



NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
SCHOOL OF SCIENCE AND TECHNOLOGY
MAY/JUNE 2012 EXAMINATION

CHM 304: Colour Chemistry & Technology (2 Credit Units)
Time: 2 Hours

INSTRUCTION: Answer any four Questions

- 1) a) Differentiate between organic and inorganic pigments. (10 marks)
b) Using structural examples, explain the types of Betalain pigments. (5 marks)
c) Enumerate five limitations of natural pigments. (2 ½ marks)
- 2) a) Write short notes on the followings:
i) Secondary colours. (3 marks) ii) Tertiary colours. (2 ½ marks)
iii) Azoic dyes (2 ½ marks) iv) Vat dyes (2 ½ marks)
v) Sulphur dyes (2 ½ marks)
b) Mention seven differences between dyes and pigments. (7 marks)
- 3) a) Explain the concept and applications of mordants for natural dyeing. (10 marks)
b) i) What is meant by the term polymerization (2 ½ marks)
ii. Describe structurally polymerization of monomer methyl methacrylate (5 marks)
- 4) a) i) Define the term synthetic fibers. (3 marks)
ii) Describe the various kinds of fibers. (8 ½ marks)
b) What is the role of modifiers in relation to the colour of the dye? (6 marks)
- 5) a) Describe the principle of beam dyeing machine. (7 marks)
b) What are the features of beam dyeing machine? (4 ½ marks)
c) Discuss the advantages of beam dyeing machines. (6 marks)

- 6) a) Enumerate the advantages of overflow dyeing machines. (5 marks)
- b) Give three uses of the aramids. (3 marks)
- c) What are the main chemical functional groups in both nylon and polyesters? (3 marks)
- d) Mention two uses of polyurethanes. (2 marks)
- e) Structurally differentiate between the two aramids: Nomex and Kevlar (4½ marks)