042

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

Study Programmes	: Bachelor of Science Honours in Engineering/ Bachelor of Industrial Studies Honours
Name of the Examination	: Final Examination
Course Code and Title	**: TAX6367 Advanced Colouration**
Academic Year	: 2023/2024
Date	: 20th February 2025
Time	: 1330 – 1630hrs
Duration	: **3 hours**

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **Eight (8)** questions in **Three (3)** pages.
3. Write down your Index Number in all the pages of answer scripts.
4. Answer the question one (Q1), which is compulsory and five (05) more questions from Q2 to Q8. Question one (Q1) carries 25 marks and questions two (Q2) to eight (Q8) carry fifteen (15) marks each.
5. Answers to each question should commence on a new page. If a question has many parts, all the parts should be answered in the chronological order under the same question.
6. Write down the answered question numbers in the answer book.
7. Answers should be in clear handwriting.
8. Do not use red colour pens to write the answers.

Compulsory Question

(Q1) (i) Basic dyes are categorized into a few groups according to the chemical structure. Name four (04) of them. (04 marks)

(ii) State three (03) dyeing auxiliaries that can be used for Acid dyes. (03 marks)

(iii) List three (03) types of Direct dyes that are classified according to the dyeing properties. (03 marks)

(iv) Name three (03) examples for Natural Mordant dyes. (03 marks)

(v) Define the term "Wool way", which relates to dyeing fibre blends. (02 marks)

(vi) State five (05) tests that are used to evaluate the colour perception of the human eye. (05 marks)

(vii) State two (02) instruments used to measure the colour. (02 marks)

(viii) Write down the three (03) steps common to any dyeing process. (03 marks)

Answer any five (05) questions from the following seven (07) questions.

(Q2) (i) Explain the method of dissolving Basic dyes to prepare the dye bath. (05 marks)

(ii) Write short notes on the following terms. (10 marks)

(a) Molecularly dispersed Acid dyes

(b) Acid milling dyes

(Q3) (i) Write a comprehensive note on the general properties of Direct dyes. (10 marks)

(ii) State five (05) after-treatments that can be used to enhance the wet fastness of Direct dyes. (05 marks)

(Q4) (i) Explain the phenomenon of "Blinding" associated with Azoic dyes. (05 marks)

(ii) State four (04) factors contributing to the "Bronze" appearance when dyed with Sulphur black dyes. (04 marks)

(iii) Briefly describe "Water soluble Sulphur dyes". (06 marks)

(Q5) (i) State the general properties of Vat dyes. (09 marks)

(ii) With the aid of a suitable diagram, describe the "Pigment-pad method" used in the application of Vat dyes to cellulosic fibres. (06 marks)

(Q6) (i) Briefly explain the processes of "pre-boarding" and "post-boarding" associated with the preparation of nylon fibres for dyeing. (06 marks)

(ii) With the aid of a suitable diagram, explain the thermosol dyeing method used in dyeing polyester or polyester blended fibres with Disperse dyes. (09 marks)

(Q7) (i) Describe the "Single bath method" used in dyeing blends of polyacrylonitrile and wool fibres. (09 marks)

(ii) Explain the method for determining the colour fastness to hypochlorite bleaching according to the ISO recommendation. (06 marks)

(Q8) (i) Briefly explain the following terms associated with Munsell system. (06 marks)

(a) Value

(b) Hue

(c) Chroma

(ii) Explain how the human eye perceives colour. (09 marks)