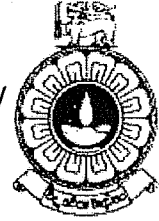


THE OPEN UNIVERSITY OF SRI LANKA
 DEPARTMENT OF TEXTILE & APPAREL TECHNOLOGY
 BACHELOR OF TECHNOLOGY HONOURS IN ENGINEERING/
 BACHELOR OF INDUSTRIAL STUDIES HONOURS
 FINAL EXAMINATION– 2015/16
 TTX6261 – YARN MANUFACTURE II
 DURATION: 3 HOURS



DATE: 11th December 2016

TIME: 09.30-12.30 hours

Total Number of Questions = 08

Number of questions to be answered = 06

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

Question 1 carries thirty (30) marks and questions 2 to 8 carry fourteen (14) marks each.

01. Compulsory Question

- (a) What is the purpose of wool scouring? (02 Marks)
- (b) What is the difference between woolen and worsted yarns? (02 Marks)
- (c) State two (02) main differences between woolen and worsted carding. (02.Marks)
- (d) Explain why worsted spinning of very long fibres “gilling” is used in place of “Carding”. (02 Marks)
- (e) State the four (04) methods of spinning used for worsted spinning. (02 Marks)
- (f) What is tow and what is top? (02 Marks)
- (g) What do you understand by “shuffling or randomization” taking place in the pacific converter? (02 Marks)
- (h) What is a “bulked yarn”? (02 Marks)
- (i) What is “wet doubling”? Why is it done? (02 Marks)
- (j) What is a “slub yarn”? Why are they produced? (02 Marks)
- (k) What is “open end spinning”? (02 Marks)

- (l) Explain in brief how thrash is removed in rotor spinning. (02 Marks)
- (m) What is a “wrap spun” yarn? (02 Marks)
- (n) State two polymers which are extensively used for “film to tape” or “film to fibre” processing. (02 Marks)
- (o) State two objectives of lubricating of fibres during processing. (02 Marks)

Answer any five questions from the following questions 02 to 08.

02. a) What are the main differences between woolen card and cotton card? Compare the two systems with respect to the construction of the machine and the number of carding stages. (06Marks)
- b) What is condensing? Describe the operational principle of a tape condenser with the aid of a suitable figure. (08Marks)
03. a) Write short notes on the following:
 i) Silk reeling ii) Silk throwing iii) Steaming iv) Degumming (06Marks)
- b) What are the sources of waste silk? (04Marks)
- c) Explain why silk is weighted. (04Marks)
04. a) Distinguish between “false twist texturing” and “real twist texturing”. (04Marks)
- b) What are the different methods available for realizing false twist texturing? Briefly describe operational principle of one method in which friction is applied to achieve false twisting. (06Marks)
- c) Briefly describe the principle of air-jet texturing. (04Marks)
05. a) What are the main objectives of yarn folding? (04Marks)
- b) Write short notes on the following;
 i. Strength of doubled yarn
 ii. Extensibility of doubled yarn
 iii. Contraction of length during doubling (06 Marks)

- c) Two singles of 20.3 Ne are plied to form a doubled yarn. The doubled yarn has a count of 10 Ne and a twist factor of 4. The twists in the single and doubled yarns are balanced. Calculate
- i. Turns per inch of the single yarns. (02 Marks)
 - ii. Turns per inch of the double yarn (01 Mark)
 - iii. Turns per inch of the single after doubling (01 Mark)
06. a) What are the advantages of open-end spinning? (04 Marks)
- b) Describe the principle of “friction spinning”, and how twist is inserted to a yarn in friction spinning with the aid of a suitable diagrams. (07 Marks)
- c) Explain the difference between DREF 2 and DREF 3 spinning machines. (03 Marks)
07. a) Describe the principle of “rotor spinning” with the aid of a suitable labeled diagram. (07 Marks)
- b) Explain how twist is inserted in rotor spinning while elaborating the factors affecting the number of twists inserted. (04 Marks)
- c) What are wrapper fibres? (03 Marks)
08. a) Explain with the aid of a suitable diagram how staple spun yarns can be produced using the false twist method. (06Marks)
- b) Describe the principle of operation of the Murata Jet Spinner. You may use a suitable labeled diagram. Mention also the properties of the fibres which are more suitable for air jet spinning. (08Marks)