



**UNIVERSITY
OF ESWATINI**

Examination 2020/2021

TITLE OF PAPER : Dyeing and Dyestuff Chemistry

COURSE NUMBER : CHE616

TIME ALLOWED : 3 hours

INSTRUCTIONS:

1. All questions are compulsory.
 2. Illustrate your answers with neat sketches wherever necessary.
 3. Figures to the right indicate full marks.
 4. Preferably, write the answers in sequential order.
-

Please do not open this question paper until authorised to do so by the chief invigilator.

Total marks: 100

Question 1

- a) Differentiate between a dye and a pigment. [4]
- b) What are the four major characteristics of dyes? [4]
- c) Which type of dye can be used for almost all synthetic fibres? [2]

[10 Marks]

Question 2

- a) Diazotisation and coupling are two very significant reactions in the production of azo dyes. Explain these two reactions using the formation of the azo dye Orange II as an example. [7]
- b) What are the two types of isomerism commonly encountered with azo compounds? Give an example of each. [7]
- c) Which type of dye is recognized by their strong fluorescence. Give an example. [3]

[20 Marks]

Question 3

- d) Define the term 'Pre-treatment' of textiles and describe the main processes involved during pre-treatment. [6]
- e) List any two dyeing machine types used to dye cotton fabrics. [4]
- f) State any four properties of disperse dyes [4]
- g) Textile finishing can be classified into three categories. Describe any two of these in detail. [6]

[20 Marks]

Question 4

- a) What are the differences between batchwise and continuous dyeing techniques/methods? [6]
- b) Describe dyeing of cotton fabric with vat dyes, clearly and support your argument by means of a chemical scheme. [6]
- c) Describe the two types of decorative printing. [4]
- d) What is the difference between cationic and anionic dyes? [4]

[20 Marks]

Question 5

- a) What is a mordant and why is it important in the textile industry? [4]
- b) Dyes can be classified based on four parameters, what are these parameters? [8]
- c) Describe reactive dyes. [2]
- d) What is the difference between additive and subtractive colour mixing, give an example of each scenario? [6]

[20 Marks]

Question 6

The production of colourants has significant environmental risks and several measures have been put in place to govern the manner in which these are manufactured handled and disposed. Give five of these principles.

[10 Marks]

END