

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2015/2016**

**YEAR IV SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE SCH 2332: CHEMISTR OF PIGMENTS AND DYES**

**DATE:DECEMBER 2015 TIME: 2 HOURS**

**INSRUCTIONS:** Answer question one(compulsory) and any other two questions.

QUESTION ONE

a.

i. Define the term “auxochrome” (2 marks)

ii. Using a labeled diagram, illustrate the effect of an auxochrome on the light absorbance of a dye or pigment. (4 marks)

iii. Give any three examples of auxochromes. (3 marks)

b.

i. What major characteristics distinguish a pigment from a dye? (2 marks)

ii. Give any three applications of dyes and pigments. (3 marks)

c. Give two examples of pigments and dyes in each case. (4 marks)

d. Explain qualitatively why objects look coloured. (3 marks)

e. What is meant by (i) opacity and (ii) colour fastness. (4 marks)

f. Name two natural dyes and three synthetic dyes. (5 marks)

QUESTION TWO

a. Outline briefly the classification of dyes. (6 marks)

b. Describe four ways through which dyes adhere to fabrics. (4 marks)

c. Outline the physical factors that affect dye binding. (6 marks)

d. i. What is meant by the term colour? (1 mark)

ii. State three tems which are used to describe colour. (3 marks)

QUESTION THREE

a. Give the 7 colour resulting when light is passed through a prism. (7 marks)

b. Name two natural and two inorganic dyes used in paints. (4 marks)

c

i. Draw structures of any two types of auxochromes. (4 marks)

ii. Give the types of electronic transitions associated with the chromophores listed in c(i) above. (4 marks)

d. List any three paint types. (3 marks)

QUESTION FOUR

a. Outline the preparation of any one dye, showing all the chemical steps and the reagents used. (8 marks)

b. Identify the chromophores in the dye prepared above. (2 marks)

c. Describe any four dyeing methods at different stages of the textile manufacturing.

(8 marks)

d. Define the term reflectance. (2 marks)