

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF TEXTILE TECHNOLOGY

END OF SECOND SEMESTER EXAMINATIONS – AUGUST 2009

TXT 1207 – YARN TECHNOLOGY I

TIME: 3HOURS

INSTRUCTIONS

1. Answer **Question 1** and **ANY THREE** questions. Each question carries 25 marks.
2. The first fifteen minutes should be spent reading the question paper and making notes.
3. **Do not** open your answer sheet until told to do so.
4. Approved calculators may be used but **full working solutions must be given.**

QUESTION 1

Zimbabwe is a cotton country, write notes giving details of;

- i. The cotton growing areas in Zimbabwe. (5)
- ii. Location and objectives of ginneries, Grades of cotton (10)
- iii. Important cotton fibre properties required for the production of good quality Rotor and Ring spun yarns. (10)

QUESTION 2

With the aid of diagrams briefly describe the actions of the following as used in the Blowroom and explain the necessity of each.

- i. Beater and grid-bars (5)
- ii. Stationary dust extractor (5)
- iii. Optical regulating system (5)

(b) The trash content of a cotton as fed to a beater is 3.6%. the waste extraction is 1.5%, of which 80% is trash. What is the cleaning efficiency of the beater? (10)

QUESTION 3

With the aid of a diagram describe the function and principle of operation of a Ring frame. **(15)**

(a) Calculate the production of a Ring spinning frame using the following data;

Spindles per frame	768	
Front roller delivery (m/min)	15.8	
Linear density of yarn (tex)	20	
Linear contraction of yarn %	5	
Production Hours/week	168	
Running efficiency %	94	(10)

QUESTION 4

(a) With the aid of a clearly labelled diagram, describe the significant features of a modern rotor spinner. **(10)**

(b) State the advantages that rotor spun yarns have over ring spun yarns, giving examples of end uses of these yarns. **(15)**

QUESTION 5

(a) Describe and outline the difference between Woollen and Worsted spinning **(15)**

(b) With the aid of a diagram describe the Silkworm Life Cycle and briefly describe the processing stages of raw silk fibres. **(10)**

END OF QUESTION PAPER