

UNIVERSITY OF SWAZILAND

Faculty of Health Sciences

(BSC) IN ENVIRONMENTAL HEALTH

FIRST SEMESTER SUPPLEMENTARY EXAMINATION PAPER JULY 2010

TITLE OF PAPER : ENVIRONMENTAL CHEMISTRY 1

COURSE CODE : EHS 413

DURATION : TWO HOURS

MARKS : 100

INSTRUCTIONS :

- : ANSWER ONLY FOUR QUESTIONS
- : EACH QUESTION CARRIES 25 MARKS
- : QUESTIONS ONE AND TWO ARE COMPULSARY
- : NO QUESTION PAPER SHOULD BE BROUGHT INTO NOR OUT OF THE EXAMINATION ROOM
- : BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER

DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR

QUESTION ONE

- (a) Chemistry plays a central role in the life and health of all organisms. From the Environmental health point of view, defend this statement. (13 marks)
- (b) Why is there concern regarding the use and misuse of chemistry as far as the environment is concerned? (12 marks)

TOTAL 25 MARKS

QUESTION TWO

- (a) What does the abbreviation CEC stand for? (1 mark)
- (b) List three factors that determine CEC of soils. (3 marks)
- (c) Name the three types of weathering (3 marks)
- (d) Describe how biological, chemical and physical weathering contribute to the formation of soil (12 marks)
- (e) With the help of a chemical equation, show how pyrite oxidation contribute to soil acidity (6 marks)

TOTAL 25 MARKS

QUESTION THREE

- (a) Evaluate the environmental consequences of livestock production in communities areas (12 marks)
- (b) Describe the role played by Oxidation-Reduction reactions in the chemistry of dissolved species in water (13 marks)

TOTAL 25 MARKS

QUESTION FOUR

- (a) Water supports all forms of life. It would be a grave mistake to temper with its chemistry. Support this argument (15 marks)
- (b) Water has a higher surface tension than any other liquid. Explain how this surface tension comes about and how it influences water chemistry (10 marks)

TOTAL 25 MARKS

QUESTION FIVE

- (a) The atmosphere is a very important life support system. List the different layers of the atmosphere (4 marks)
- (b) Briefly describe the importance of the first two layers (from the earth surface) of the atmosphere in supporting life on earth (15 marks)
- (c) Briefly explain how nitrification and denitrification processes are brought about in soil chemistry. Include chemical equations where necessary. (6 marks)

TOTAL 25 MARKS

GOOD LUCK!!!!