

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF TEXTILE TECHNOLOGY

END OF SEMESTER EXAMINATIONS DECEMBER 2003

TEXTILE PRINTING TXT 4123

TIME: 3 HOURS

INSTRUCTIONS

Answer **ALL** questions from Section A and **ANY 4** from section B. Section A carries 40 marks and each question in section B carries 15 marks. Allocate 60 minutes to section A and 120 minutes to section B.

SECTION A

Answer **ALL** questions in this section.

1. write short notes on:
 - (i) engraving of rotary screens
 - (ii) engraving of flat screens
 - (iii) printing with disperse dyes
 - (iv) real wax prints
 - (v) use of laser technology in screen production (10 marks)

2. Describe the systems (paste formulations and process routes – not machines) used.
 - (i) Burn out prints (3 marks)
 - (ii) Reactive dyes by screen printing (3 marks)
 - (iii) Vat dyes for illuminating colours on a reactive-dyed ground by discharge printing. (4 marks)

3. What are the main causes of pollution in printing textiles, with dyes and with pigment systems. How can these pollution problems be reduced? (10 marks)

4. Write short notes on:
 - (i) carpet printing (4 marks)
 - (ii) binders for pigment printing (3 marks)
 - (iii) thickness for pigment printing (3 marks)

SECTION B

Answer any **FOUR** questions in this Section.

1. Critically compare the use of reactive dyes and vat dyes for printing cellulose materials. (15 marks)
2. (a) Critically compare the printing of textiles by screen printing with direct digital printing. (12 marks)
(b) What are the factors that are holding back digital printing from large scale production? (3 marks)
3. (a) Distinguish between, and describe, discharge and resist printing. (10 marks)
(b) What are the design, technical and art consideration when deciding whether to print by direct printing or by discharge or resist methods? (5 marks)
4. Discuss how the mechanisms of the transfer process influences the types of machinery used in continuous vapour phase printing and wet-transfer printing. (15 marks)
5. Write an essay on “the production and properties of printing pastes”. (15 marks)
6. The efficiency with which the fixation and washing off processes are carried out on printed materials are vitally important, to both the quality and the cost of the prints”. Discuss this statement. (15 marks)

END OF QUESTION PAPER