



UNIVERSITY OF SWAZILAND

Faculty of Health Sciences

Department of Environmental Health Science

MAY 2013 Main Examination

Title of paper: AIR SAMPLING AND ANALYSIS II

Course code: EHS 565

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**
- 5) Numbering within a chosen question should be in a sequential order**

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

QUESTION 1

- a) In your company you have been employed to oversee medical examination of the workers, and one of your responsibilities is carrying out fit testing. When is one expected to conduct such an exercise? (6)
- b) In the fit testing files there is specific information that should be captured, outline this information (6)
- c) Briefly define the following terms (10)
 - i. Fit test
 - ii. QLFT
 - iii. QNFT
 - iv. Tight fitting face –piece
 - v. Pressure demand respirator
- d) You have been hired by the Matsapha International airport as their safety officer. During a school visitation trip one of the students asks you about the purpose of the noise that is emitted by Self Contained Breathing Apparatus (SCBA), how would you explain that (3)

QUESTION 2

- a) What are the Applied Protection Factors (APF) that are supposed to be provided by the following? (10)
 - i. APR – Full face piece
 - ii. PAPR - Full face piece
 - iii. SCBA – pressure demand full face –piece
 - iv. Airline respirator continuous flow mode FFP
 - v. PAPR – Loose fitting face - piece
- b) Briefly discuss the disadvantages of QNFT and QLFT? (9)
- c) There are a number of basic methods of controlling breathing hazards in the workplace, under engineering controls. What is the employer expected to do in order to safeguard the health of his employees against inhaling contaminated dust (6)

QUESTION 3

- a) The respirator program must be evaluated annually in consultation with all stakeholders. Briefly discuss the elements that should be considered under the review (10)**
- b) Define an Oxygen deficient atmosphere and a lower exposure level (4)**
- c) Contrast and compare the following APR and ASR and give relevant examples in each case (10)**
- d) What is the major difference with the other types of masks and the mouth –piece/nose clamp? (1)**

QUESTION 4

- a) If a certain type of operation has indicated that the workers must be provided with respirators, the employer is expected by law to furnish the concerned workers with relevant information. Outline the information that is supposed to be conveyed to the workers before using the RPE (8)**
- b) Name the 3 types of instruments that can be used for QNFT and the advantage thereof (7)**
- c) Issuance of RPE is just not a haphazard exercise; the employer is expected to carry out an exposure assessment exercise first. Outline the possible factors that would warrant that such an exercise to be carried out (10)**

QUESTION 5

- a) Outline the 4 measures that should be taken into consideration if one wants to prevent and control exposure of workers to contaminants in the workplace (8)**
- b) What are the 3 responses that a qualitative fit test may give? (6)**
- c) You have just been newly employed as a procurement officer and are responsible for procuring breathing apparatus. One of your juniors sees the following acronyms PASS and ADSU, and asks you as to what they stand for in BAs? Explain (4)**
- d) Outline the situations that would warrant the change of R and N class filters (6)**
- e) What determines the usability of a respirator? (1)**