NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF TEXTILE TECHNOLOGY

SUPPLEMENTARY EXAMINATIONS –AUGUST 2011

TXT 1207 – YARN TECHNOLOGY I

TIME: 3 HOURS

TOTAL MARKS: 100

INSTRUCTIONS

Answer **ANY FOUR** Questions. Each question carries **25 marks**.

The first fifteen minutes should be spent reading the question paper and making notes **Do not** open your answer sheet until told to do so.

Marks will be awarded for skill in appreciating the scope of questions, clarity of argument and conciseness of presentation as well as for the knowledge displayed by the candidate.

QUESTION 1

With the aid of diagrams, discuss **three** methods used in the production of synthetic filaments. **(25)**

QUESTION 2

(a)   Using a diagram, describe the Silkworm Life Cycle. **(10)**

(b)   Describe the sequence of operations involved in silk reeling. **(15)**

QUESTION 3

(a)   Describe and outline the differences between Woollen and Worsted spinning. **(10)**

(b)   How many deliveries of Drawframe would be required to balance a production of 720 kg/shift, if waste is 0.5% and the Drawframe particulars are as follows:

Front roller speed	1 100 rpm
Linear density	5.4 kilotex
Front roller diameter	5cm
Efficiency	85%
Shift	7.5 Hours **(10)**

(c)   List five objectives of the carding process. **(5)**

QUESTION 4

(a) With the aid of a diagram, give a detailed description of the ring spinning process **(15)**

(b)   (i)   Calculate the linear density (in tex) of a ring spinning frame given the following information:

Production	110 Kg/shift
Spindles per frame	768
Front roller speed	168 rpm
Front roller diameter	30 mm
Shift	8 Hours
Efficiency	94 % **(7)**

    (ii)   Given the spindle speed of the machine in (i) as 12 086 rpm, calculate the amount of twist imparted on the yarn (in turns per metre). **(3)**

QUESTION 5

(a) Discuss the advantages and limitations of the rotor open-end spinning process. **(10)**

(b) Write notes on false-twist and stuffer-box texturing methods (Include diagrams). **(15)**

END OF QUESTION PAPER