



**UNIVERSITY OF SWAZILAND**  
**Faculty of Health Science**  
**Department of Environmental Health**  
**Sciences**  
**Main Examination 2011**

**Title of paper: AIR SAMPLING AND ANALYSIS**

**Course code: EHS 564**

**Time allowed: 2 HOURS**

**Marks allocation: 100 Marks**

**Instructions:**

- 1) Answer ANY FOUR (4) questions**
- 2) Each question is weighted 25 marks**
- 3) Write neatly and clearly**
- 4) Begin each question in a separate sheet of paper**

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

## **QUESTION 1**

**Briefly discuss the following 5 workplace pollutants that workers may be exposed to including during their course of employment and their possible sources and health effects to the workers (25)**

- ❖ **Dust**
- ❖ **Fumes**
- ❖ **Vapour**
- ❖ **Smoke**
- ❖ **Gas**

## **QUESTION 2**

- a) **During a lecture session one of your classmates asks you a question as to what are workplace particles dependent on in order to effect ill – health to the workers. What will be your response to this question? (9)**
- b) **What do you require in order to calculate the workers true exposure? (4)**
- c) **Sequentially write a procedure that one might follow if carrying out air sampling in the workplace (12)**

## **QUESTION 3**

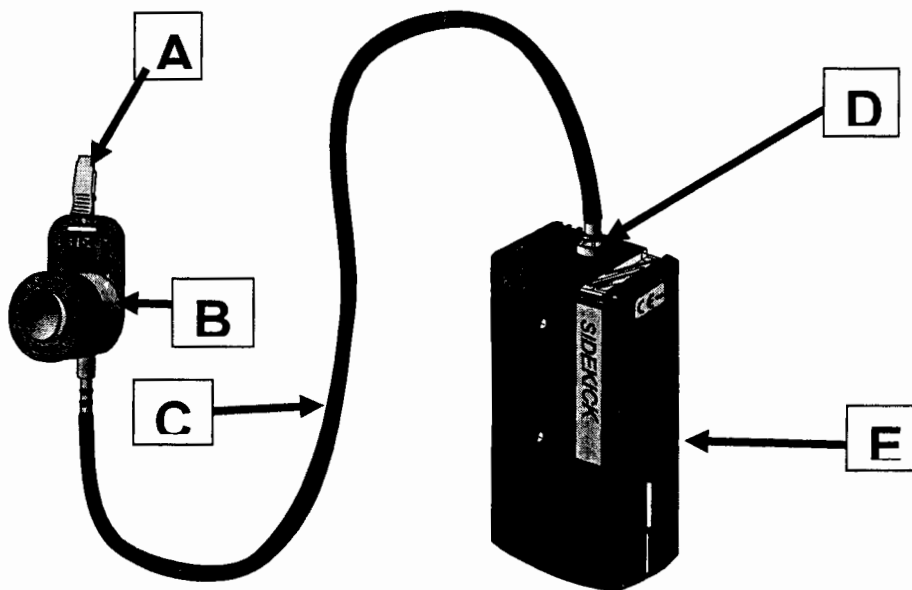
**Your consultancy has been awarded a tender by the Mbhuleni Gangsters City Council to conduct a thorough sampling exercise in one of their areas of responsibilities.**

- a) **What would be the critical points to take note of if one is to embark on this exercise? (8)**

- b) What information will the Air Monitoring expert need to capture at the commencement of sampling? (12)
- c) After this exercise the field officers give you their report, but you discover that there is some very salient information that they overlooked. What possible information were you expecting to come out clearly on this report? (5)

#### QUESTION 4

- a) Your Faculty of Health Sciences has asked you to make a presentation on the different types of air monitoring techniques. Your presentation should cover the following topics (20)
- Continuous monitoring
  - Passive/diffusive monitoring
  - Active monitoring
  - Remote monitoring
- b) Label the following diagram of a dust sampling train by using the letters only (5)
- E.g. A = Tape recorder



## **QUESTION 5**

- a) Data in air sampling is interpreted based on 5 critical rankings, what are they? (5)**
- b) Why is it very important to inform workers of the type of workplace stressors? (6)**
- c) Passive sampling methods can be used to detect 2 types of gases, which are these? (4)**
- d) List 6 devices that are used to control Nitrogen oxides in the workplace (6)**
- e) Differentiate between the 2, wet and dry scrubbers (4)**