UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME	:	BACHELOR OF SCIENCE IN TEXTILE APPAREL DESIGN and MANAGEMENT YEAR III
COURSE CODE	:	TADM 307
TITLE OF PAPER	:	COLOURATION TECHNOLOGY
TIME ALLOWED	:	TWO (2) HOURS
INSTRUCTIONS	:	ANSWER QUESTION ONE (1) AND ANY OTHER TWO (2) QUESTIONS

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QUESTION 1 (COMPULSORY)

a) List the components of a spectrophotometer suitable for colour measurement and explain how the spectrophotometer is used to measure colour.

(10 Marks)

b) Colour parameters of two fabric samples are given in the table below

	L^*	a*	b*
Batch	40	20	30
Standard	50	30	20

i) Determine the following values: ΔL^*, Δa^*, Δb and ΔE^*

(8 Marks)

ii) In visual terms how would you describe the sample? **(2 Marks)**

c) State and explain the **two (2)** methods by which colour is reproduced **(10 Marks)**

d) Give **five (5)** advantages and **five (5)** disadvantages of dyeing with natural dyes **(10 Marks)**

[40 MARKS]

QUESTION 2

a) Give a detailed explanation of the main processes that take place during cotton fabric scouring. **(10 Marks)**

b) Discuss the effects of mercerisation on cotton fabrics. **(10 Marks)**

c) Outline the desizing process you used in the pre-treatment of cotton during your practical class. **(10 Marks)**

[30 MARKS]

QUESTION 3

a) Differentiate between dyeing and printing. **(10 Marks)**

b) With the aid of an appropriate example explain the type of fibres that are normally dyed with acid dyes showing the type of bonds formed between the dye and the fibres **(5 Marks)**

c) Explain what is meant by complementary colour scheme **(5 Marks)**

d) What do you understand by the following terms in relation to colour, use examples in your explanations: **(6 Marks)**

(i) Hue
(ii) Saturation
(iii) Value

e) Give **four (4)** principal properties that all dyes must possess **(4 Marks)**

[30 MARKS]

QUESTION 4

a) With the aid of chemical equations give a detailed explanation of the bleaching of cellulosic fibres using hydrogen peroxide **(15 Marks)**

b) Use a chemical equation to explain the type of dye-fibre bond formed when reactive dyes interact with cellulosic fibres **(5 Marks)**

c) Explain the Aqueous dye extraction method as used for plant materials giving its advantages and disadvantages **(10 Marks)**

[30 MARKS]