

BOWEN UNIVERSITY, IWO, OSUN STATE  
COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCE  
INDUSTRIAL CHEMISTRY PROGRAMME  
2022/2023 B.SC DEGREE SECOND SEMESTER EXAMINATION

Course Code: CHM 356      Courses Title: Colour and Textile Chemistry Credit: 2

Date: 21/06/2023

Time Allowed: 2 hours

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INSTRUCTIONS: Attempt ANY THREE questions.

Answer each question on a fresh page.

Each question carries 25 marks

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**Question 1**

- a. Write short notes on the followings:
  - i. Additive Primary Colours
  - ii. Subtractive Primary Colours
  - iii. Tertiary colours9 Marks
- b. Explain what happens to the colour of dyes when modifiers are added 8 Marks
- c. What is the difference between a mordant and a modifier? 2 Marks
- d. How does the human eye recognize colour? 6 Marks

**Question 2**

- a. Clearly differentiate between a dye and a pigment 4 Marks
- b. Based on the methods of application, how can you classify dyes? 9 Marks
- c. Briefly explain the chemistry behind dyeing 6 Marks
- d. Explain why solvent dyeing is more advantageous than water dyeing? 6 Marks

**Question 3**

- a. Define the following term(s) in Colour Chemistry:
  - i. Auxochrome 2 Marks
  - ii. Chromophore 2 Marks
  - iii. exhaustion agent 2 Marks
  - iv. levelling agent 2 Marks
  - v. Optical brighteners 2 Marks

- b. i. What are natural dyes? 2 Marks
- ii. State the various classes of natural dyes. 3 Marks
- iii. Give specific examples of each class of natural dyes. 3 Marks
- iv. The introduction of synthetic dyes limited the use of natural dyes, despite the fact that they were cheaper and had better fastness qualities. Briefly explain why there is limited use of natural dyes. 7 Marks

**Question 4**

- a. Define synthetic dyes and state the basis on which they are classified. 5 Marks
- b. Write short notes on any two of the following types of dye.
- i. Acidic dye
- ii. Basic dye
- iii. Direct dye
- iv. Reactive dye 10 Marks
- c. i. Enumerate the basic principles of vat dye application 3 Marks
- ii. Write a chemical equation to depict the dyeing of cotton with vat dyes. 2 Marks
- d. What are the characteristics of disperse dyes? 5 Marks