NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF TEXTILE TECHNOLOGY

END OF SECOND SEMESTER EXAMINATIONS - AUGUST 2009

TXT – 22200 TEXTILE QUALITY CONTROL I

TIME: 3 HOURS

INSTRUCTIONS

1. Answer **Question 1** and **ANY OTHER 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

Outline the procedure you would follow to introduce a system of Quality Control in an efficiently operated spinning mill.   (**25**)

QUESTION 2

 (a) Discuss the causes and effects of yarn hairiness and identify factors that influence the degree of hairiness in both Ring and Rotor spun yarns.   (**25**)

(b) Give the advantages of the new hairiness test methods and how does test speed affect the results.   (**10**)

QUESTION 3

 (a) Discuss the use of data from fibre tensile testing equipment in the prediction of the tensile properties of yarns   (**10**)

(b) With the aid of diagrams describe the constant rate of loading (CRL) and constant rate of elongation (CRE) principles.   (**15**)

QUESTION 5

 (a) What is the function of twist in yarns. State what precautions must be taken during twist determination to ensure that reliable results are obtained.   (**15**)

(b) With the aid of diagrams of idealised elements of a yarn, derive the twist factor formula. **(5)**

(c) A 25tex yarn is spun with a twist factor of 30, how many t/m (turns per metre) are there in this yarn? **(5)**

QUESTION 6

Irregularity in terms of variations in mass/unit length occurs in all spun yarns.

(a) Discuss the origins and causes of yarn irregularity and describe the importance of each processing stage in terms of its contribution to the total irregularity spectrum. (**15**)

(b) With the aid of a line diagram describe the principle of operation of the Uster Evenness tester. **(10)**

END OF QUESTION PAPER