

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF TEXTILE TECHNOLOGY

SUPPLEMENTARY EXAMINATIONS – AUGUST 2011

TXT 1203 – TEXTILE AND FIBROUS ASSEMBLIES

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

- (a) Draw a flow diagram for the production of different types of aramid fibres. (15]
- (b) Discuss the properties of Kevlar aramid fibres. (10)

QUESTION 2

- (a) Describe in detail the structure and physical properties of wool. (15)
- (b) How is cystine oxidized to cystic acid in wool? (5)
- (c) Explain the reduction of disulphide groups by thioglycolic acid in wool. (5)

QUESTION 3

- (a) With the aid of equations, explain the difference in the preparation of nylon 6.6 and nylon 6 fibres. (15)
- (b) Discuss the production of cupramonium rayon (Diagram required). (10)

QUESTION 4

- (a) Using equations, describe the preparation of polyethylene terephthalate (polyester) by:
- (i) Transesterification
 - (ii) Direct esterification. **(10)**
- (b) Discuss any **five** applications of microfibers. **(15)**

QUESTION 5

- (a) Write notes on the production of viscose rayon. **(15)**
- (b) Give a detailed description of the primary properties necessary for a polymeric material to make an adequate fibre. **(10)**

END OF QUESTION PAPER