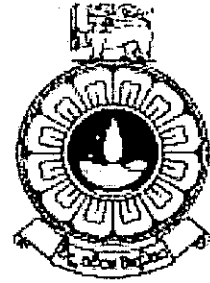


THE OPEN UNIVERSITY OF SRI LANKA  
 BACHELOR OF INDUSTRIAL STUDIES /  
 BACHELOR OF TECHNOLOGY  
 FINAL EXAMINATION 2008 / 2009  
 TTX3232 YARN MANUFACTURE I  
 DURATION - THREE HOURS



DATE: 23<sup>rd</sup> March 2010

TIME: 1400-1700 HOURS

Total Number of Questions = 9

Number of questions to be answered = 06

Answer the question 1, which is compulsory, and five (05) additional questions. Question 1 carries twenty five (30) marks and questions 2 to 9 carry fifteen (14) marks each.

01. Compulsory Question

- a) In generally, yarn defects are lesser in filament yarns than in spun yarns. Explain why? (03%)
- b) Describe the different types of impurities present in natural fibres. (03%)
- c) Calculate the length of Cotton in yards in one pound of yarn having a count of 25.5<sup>s</sup> (English cotton count 25.5). (03%)
- d) Name two yarn count systems in 'indirect method' and indicate the standard weight to be considered and units of measurement of yarn length. (03%)
- e) Briefly explain the term 'blending' in conventional yarn manufacturing process. (02%)
- f) What are the main objectives of roving process in conventional yarn manufacturing process? (06%)
- g) Name four production stages where blending takes place in Cotton yarn manufacturing process. (04%)
- h) Name three changes taking place in slivers due to doubling and drafting. (02%)
- i) Briefly explain the term "material draft" in a draw frame. (02%)
- j) What is the purpose of having "apron" in a drafting system? (02%)

02. Briefly explain the functions of the following actions of machines used in blow room. (draw suitable sketches if need to explain)
- (a) Action of air currents (04%)
  - (b) Action of beaters (05%)
  - (c) The regulating action to maintain the material flow (05%)
03. Blending is an important process of cotton yarn manufacture.
- (a) Briefly explain the four major reasons for blending (05%)
  - (b) Briefly explain the method of blending during lap formation (04%)
  - (c) Which physical properties / characteristics of fibre must be compatible before blending? (05%)
04. Answer the following related to the revolving flat card.
- (a) Briefly explain the four objectives of carding process. (04%)
  - (b) Briefly explain the actions of carding or stripping between doffer & cylinder, Cylinder & flats, and taker-in & cylinder, during carding process. (05%)
  - (c) Briefly explain the necessity of stripping and grinding of metallic clothing after certain time of operation. (05%)
05. a) What are the main factors to be considered in calculating **mechanical draft** in a carding machine during cotton yarn manufacture? (04%)
- b) What are the objectives of **doubling and drafting** in draw frame during cotton yarn manufacture? (05%)
- c) Explain reasons for differences between mechanical draft and material draft. (05%)
06. a) With help of a line diagram explain the 3 over 5 drafting system. (07%)
- b) Draw a 4 over 4 drafting system and explain the differences of surface speeds of rollers depending on the position. Indicate where the lowest and the highest drafting zones in the system. Further mention how you would calculate the total draft. (08%)

07. a) Briefly explain the reasons for not including combing process during production of low quality yarns for some usage. (04%)
- b) With the help of line diagrams briefly explain the process of combing during Cotton yarn manufacture (05%)
- d) Compare the properties / characteristic of combed-yarn and non-comb yarn. (05%)
08. a) Briefly explain how the winding takes place in flyer lead roving process? (05%)
- b) Explain how the constant winding-speed to maintained in flyer frame. (04%)
- c) Explain briefly how you would calculate the theoretical twist in roving. (03%)
- d) With help of line diagrams, explain the three types of package build in yarn winding. (04%)
09. a) What are the reasons for having balloon control rings during ring spinning? (04%)
- b) What are the functions carried out during the ring spinning process? (04%)
- c) What are the functions of a ring traveler in a spinning frame? (04%)
- d) Name five features/ properties that should be posses by a good ring. (03%)