

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



Study Programme	: Bachelor of Technology Honours in Engineering /Bachelor of Industrial Studies Honours
Name of the Examination	: Final Examination
Course Code and Title	: TAX6561/TTX6261 Yarn Manufacture II
Academic Year	: 2019/2020
Date	: 11 th August 2020
Time	: 1330 -1630hrs
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) carry thirty (30) marks and questions two (02) to question eight (08) carry fourteen (14) 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 write answers to the additional questions.
9. Answers should be in clear hand writing.
10. Do not use red colour pens to write the answers.

Compulsory question

01.

- a) What is the purpose of wool scouring? (02 marks)
- b) Write four (04) objectives of wool yarn blending. (02 marks)
- c) What do you understand by “Hackling” in flax yarn manufacturing? (02 marks)
- d) Draw the anatomy of the jute stem and name main six (06) parts of it. (03 marks)
- e) What is the importance of “Lubricating emulsion” in the process of jute spinning?
(02 marks)
- f) Briefly describe the main four (04) stages of the life cycle of silk worm? (04 marks)
- g) “Cutting method” is one of the commonly used tow conversion techniques.
Write four (04) advantages of that method. (02 marks)
- h) Write any four (04) advantages of new spinning systems compared to conventional ring spinning system. (02 marks)
- i) What is the main disadvantage of wrap spun yarns? (02 marks)
- j) Illustrate the cross section of Bobtex yarn and describe its’ main three (03) components.
(04 marks)
- k) A sewing thread is formed by a 3-ply yarn, each of 80^S cotton count twisted together.
Write the ticket number of this sewing thread using “Cotton ticket number” method.
(02 marks)
- l) Explain three (03) main reasons for applying lubricants to man – made fibres.
(03 marks)

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

02.

- a) Distinguish between woollen yarns and worsted yarns. (04 marks)
- b) With aid of suitable diagrams, briefly explain the actions mentioned below in relation to wool carding. Your answers should include the purpose of each action and the places where each of these actions is taking place in the wool carding machine. (06 marks)
- i. Point to point action
 - ii. Point to back action
 - iii. Back to back action

- c) With aid of suitable diagrams, briefly explain the working principle of “Intermediate feed” in wool carding with respect to “Broad – band feeding” method. (04 marks)

03.

- a) With aid of suitable diagrams, briefly explain the following terms related to silk yarn production. (04 marks)
- i. Single thrown
 - ii. Double thrown
- b) Briefly explain the four (04) types of waste silk. (04 marks)
- c) Briefly describe the first three (03) stages of waste silk yarn manufacturing mentioned below. (06 marks)
- i. Elimination of Chrysalides
 - ii. Maceration
 - iii. Opening

04.

- a) Describe the standard classification of textured yarns giving suitable end-uses for each category. (06 marks)
- b) With the aid of suitable diagrams, briefly explain the manufacturing method of textured yarn using false twisting method. (04 marks)
- c) With the aid of suitable diagrams, briefly describe the “Air - jet texturing” method. (04 marks)

05.

- a) Briefly explain main two (02) reasons for yarn folding. (04 marks)
- b) Assume that two singles of 16.2 Ne are plied to form a double yarn. The count of doubled yarn would be 8 Ne. find the T.P.I (Twists per Inch) of the single yarn and ply yarn. Assuming that the T.F (Twist Factor) value is 4, comment whether this double yarn has a balanced twist or not. (04 marks)
- c) With the aid of suitable diagram, briefly explain the operating principle of “Two for One Twister”. (06 marks)

06.

- a) Briefly introduce the features of the three (03) fancy yarns types mentioned below. (06 marks)
- i. Slub Yarn
 - ii. Snarl Yarn
 - iii. Loop Yarn
- b) Classify sewing threads according to the constituent fibre type giving examples for each category. (08 marks)

07.

- a) Illustrate the material path of a rotor spinning machine indicating important main parts of the machine. (06 marks)
- b) Explain how the yarn is formed by rotor spinning. (06 marks)
- c) Briefly explain the process of trash removal in rotor spinning machine. (02 marks)

08.

- a) Write a short note on the method of "Fascinated Yarn Spinning". (04 marks)
- b) Briefly describe two (02) types of polymers which are suitable for the production of film tapes. (04 marks)
- c) Briefly explain any three (03) causes for occurring yarn faults during yarn manufacturing. (06 marks)

-End of the question paper-