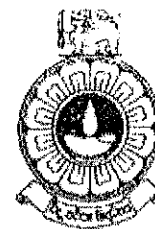


THE OPEN UNIVERSITY OF SRI LANKA
 DEPARTMENT OF TEXTILE AND APPAREL TECHNOLOGY
 BACHELOR OF TECHNOLOGY HONOURS IN
 ENGINEERING / BACHELOR OF INDUSTRIAL STUDIES
 HONOURS



FINAL EXAMINATION – 2016/2017
 TTX6261 – YARN MANUFACTURE II
 DURATION: THREE HOURS

Date: 05th December 2017

Time: 0930-1230 hours

Total Number of Questions = 08

Number of questions to be answered = 06

Answer the question 01, which is compulsory and five (05) additional questions.

Question 01 carries thirty (30) marks and questions 2 to 8 carry fourteen (14) marks each.

01. Compulsory Question.

- (a) Briefly explain the purpose of Scouring of wool fibres. (02 Marks)
- (b) Illustrate the cap spinning system used in Worsted yarn manufacturing. (03 Marks)
- (c) Describe three (03) different sources of waste Silk. (03 Marks)
- (d) Illustrate the sequence of operations used in dry-spinning of Flax. (03 Marks)
- (e) Briefly discuss the objectives of yarn folding. (04 Marks)
- (f) Briefly explain how slub yarns (type of fancy yarns) are formed. (Illustrations are not necessary.) (02 Marks)
- (g) List six (06) requirements of a sewing thread. (03 Marks)
- (h) List six (06) requirements of a polymer that can be used to produce tapes or films. (03 Marks)
- (i) State the two (02) ways of producing film tapes. (02 Marks)
- (j) List four (04) advantages of controlling the atmosphere of a yarn manufacturing facility. (02 Marks)
- (k) List the three (03) main reasons for applying lubricants to man-made fibres. (03 Marks)

End of the compulsory question.

02. a) Provide a classification of impurities found on raw Wool with examples. (03 Marks)
- b) Discuss the importance of blending Wool fibres. (05 Marks)
- c) Explain three (03) types of Wool blending systems. (Illustrations are not required.) (06 Marks)
03. a) Distinguish between the fibre arrangements of Woolen and Worsted yarns. (03 Marks)
- b) Briefly explain why 'Carding' is not performed in the Worsted system for long Wool fibres. (02 Marks)
- c) Explain the 'Gilling' process with the help of a suitable illustration. (07 Marks)
- d) List four (04) objectives of Combing in Worsted yarn manufacturing. (02 Marks)
04. a) Illustrate the life cycle of 'Bombyx-Mori'. (03 Marks)
- b) Describe how the 'Silk cocoon' is spun by the 'Silk worm'. (04 Marks)
- c) Explain why Silk cocoons are immersed in hot water during reeling. (03 Marks)
- d) Explain why it is necessary to steam the thrown Silk. (04 Marks)
05. a) Describe the terms 'Tow' and 'Top'. (02 Marks)
- b) Explain the 'stretch-breaking' system of Tow conversion with a suitable diagram. (06 Marks)
- c) State the steps of 'Two-stage' two conversion process. (02 Marks)
- d) Write a short note on the 'Shuffling' process used in Pacific Converter. (04 Marks)
06. a) State and describe the three (03) types of textured yarns. (06 Marks)
- b) Explain the principle of manufacturing textured yarns using false-twisting method with the help of a suitable diagram. (05 Marks)
- c) Briefly explain the 'Stuffer box' method of producing textured yarns. (03 Marks)

07. a) List six (06) advantages of Open End spinning methods over ring spinning methods. (03 Marks)
- b) Explain the main principle of yarn formation by Open End methods. (04 Marks)
- c) Explain the operational procedure of Rotor Spinner with the help of a suitable illustration. (07 Marks)
08. a) Discuss why undrawn synthetic yarns are not suitable for commercial applications. (03 Marks)
- b) Explain the advantages of partially oriented synthetic yarns (POY) over undrawn synthetic yarns. (03 Marks)
- c) Briefly explain how following causes contribute to defects in staple yarns. (08 Marks)
- i. Selection of unsuitable raw materials
 - ii. Incorrect machine settings

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