NATIONAL OPEN UNIVERSITY OF NIGERIA
14/16, Ahmadu Bello Way, Victoria Island, Lagos

SCHOOL OF SCIENCE AND TECHNOLOGY
OCTOBER 2013 EXAMINATION

COURSE CODE: CHM 304 CREDIT UNIT: 3
COURSE TITLE: COLOUR CHEMISTRY AND TECHNOLOGY
INSTRUCTION: *Answer any 5 questions* DURATION: 3 HOURS

1. (a) Explain briefly why objects possess a particular colour. (3marks)
   (b) Examine the concept of colour perception. (5 marks)
   (c) Write short notes on any two of the following with respect to colours
   (i) Absorption (ii) Refraction (iii) Transmission (2marks each)

2. (a)Differentiate between additive and subtractive primary colours. (3marks)
   (b) In a tabular form, compare and contrast the nature and uses of Magenta, Violet, Turquoise and Indigo. (6marks)
   (c) Write short note on the following:
   (i) Secondary colour (ii) Tertiary colour (5 marks)

3. (a) Explain briefly any two of the following: (4marks)
   (i) Carotenoid pigment (ii) Betalain pigment (iii) Anthocyanin pigment
   (b) What factors are considered while choosing a pigment? (4marks)
   (c) What are the limitations of Natural pigments? (6marks)

4. (a) Describe a simple experiment for the extraction of dye from plant materials. (2½ marks)
   (b) What is a mordant? Mention three types and their features. (5½ marks)
   (c) In a tabular form describe three plants and the colour of dye they produce. (6marks)

5. (a) Distinguish between Kevlar and Nomex. (4marks)
   (b) With the aid of a balanced chemical equation, explain briefly how poly(methyl methacrylate) can be prepared. (4marks)
   (c) Mention four uses of each of the aramids. (6marks)

6. (a) Write short note on Pad Batch Dyeing Process. (3 marks)

(b) State the merits of Pad Batch Dyeing Process over others in the same category. (5marks)
(c) In a tabular form, highlight the main features of Continuous and Semi-continuous
Dyeing Process.
(6marks)

7. (a) Differentiate between Polyethene and Polypropylene.
(3 marks)
(b) In a tabular form, mention three polymer fibres and their applications.
(6marks)
(c) Write short notes on the following:
(i) Cellulose fibre (ii) Sulphur dye (5 marks)