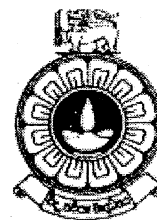


THE OPEN UNIVERSITY OF SRI LANKA
 DIPLOMA IN INDUSTRIAL STUDIES /
 DIPLOMA IN TECHNOLOGY
 FINAL EXAMINATION 2013 / 2014
 TTX4235 -YARN MANUFACTURE II
 DURATION - THREE HOURS



DATE: 6th August 2014

TIME: 0930 - 1230HOURS

Total Number of Questions = 09 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 02 to 09 carry fifteen (15) marks each.

01. **Compulsory Question**

- a) Briefly explain the characteristics of woollen clothes and worsted clothes. (02%)
- b) Briefly explain why wool scouring is carried out prior to the blending and carding processes? (03%)
- c) State the objectives of wool carbonizing and how it is done. (02%)
- d) What do you understand by the terms "Tow" and "Top"? (03%)
- e) What are the factors that have to be considered when wool fibres are blended? (02%)
- f) What do you understand by "Degumming of raw silk" (02%)
- g) What are the purposes of crimping of man-made staple fibre? (03%)
- h) What do you mean by "Shuffling" in synthetic staple yarn manufacture? (02%)
- i) Name four (4) types of thrown silk yarn. (02%)
- j) What do you understand by "Open end" spinning? (02%)
- k) Briefly explain the method of texturing of thermoplastic fibres and the meaning of Temperatures such as, T_g and T_m (02%)

Select only five (5) questions from questions 02 to 09

- (02) Write short notes on the following.
- (a) Grading of wool as Marino, Carpet and Crossbreed done according to the fibre length and the fibre diameter (04%)
 - (b) Gilling of wool fibre during wool yarn Manufacture (04%)
 - (c) Combing process is not used during woollen yarn manufacturing (03%)
 - (d) 60^s & upwards numbers are given for Marino wool and 46^s to 58^s numbers are given for fine Crossbreed wool. Explain, what you understand by these numbers and which type used to produce the finer quality wool yarn? (04%)
- (03) (a) Explain the followings terms related to the silk yarn production (03%)
i. "Single thrown" ii. "Double thrown" (you may draw suitable sketches)
- (b) Briefly explain the four types of waste silk (04%)
 - (c) Briefly explain the first three (3) stages in waste silk yarn manufacture, namely, "Elimination of Chrysalides", "Maceration" and "Opening". (06%)
 - (d) What are the properties those improved as a result of blending of silk fibre in cotton / silk blended fabrics? (02%)
- (04) (a) What is "Texturing" and why it is done? (03%)
- (b) Classify the textured yarns according to the standard classification and briefly explain their properties and end uses. (06%)
 - (c) Briefly explain the differences between Real twist texturing and False –twist texturing. (06%)
- (05) Briefly explain the following terms in relation to Jute and Linen yarn manufacturing.
- (a) Breaking. (03%)
 - (b) Scutching. (04%)
 - (c) Hackling (04%)
 - (d) Spreading during wet spinning of Flax (04%)

- (06) (a) Briefly explain the following, related to tow to top conversion. (09%)
i. Fibre cutting system, ii. Shuffling iii. Crimper
- (b) Briefly explain one commonly used method of tow to top conversion and give the different stages of the process. (06%)
- (07) (a) What you understand by “Cabled yarn” and “Doubled yarn”? (04%)
- (b) What are the main objectives of “Yarn folding”? (05%)
- (c) Determine the resultant count of sewing thread $60^s/2$. (04%)
- (d) Draw a sketch to show a shape of the “Vicone” sewing thread package.(02%)
- (08) (a) Explain the Rotor spinning process using suitable diagrams. (06%)
- (b) Explain the friction spinning process using suitable diagrams. (06%)
- (c) List out the advantages and disadvantages of modern spinning systems over the ring spinning system. (03%)
- (09) (a) What do you mean by the “Adhesive process” of yarn manufacture? (06%)
- (b) Write short notes on the followings. (09%)
i. Yarn waxing.
ii. Lubrication of sewing threads.
iii. Anti-static finish of yarn