NATIONAL OPEN UNIVERSITY OF NIGERIA

DEPARTMENT OF PURE AND APPLIED SCIENCES

2020_1 EXAMINATION (ALTERNATIVE A)

COURSE CODE: CHM 304
CREDIT UNIT: 2
COURSE TITLE: **COLOUR CHEMISTRY AND TECHNOLOGY**
TIME: 2 HRS
INSTRUCTION: ***Answer question 1 and any other 3 questions***

QUESTION ONE [25MARKS]

1. (a) Mention five characteristics/features of organic pigments. (5marks)

b) Write short note on each of the following:

(i) Inorganic pigments (5marks) (ii) Water retting (5marks)

(c) Discuss the mechanism of beam dyeing machine (5marks)

(d) Give a brief description of a simple experiment to obtain dyes from plant materials. (5marks)

QUESTION TWO [15MARKS]

2(a) Explain the term 'dye' (3marks)

(b) Discuss the industrial classification of dyes (12 marks)

QUESTION THREE [15MARKS]

3 (a) Describe briefly the term 'colour' (**3marks)**

3 (b) Enumerate the three types of colour and give one example for each type **(9 marks)**

3 (c) What are Auxochromes? **(3marks)**

QUESTION FOUR [15MARKS]

4(a) What are the monomers of polyurethane, cellulose and polyacrylonitrile **(3marks)**

4(b) Mention four uses of polyurethanes **(4marks)**

4(c) Explain the term transesterification, using appropriate equation to illustrate the process **(8marks)**

QUESTION FIVE [15MARKS]

5. (a) Write a balanced equation for the industrial synthesis of nylon 6,6 from adipic acid and hexamethylene diamine**. (4marks)**

5. (b) (i)Differentiate between poly ethylene and polypropylene **(5 marks)**

5. (c) In a tabular form, list 6 polymers used as plastics and the polymers used as fibres **(6marks)**