



**UNIVERSITY OF SWAZILAND**  
Faculty of Health Sciences

**Department of Environmental Health Science**

Main Examination 2013

BSc. in Environmental Health Science

Title of paper: PRINCIPLES OF OCCUPATIONAL SAFETY  
AND HEALTH

Course code: EHM 211

Time allowed: 2 HOURS

Marks allocation: 100 Marks

**Instructions:**

- 1) Answer **ANY FOUR** 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**

- a) The protection against chemical hazards is a specialized field of activity in its own right. The promotion of safety rest on the basic policies of substitution, enclosure of process, controlled exposure and personal protection. Discuss these policies in detail and give appropriate examples on each. **(15 marks)**
- b) Critically examine the types of injuries that can be inflicted by an unguarded abrasive wheel in the workplace **(5 marks).**
- c) Name five (5) types of machine guards that are used in the workplace. **(5 marks)**

**Question 2**

- a) Define the following and indicate their importance in occupational hygiene.
- IDLH
  - PEL
  - TWA
  - Ceiling (c)
  - TLV
- (15marks)**
- b) What is a material safety data sheet? **(5 marks)**
- c) List 10 items covered on the typical Material Safety Data Sheet (MSDS). **(10marks)**

**Question 3**

- a) Outline the basic hazard recognition procedure **(15 marks)**
- b) Differentiate between allergic contact dermatitis and irritant contact dermatitis **(10 marks)**

**Question 4**

- a) Machinery in the workplace can either produce mechanical or non- mechanical dangers to the operatives and people nearby people. Briefly discuss this statement. Your discussion should site at least ten (10) examples of non-mechanical dangers and four (4) examples of mechanical dangers. **(15 marks)**
- b) Outline the functions of the safety and health representatives under the Swaziland Occupational Safety and Health Act 2001 **(10 marks)**

**Question 5**

- a) Explain and Define the following statements terms that are related to noise pollution control
- i. What is the average range of audible frequencies of normal persons? **(2 marks)**.
  - ii. SPL **(4 Marks)**
  - iii. SWL **(4 Marks)**
  - iv. Acoustic impedance **(4 Marks)**
  - v. The decibel **(4 Marks)**
  - vi. What is the recommended maximum 8-hour PEL of noise? **(2marks)**
- b) When measured at the same location, four noise sources have sound pressure levels of 81dB, 8dB7, 78dB, and 89 dB what would be the SPL at this location be all four sources were run concurrently? (use the simplified method) **(5 marks)**