



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN ANALYTICAL CHEMISTRY

ACH2304 : APPLIED ANALYTICAL CHEMISTRY 1

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

- (a) State -: (i) **FOUR** main contributors of suspended solids and sediments in waste water. (4marks)
- (ii) **THREE** objectives of sewage treatment. (6marks)
- (b) Differentiate between domestic sewage and sanitary sewage. (4marks)
- (c) Giving an example in each case, list **FIVE** hydrophobic functional groups that are found in detergents. (10marks)
- (d) State **THREE** sources of effluent in soap industries. (3marks)
- (e) List the ions that are present in both permanent and temporary hard water. (3marks)

Question TWO

- (a) Explain OXO process for preparation of primary alcohol from olefin. (10marks)
- (b) Explain the use of the following compounds in shampoo making.
- (i) Amine oxide
 - (ii) EDTA
 - (iii) Formaldehyde
 - (iv) propylene stearate
 - (v) Lanolin

(5marks)

Question THREE

- (a) List FOUR main sources of
- (i) Hard soap. (2marks)
 - (ii) Soft soap. (2marks)
- (b) State the use of the following raw materials in soap making
- (i) Rosin (3marks)
 - (ii) Tri sodium phosphate (4marks)
- (c) List FOUR requirements of a soap dye. (4marks)

Question FOUR

- (a) What is the difference between Essential and Mineral oils. (6marks)
- (b) (i) Sodium lauryl sulphate is a good detergent. Why? (4marks)
- (ii) Write equation for its formation from a suitable alcohol. (5marks)

Question FIVE

- (a) Define
- (i) BOD. (3marks)
 - (ii) COD. (2marks)
- (b) State FOUR sources of radioactive water pollutions. (4marks)
- (c) Give THREE reasons why heavy metals like *Pb*, *Cd* and *Hg* are dangerous inorganic pollutants in waste water. (6marks)