefly explain how Purl fabrics are different from plain knitted fabrics with reference to properties and appearance. (04 marks)
- c. Explain the difference between a single jersey fabric and a double jersey fabric. (03 marks)
03. a. With suitable diagrams explain the difference between interlock gating and rib gating. (04 marks)
- b. With suitable diagrams explain what you understand by underlap and overlap with reference to warp knitting process and warp knitted loops. (07 marks)
- c. Draw the lapping diagram of the following warp knit structures. (04 marks)
- i. Front Bar = 1-0/1-2 Back Bar = 3-4/1-0
- ii. Front Bar = 1-0/1-0 Back bar = 1-0/1-2
04. a. Calculate the required length of yarn to produce 1000 square metres of finished relaxed plain knitted worsted fabric with an average stitch length of 6mm. Assume a wastage of 4% yarn during manufacturing. ($k_s = 2360$) (07 marks)
- b. A sharkskin warp knitted shirting in its grey state has 12 wales/cm and 32 courses/cm. The run-in is 185 cm for the back bar and 105cm for the front bar. Both bars are fed by 5Tex polyester yarn. Calculate the density of this fabric in g/m². (08 marks)
05. Give the applications, advantages and disadvantages of the following cutters used in the manufacture of cut and sewn garments using knitted fabrics. (5 x 03 = 15 marks)
- a. Hand shears
- b. Hand held power cutters
- c. Band cutting machine
- d. Die cutter
- e. Laser cutters

06. a. The quality of cut fabric panels directly affects the quality of the assembled garment. To obtain quality fabric panels what requirements must be fulfilled? Briefly explain. (06 marks)
- b. Spirality is one of the problems associated with circular weft knitted fabrics. Briefly explain what you understand by this phenomenon. (04 marks)
- c. Briefly explain how stitch size, thread tension and stitch consistency affect the aesthetics and performance of seams. (05 marks)
07. a. With suitable diagram explain how panel narrowing and panel widening are achieved in fully fashioned knitted garments. (06 marks)
- b. Explain the various ways by which garment components are cut out from blanks. (04 marks)
- c. With the help of suitable examples explain how various angles of fabric shapes could be obtained in fashioning a garment panel. (05 marks)
08. Prepare a knitting statement for a fully-fashioned garment panel knitted for the given specification below. (15 marks)



10. a. With suitable diagrams explain how a linking machine joins the loops of two different knitted components of a garment. (09 marks)
- b. With the help of a simple diagram the operation of a cup seaming machine. (06 marks)

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