NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF TEXTILE TECHNOLOGY

END OF SECOND SEMESTER EXAMINATIONS - MAY 2010

TXT 4207 – YARN TECHNOLOGY III

TIME: 3 HOURS

TOTAL MARKS: 100

INSTRUCTIONS

Answer Question 1 and any other Three 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

(a) A yarn with an input tension of 50mN is running through the system of guides and tensioners shown in Figure 1. The loads applied to the two tensioners are 50mN and 100mN, respectively, and the angle of lap around the three guide surfaces is 90° in each case. Calculate the value of the output tension in mN if the coefficient of friction between the yarn and the surfaces over which it travels is 0.2. **(10)**

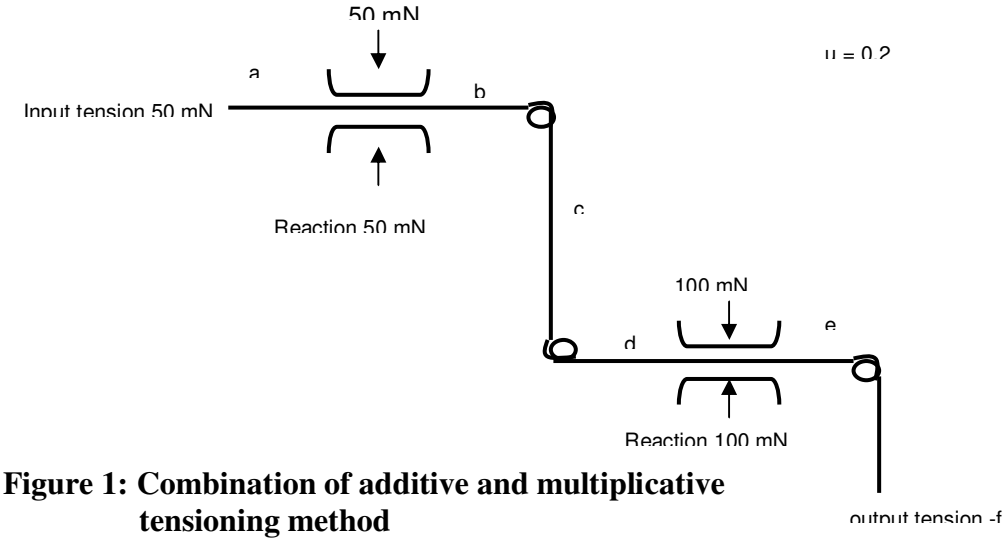

Figure 1: Combination of additive and multiplicative tensioning method

(b) Write notes on the following;

(i) Disadvantages of knots **(5)**
(ii) Splicing and its advantages **(5)**
(iii) Yarn waxing **(5)**

QUESTION 2

(a) Define the term "warp quality" and state the consequences of inferior warping. **(15)**
(b) With the aid of a X-sectional diagram, explain the sectional warping technique. **(10)**

QUESTION 3

With reference to textile air engineering, write notes on the following;
(a) textile air conditioning **(15)**
(b) machinery cleaning **(5)**
(c) fibre collection and filtration **(5)**

QUESTION 5

What are the aims of a maintenance programme and what six basic concepts can be built into it to achieve different objectives? **(25)**

QUESTION 6

Define the term "noise" and describe the causes and techniques that can be used for its reduction. **(25)**

END OF QUESTION PAPER