



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)(i) Define stabilization as applies to sewage treatment. (4 marks)
- (ii) How can one accomplish stabilization in sewage treatment process. (2marks)
- (b) State SIX objectives of tertiary waste water treatment process. (6marks)
- (c) Inorganic waste water pollutants contain trace elements of heavy metal and metalloids.
List THREE heavy metal elements and THREE metalloids elements that are found in inorganic waste water pollutants. (6marks)
- (d) List TEN raw materials that are used in soap making (10marks)
- (e) State TWO sources of effluent in soap industries. (2marks)

Question TWO

- (a) Explain Welsh process of preparation of primary alcohol from olefins. (9marks)
- (b) State SIX uses of supper fatting agent in soap. (6marks)

Question THREE

- (a) Explain the use of the following in compounds detergents.
- (i) $\text{Na}_5\text{PO}_3\text{O}_{10}$ (2marks)
 - (ii) Lauric alcohol amide (2marks)
 - (iii) Na_2SiO_3 (2marks)
- (b) State TWO requirements of a good shampoo. (3marks)
- (c) Explain the use of the following compounds in shampoo preparation.
- (i) 3,4,4- trichloro carbonate. (1.5marks)
 - (ii) Salenium sulphate. (1.5marks)
 - (iii) Egg albumin. (3marks)

Question FOUR

- (a) State FOUR advantages of anaerobic digestion process. (8marks)
- (b) Differentiate between hard and soft soap. (7marks)

Question FIVE

- (a) State FOUR characteristics of a good toilet soap. (4marks)
- (b) Give THREE reasons why heavy metals like Hg, Cd and Pb are dangerous inorganic pollutants in waste water. (7marks)
- (c) Differentiate between domestic sewage from sanitary sewage (4marks)