



THE OPEN UNIVERSITY OF SRI LANKA  
 BACHELOR OF INDUSTRIAL STUDIES /  
 BACHELOR OF TECHNOLOGY  
 FINAL EXAMINATION – 2005 / 2006  
 TTX5237 SPECIALTY FABRICS  
 DURATION - THREE HOURS

DATE: 05<sup>th</sup> April 2006

TIME: 09.30 – 12.30 HOURS

Total Number of Questions = 9      Number of questions to be answered = 06

Answer the question 1, which is compulsory, and five (05) additional questions. Question 1 carries twenty five (25) marks and questions 2 to 9 carry fifteen (15) marks each.

01. Compulsory Question

- a) State the two techniques employed to ensure sufficient penetration of size into the coarse yarns used to weave denim. (02 Marks)
- b) What do you understand by an “unclear shed”? (02 Marks)
- c) State four (04) different types of stretch yarns suitable to produce stretch denim. (02 Marks)
- d) Sketch four (04) different ways of warp and pile interlacing in corduroy fabrics. (02 Marks)
- e) Why do we need thicker heald wires to weave corduroy? (01 Mark)
- f) What are the precautions to be taken during sewing of corduroy? (02 Marks)
- g) What is a “Moving fell mechanism”? (02 Marks)
- h) Explain the terms “top douping” and ‘bottom douping” with respect of leno weaving. (02 marks)
- i) What do you understand by a “wire loom”? (02 marks)
- j) What is a “Fleecy fabric”? (02 Marks)
- k) What do you understand by a “Fall plate structure”? (02 marks)
- l) Draw a labeled cross sectional view of artificial leather fabric. (04 Marks)

02. a) State the most important similarities and differences between "Standard Denim", "Jean" and "Drill" fabrics. (06 Marks)
- b) In the recent past standard denim fabric had been modified to produce different varieties of denim. Explain the different ways employed to produce such varieties of denim. (09 Marks)
03. a) For the manufacture of denim fabrics, rapier, projectile as well as air-jet looms are employed. Discuss pros and cons of using these machines. State also the suitability of them for different types of denim. (08 Marks)
- b) State and explain the most important finishing treatments required for denim fabrics (07 Marks)
04. Explain in detail the effect of the following factors on the design and quality of corduroy fabrics:
- i. Warp and Weft yarns
  - ii. Warp and weft densities
  - iii. Ratio of pile weave to ground weave
  - iv. The method of interlacing of warp and weft piles
  - v. Design of the ground weave
05. Draw a labeled sketch of the cross-sectional view of a terry weaving machine and explain the functions of the following parts: Compensation roller, Pile let-off and Variable bet-up mechanism. (15 Marks)
06. a) Write short notes about following carpets:
- i. Axminster Carpets
  - ii. Tufted Carpets
  - iii. In-grain carpets
- (09 Marks)
- b) Describe with the aid of a suitable sketch how a Wilton Carpet is woven by the method of face to face weaving. (06Marks)
07. Explain with suitable sketches how plush and pile fabrics are produced on weft knitting machines. (15 Marks)
08. a) What is an "In-laid fabric"? (03 Marks)
- b) Explain how in-laid yarns are bound to the fabric in the cases of single jersey and double jersey (rib) structures. (08Marks)
- c) Distinguish between "Full – Width" and "Partly" in-lay yarns. (04 Marks)
09. Describe in-detail the structure of a needle punched fabric explaining the orientation of fibres at different places and how inter-fibre friction is generated to consolidate the fibres in the web. (15 Marks)