CRAWFORD UNIVERSITY
COLLEGE OF NATURAL AND APPLIED SCIENCES
DEPARTMENT OF EARTH AND PHYSICAL SCIENCE
INDUSTRIAL CHEMISTRY UNIT
RAIN SEMESTER EXAMINATION 2012/2013 SESSION

COURSE CODE: ICH 444
COURSE TITLE: TEXTILE AND DYESTUFF CHEMISTRY
TIME ALLOWED: 2 HOUR
UNITS: 2
DATE: JUNE, 2013
INSTRUCTIONS: ANSWER QUESTION ONE AND **ANY OTHER 2** QUESTIONS.

1. (a) Explain the word "fabric".

(b) Distinguish between vegetable fibres and animal fibres.

(ii) Mention the functional group(s) in the vegetable fibres that is/are responsible for its/their dyeing ability.

(iii) What is the essence of wetting silk with water before dyeing?

(c)i Polyamide, Polyester, Polyacrylonitrile and Polyolefin fibres are synthetic fibres. State the uniqueness of each of these fibres.

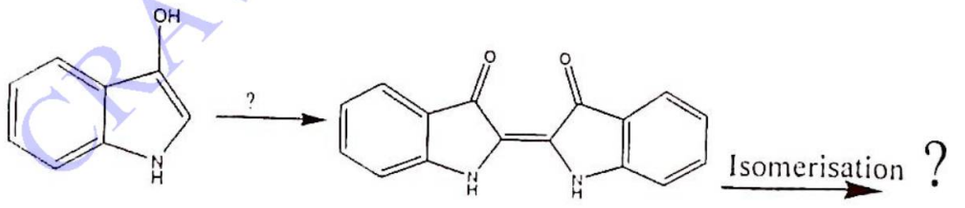
(ii) Explain the naming system of organic dyes.

(iii) Differentiate between Nitro dyes and Nitroso dyes.

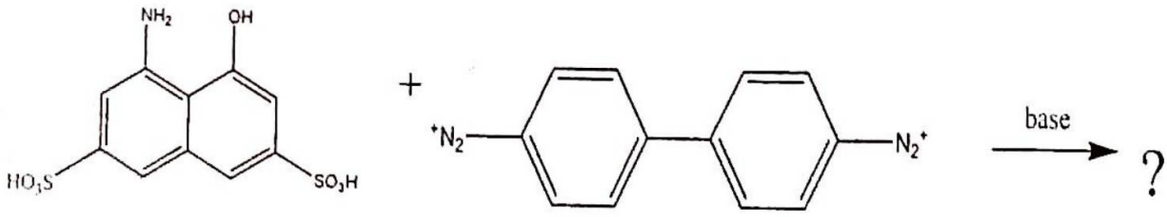
(d) Describe the preparation of Phenolphthalein; its reaction with water, acid and alkali.

2. (a) Mention and explain four ways by which dye can be applied to fibres.

(b) Complete the reaction below and name the products.



Indoxyl



(c) State the qualities of a good dye.

3a (i) In what ways can dyes be classified?

(ii) Explain 5 classes of dyes under "classification according to application".

(b) How would you develop Azoic dyes in any fabric.

c. (i) What are the fastness properties of dyes?

(ii) With the aids of reaction mechanism, describe the diazo coupling of phenol, naphthol and a named aromatic amine.

4a (i) Mention the names of 5 synthetic dyes and 5 natural dyes that can be used as food colourants.

(ii) Draw the organic structures of Orange I and Naphthol Yellows.

(b) What are the criteria that must be possessed by a dye before it can be considered to be applied as a food colourant.

(ii) Mention four medicinal dyes and explain any two of them.

(iii) Describe the relationship of dyes and cosmetics industries.

C (i) Explain the mechanism involved in nitration of a compound

(ii) With the aid of reactions only show the nitration of toluene.