

UNIVERSITY OF SWAZILAND

Faculty of Health Sciences

(BSC) IN ENVIRONMENTAL HEALTH

SECOND SEMESTER MAIN EXAMINATION PAPER MAY 2014

TITLE OF PAPER : ENVIRONMENTAL CHEMISTRY

COURSE CODE : EHM 104

DURATION : TWO HOURS

MARKS : 100

INSTRUCTIONS : ANSWER ANY FOUR QUESTIONS

: EACH QUESTION CARRIES 25 MARKS

: BEGIN EACH QUESTION ON A NEW PAGE

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

QUESTION ONE

- a. As an environmental health officer at Matsapha, you are to present a public lecture to the community living around the industrial site on the importance of the atmosphere. In detail write down the message that you are going to tell them. (20 marks).
- b. Draw a diagram to illustrate the structure of the atmosphere and label all the corresponding layers. (5 marks).

Total 25 marks

QUESTION TWO

- a. What do you call the study of soil? (1 mark).
- b. Define the term "soil". (3 marks).
- c. In the study of soils, there are three factors that are taken into account. Name them. (3 marks).
- d. Draw and label the structure of a soil profile and describe the composition of each horizon. (13 marks).
- e. Soils develop as a result of the interplay of five factors. Name these five factors. (5 marks).

Total 25 marks

QUESTION THREE

1. Water is life and God given. Civilizations and human development has been synonymous with water. However, civilizations and developments have also perished due to water. Elaborate in detail on these facts. (15 marks).
2. Water is said to be an excellent solvent. True or false. Explain your answer giving examples. (5 marks).
3. Water has a high surface tension. Explain how this property is useful in life. (5 marks).

Total 25 marks

QUESTION FOUR

Discuss benzene under the following themes:

1. Origin and structure. (5 marks).
2. Properties. (5 marks).
3. Uses. (5 marks).
4. Human health Impacts. (5 marks).
5. Explain what you understand about "resonance" in the benzene structure and draw labeled structures of benzene to illustrate this phenomenon. (5 marks).

Total 25 marks

QUESTION FIVE

- 1. Draw the structure of DDT and describe its health impacts on human beings. (5 marks).
- 2. Copy and fill in a table similar to the one below on your answer sheet. (20 marks).

Antropogenic compound	What is it	Example	Molecular formula	Structural formula
Alkenes				
Alkanes				
Alkynes				
Ketones				
Arenes				

Total 25 marks