



**UNIVERSITY OF SWAZILAND**  
Faculty of Health Science

Department of Environmental Health  
Sciences

Final Examination 2010

Title of paper: AIR SAMPLING AND ANALYSIS II

Course code: EHS 565

Time allowed: 2 hours

Marks allocation: 100 Marks

Instructions:

- 1) Read the questions and instructions carefully
- 2) Answer four questions
- 3) Each question is weighted 25 marks
- 4) Write neatly and clearly

This paper is not to be opened until the invigilator has granted  
permission

## **AIR SAMPLING AND ANALYSIS SEMESTER II**

### **EHS: 561 FINAL EXAMINATIONS 2010**

#### **ANSWER ANY 4 QUESTIONS**

##### **QUESTION 1**

1. How do you calculate filter efficiency? (5)
2. You are heading the RPE programme at your and tasked with the responsibility of buying that equipment, what will be the key factors to consider? (10)
3. Dynamic/fume collectors are divided into 2, name them and then write about the one that does not use fabric material (10)

##### **QUESTION 2**

- a) Mist, vapour and gas eliminators use 4 processes to effect air cleaning, name them. (8)
- b) Respirators are ideal to protect workers form hazards that are found in the workplace, they come out with their own limitations though, discuss these limitations. (12)
- c) Show a formula that is used to calculate the hazard ratio (5)

##### **QUESTION 3**

- a) Write short notes about wet collectors' devices and electrostatic precipitators (5)
- b) How do air filters rid the workplace of indoor pollutants? (4)
- c) What does filter efficiency mean? (3)
- d) Differentiate between a filter and a cartridge (5)
- e) What is the negative fit test and how is it done? (8)

##### **QUESTION 4**

- a) Explain the following terms as they relate to respiratory equipment (12)
  - N Series
  - R Series
  - P Series
  - N 95
  - HEPA
  - P100
- b) Name and write short notes on the 3 air purifying respirators (13)

## QUESTION 5

- a) The Fit test is not carried out randomly, when is it ideal to do so? (8)
- b) How is the qualitative fit test carried out? (4)
- c) RPE has to meet some legal requirements in order to be acceptable, what could these criteria be? (5)
- d) What is the responsibility of the employer if administrative and engineering controls have failed with regards to dust, mist and vapour in the workplace? (8)