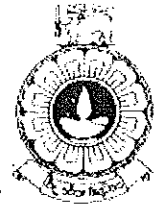


The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Textile and Apparel Technology



Study Programme	: Bachelor of Industrial Studies Honours
Name of the Examination	: Final Examination
Course Code and Title	: TAX3530/TAX3537/TTX3237 Fibre to Fabric
Academic Year	: 2019/2020
Date	: 11 th October 2020
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 Four (4) pages.
3. This is a Closed Book Test (CBT).
4. Write down your Index Number in all the pages of answer scripts.
5. Answer the question one (01), which is compulsory and five (5) more questions from question two (02) to question eight (08). Question one (01) carries twenty-five (25) marks and questions two (02) to question eight (08) carry fifteen (15) marks each.
6. Answer for each question should commence from a new page. If a question has many parts, all the parts should be answered in the chronological order under the same question.
7. Write down the answered question numbers in the answer book.
8. Do not answer more than six (6) questions.
9. Answers should be in clear hand writing.
10. Do not use red colour pens.

Compulsory question

01.

- a) Draw cross-sectional views of the following fibres. (04 marks)
- i. Wool fibre
 - ii. Silk fibre
 - iii. Nylon fibre
 - iv. Viscose fibre
- b) Write two (02) reasons for the comfortability of cotton clothing with respect to its' cross sectional and longitudinal view. (04 marks)
- c) Write four (04) modern methods of cotton yarn spinning. (04 marks)
- d) State three (03) objectives of yarn folding. (03 marks)
- i. Calculate the yarn count in "tex" of a 30Ne cotton staple yarn. (02 marks)
- e) Write three (03) primary motions of weaving. (03 marks)
- f) Draw the lapping diagram for the warp knitted structure with chain notation 1-0/ 2-3. (02 marks)
- g) Illustrate three (03) different fibre orientations associated with non-woven web formation. (03 marks)

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

02.

- a) Briefly explain two (02) main properties of fibre forming polymers. (04 marks)
- b) Explain the following properties of wool fibres with respect to its' polymer structure. (08 marks)
- i. Tenacity in dry and wet condition
 - ii. Elastic-plastic nature
- c) Write three (03) main differences of the polymer system of silk fibres when compared with polymer system of wool fibres. (03 marks)

03.

- a) Briefly explain why viscose fibres show lower thermal resistance than cotton fibres. (03 marks)
- b) Compare Nylon and Polyester textile fibres considering the following properties. (04 marks)

- i. Effect of alkali
 - ii. Effect of acids
- c) Briefly explain two (02) main man-made fibre production methods (man – made fibre spinning methods). (08 marks)

04.

- a) Differentiate the terms “Staple yarn” and “Filament yarn”. (03 marks)
- b) Briefly explain six (06) basic steps of cotton yarn spinning. (12 marks)

05.

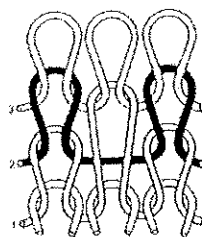
- a) Compare “Woollen yarn” and “Worsted yarn” based on their structure. (03 marks)
- b) Briefly explain the purpose of conducting “Wool carbonizing” prior to wool yarn manufacturing process. (04 marks)
- c) Explain any two (02) steps associated with worsted yarn manufacturing. (08 marks)

06.

- a) Briefly explain why spun yarns cannot be directly used for weaving as warp yarns and weft yarns. (05 marks)
- b) Briefly explain main five (05) warp preparation processes. (05 marks)
- c) Briefly explain the advantages of rapier weft insertion method compared to shuttle weft insertion method. (05 marks)

07.

- a) Draw the point paper notation and the yarn path diagram of the weft knitted structure given below. (04 marks)



- b) Explain two (02) disadvantages of plain weft knitted fabrics. (04 marks)
- c) With aid of suitable diagrams, briefly explain how loop formation is performed by a latch needle. (07 marks)

08.

- a) Give any three (03) differences between warp knitting and weft knitting techniques. (03 marks)
- b) Briefly explain main two (02) stages involved in non-woven manufacturing. (08 marks)
- c) Give two (02) example processes for each of the above-mentioned stages. (04 marks)

-End of the Question Paper-