



# **UNIVERSITY OF SWAZILAND**

Faculty of Health Science

Department of Environmental Health  
Sciences

**Final Examination 2006**

Title of paper: Air Sampling and Analysis

Course code: EHS 533

Time allowed: 3 hours

Marks allocation: 100 Marks

Instructions:

- 1) Read the questions and instructions carefully
- 2) Answer Five questions
- 3) Each question is weighted 20 marks
- 4) Write neatly and clearly

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

**Answer any 5 questions**

**Question 1**

Describe the 5 hierarchical steps for developing control measures in order to reduce the exposure of workers to airborne contaminants.

Give an example in each method

[20 Marks]

**Question 2**

a) What are the 3 main types of respiratory protective equipment?

[6 marks]

b) Explain the positive and negative pressure test in testing respirators

[4 marks]

c) Discuss the use of Tyndall beam – illustrate with a diagram.

[10 marks]

**Question 3**

Air sampling and analysis needs proper planning. Explain 5 factors you would consider when preparing for air sampling.

[20 Marks]

**Question 4**

a) List and explain the adverse effects of 5 airborne particulates

[5 Marks]

b) Gases and vapors are easily carried by air current. Explain 3 devices that use passive sampling and for each method outline how the sampled concentration is analyzed.

[15 Marks]

**Question 5**

a) What are the 4 factors for determining the selection of an air cleaning device

[12 Marks]

- b) Explain the 3 groups of devices that are used in cleaning air [6 Marks]
- c) State the difference between absorption and adsorption [2 Marks]

**Question 6**

Define the following terms:

- a) OEL [4 Marks]
- b) AL [4 Marks]
- c) 8-hour reference period [4 Marks]
- d) Occupational asthma [4 Marks]