

The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Textile and Apparel Technology



Study Programme	: Bachelor of Industrial Studies Honours
Name of the Examination	: Final Examination
Course Code and Title	: TAX6362/TAX6162 Advanced Colouration
Academic Year	: 2019/20
Date	: 30 th July 2020
Time	: 1330-1630 hrs
Duration	: 3 hours

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists **Two (2) Parts; Part I and Part II** in **Three (3)** pages.
3. The **Part I, Question 01** is **Compulsory** and carries **Twenty-five (25)** marks.
4. **Part II**, has **Seven (7)** questions. Answer only **Five (5)** questions.
5. All Questions in **Part II**, carries equal marks **Fifteen (15)** each.
6. Answer for each question should commence from a new page.

1. Compulsory question

(Each part carries 2.5 marks amounting to a total of 25 marks)

- (i) Name two (02) textile fibre types that can be dyed with Basic dyes.
- (ii) Classify Acid dyes into three (03) classes according to application.
- (iii) What are the Physio-chemical characteristics of a dye molecule that determine Substantivity?
- (iv) Explain the term "Mordant" with respect to textile dyeing.
- (v) Name the main operations involved in Vat dyeing.

- (vi) What is the function of Levelling Agents?
- (vii) Give the chemical reactions occurring in the Azoic dyeing process.
- (viii) Why polyester fibres/fabrics are difficult to dye with Direct dyes?
- (ix) Give reasons why Reactive dyes are generally used for Summer clothing.
- (x) Define the following terms associated with colour.
 - (a) Hue
 - (b) Saturation

Part II

(Answer only Five (05) questions from Part II)

2. (i) State five (05) ideal properties expected from a Dye material. (05 Marks)
- (ii) Explain the importance of each property that you have stated in the answer above. (10 Marks)
3. (i) Explain why Basic dyes are named as Cationic dyes? (06 Marks)
- (ii) Write brief notes on the general properties of Basic dyes. (09 Marks)
4. (i) Discuss the general properties of Sulphur dyes. (06 Marks)
- (ii) Describe the application process of water-soluble Sulphur dyes to textile materials. (09 Marks)
5. (i) Give two (02) reasons as to why Polyesters are difficult to dye? (05 Marks)
- (ii) Briefly explain the following processes used for Polyester dyeing: (10 Marks)
- a. High temperature dyeing
 - b. Carrier dyeing

6. (i) Give the main reasons why the Natural coloring materials are not commonly used in Textile Industry. (07 Marks)
- (ii) If you are given some Red flowers that have a natural colouring material; explain how you would do a study to use this colourant to dye a textile material. (08 Marks)
7. Using diagrams compare the “CIE” and “Munsell” colour systems. (15 Marks)
8. Write brief notes on the following: (15 Marks)
- (i) Dye migration
 - (ii) Dye bath assistants
 - (iii) Union Dyeing

