



**THE OPEN UNIVERSITY OF SRI LANKA**

**DIPLOMA IN INDUSTRIAL STUDIES /**

**DIPLOMA IN TECHNOLOGY**

**FINAL EXAMINATION – 2005 / 2006**

046

**TTX3232/TTD1209 YARN MANUFACTURE I**

**DURATION - THREE HOURS**

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**DATE: 20<sup>th</sup> March 2007**

**TIME: 09.30 – 12.30 HOURS**

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**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 (25) marks and questions 2 to 9 carry fifteen (15) marks each.**

**01. Compulsory Question**

- a) State three different “Ginning Defects”. (1.5 Marks)
- b) The mass of 500 metres of Cotton yarn is 22 grams. Calculate the count of this yarn in Tex and Denier. (2.0 Marks)
- c) One pound (1 lb) of a particular cotton yarn has a length of 8400 yards. What is the English Cotton Count of this yarn? (1.0 Mark)
- d) State four different basic actions to which fibres are subjected while they are being processed in the blow room. (2.0 Marks)
- e) What is the main advantage of using a three bladed beater over a two bladed beater in a scutcher? (2.0 Marks)
- f) What do you understand by “Number of Cleaning points” as applied to blow room processes? (1.0 Mark)
- g) State three (03) objectives of carding. (1.5 Marks)
- h) Distinguish between “Flexible” and “Metallic” card clothing. (1.0 Mark)
- i) What is “Flat Strip Waste”? (1.0 Mark)
- j) What are the objectives of processing of fibres on a “Draw Frame”? (2.0 Marks)
- k) What is “Comber Preparatory Process”? (2.0 Marks)
- l) What is “Spinning Traingle”? (1.0 mark)

- m) What is the purpose of using aprons in drafting roller systems?  
(02 Marks)
- n) Illustrate with a suitable sketch a roving package  
(03 Marks)
- o) Mention 4 different types of travellers used on ring spinning machines.  
(02 Marks)
02. With the aid of a flow chart describe the most important Blow Room Processes required for opening and cleaning of less dirty cotton. In doing so elaborate the actions to which the fibres are subjected and changes observed during each process stage.  
(15 Marks)
03. a) With the aid of a suitable labelled sketch describe how cotton fibres are opened and cleaned by a Step Cleaner.  
(15 Marks)
04. a) Define two units each for "Direct" and "Indirect" Yarn Numbering Systems.  
(05 Marks)  
b) Write a short note on the "Universal Yarn Numbering System" and derive the formula for conversion of "Universal System Unit" to "English Cotton Count".  
(10 Marks)
05. Explain how the objectives of carding are achieved in a cotton carding machine. You must explain all the actions to which fibres are subjected during carding.  
(15 Marks)
06. Explain the following methods of material control in draw frame:  
a) Self compensation - mechanical  
b) Self compensation – electrical (both open loop and closed loop auto levelling)  
(15 Marks)
07. a) Explain with suitable sketches how combing can improve the quality of a sliver.  
(08 Marks)  
b) Explain how a combed sliver can contribute for the manufacture of a better quality staple yarn.  
(07 Marks)
08. a) Discuss the function and necessity of the following mechanisms in the gear arrangement of a roving machine.  
a) Pair of cone drums  
b) Differential gears  
(08 Marks)  
b) Explain briefly the monitoring devices available in roving machines.  
(07 Marks)
09. Write an essay on "New developments in ring spinning frames" explaining how such developments have contributed to improved quality, productivity and working conditions.  
(15 Marks)