



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BTAC

ACH 4207 : ENVIRONMENTAL CHEMISTRY

Main Examinations

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: Pick Date Dec 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

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

Do not write on the question paper.

Question ONE

- (a) Describe and give examples and the characteristics of:
- (i) Type A organophosphate insecticide (3 marks)
 - (ii) Type B organophosphate insecticide (3 marks)
 - (iii) Type C organophosphate insecticide (3 marks)
- (b) Describe the five components of the lithosphere. (5 marks)
- (c)
- (d) Write succinct notes on the Evolution of the Atmosphere (9 marks)
- (e) Write down the hazardous wastes produced the following Industries or Products:
- (i) Electrical insulation
 - (ii) Electroplating
 - (iii) Fertilizers
 - (iv) Insecticides and Herbicides
 - (v) Leather
 - (vi) Textiles
 - (vii) Plastics

(1 mark each)

Question TWO

- (a) With the aid of diagrams, describe the following methods for water purification:
- (i) Ultrafiltration (5 marks)
 - (ii) Ion exchange (5 marks)
- (b) With the aid of diagrams describe the following devices for collection of particulates:
- (i) Baghouse filter (5 marks)
 - (ii) Electrostatic precipitator (5 marks)

Question THREE

- (a) Write succinct notes on thalidomide with respect to:
- (i) The molecular structure and importance of its chirality (4 marks)
 - (ii) The cause of its tragedy (4 marks)
 - (iii) Its revival (2 marks)
- (b) Write brief notes on dioxin with regard to:
- (i) Its molecular structure and chemical properties (3 marks)
 - (ii) The Seveso tragedy (4 marks)
 - (iii) Its effects on human beings (3 marks)

Question FOUR

- (a) Draw an annotated diagram showing the Synergism in the London smog. (10 marks)
- (b) Give an outline of the main steps in the cyclic pattern of the Los Angeles over a 24-hour period (5 marks)
- (c) What are the effects of carbon monoxide on human health (5 marks)

Question FIVE

Draw an annotated flow diagram for municipal wastewater treatment (20 marks)