

UNIVERSITY OF SWAZILAND

Faculty of Health Sciences

(BSC) IN ENVIRONMENTAL HEALTH

SECOND SEMESTER SUPPLEMENTARY EXAMINATION PAPER 2010

TITLE OF PAPER : ENVIRONMENTAL CHEMISTRY II

COURSE CODE : EHS 414

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

- What does the abbreviation PAN stand for? (2 marks)
- Write the chemical formula for PAN (3 marks)
- At what point in the smog-producing chain reaction is PAN formed? (3 marks)
- What are the main species responsible for the oxidation of NO to NO₂ in a smoggy atmosphere? (4 marks)
- Briefly describe the effects of PCBs on human health (7 marks)
- Write balanced chemical equations to show the oxidation of sulfur and its conversion to sulfuric acid which comes down as acid rain during the combustion of fossil fuels. Show all the steps. (6 marks)

TOTAL 25 MARKS

QUESTION TWO

Describe smog under the following themes

- Formation (5 marks)
- Its effects (5 marks)
- Ways of reducing (5 marks)
- Health and environmental impacts (10 marks)

TOTAL 25 MARKS

QUESTION THREE

- Define acid deposition (2 marks)
- Explain the ways in which acid deposition could be formed (6 marks)
- Discuss the risk acid deposition creates on ecological systems and on human health (14 marks)
- List three ways that can reduce acid deposition (3 marks)

TOTAL 25 MARKS

QUESTION FOUR

- What is a detergent? (1 mark)
- Name four types of surfactants (4 marks)
- In details describe each of the four surfactants nabbed in (a) above (20 marks)

TOTAL 25 MARKS

QUESTION FIVE

- (a) List nine alternative pest management strategies (9 marks)
- (b) Briefly describe the nine alternative pest management strategies you listed in (a) above (16 marks)

TOTAL 25 MARKS

GOOD LUCK!!!!!!!!!!