



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**DEPARTMENT OF PURE AND APPLIED SCIENCES**  
**2021\_2 EXAMINATION** 45678

**COURSE CODE:** CHM 304

**COURSE TITLE:** COLOUR CHEMISTRY AND TECHNOLOGY

**INSTRUCTION:** *Answer question 1 and any other 3 questions*

**CREDIT UNIT:** 2

**TIME:** 2 HRS

**QUESTION 1**

**[25MARKS]**

- 1a) Why are substances opaque and transparent **5marks**
- b) Discuss vividly the two methods of producing colours **5marks**
- c) Explain how the following mordents' can be used and state their effects ; Alum, Chrome, Tara powder, Tartaric acid and Tin **5marks**
- d) Mention and explain the five types of synthetic dye that can impart colour on cotton materials **5mks**
- e) What are the economic importance of overflow dyeing machine **5marks**

**QUESTION 2 [15MARKS]**

- 2) Discuss why the straw appears bent when immersed inside a glass of water **5 marks**
- b) Give the characteristics features of pigments **7marks**
- c) Explain using examples the various types of pigments **3marks**

**QUESTION 3 [15MARKS]**

- 3a) Outline using examples the kinds of natural pigments **6marks**
- b) Clearly differentiate between organic and inorganic pigments **4marks**
- c) Explain the specific uses of the luminescent pigments in security printing **5marks**

**QUESTION 4 [15MARKS]**

- 4a) Classify natural inorganic pigments according to its various types **3marks**
- b) Enumerate the principal modes of classification of dyes **6marks**
- c) Attempt a classification of fibres according to origin giving typical example of each **6marks**

**QUESTION 5 [15MARKS]**

- 5a) Distinguish clearly the examples of polymers used as plastics and those used as fibres in a tabular form **5marks**
- b) Give the characteristics features of hydroxyethyl cellulose **5 marks**
- c) What are the special features of pad batch dyeing process **5marks**