

**University of Swaziland
Faculty of Health Sciences
Department of Environmental Health Science
May 2015 Main Examination**

Title of Paper: Principles of Occupational Safety and Health.

Course Code: EHM 211

Time Allowed: 2 Hours

Marks Allocation: 100 Marks

Instructions:

- **Read the questions and instructions carefully.**
- **Answer all questions**
- **Each question carries 25 marks.**
- **No paper should be brought into nor out of the examination room.**
- **Begin each question on a separate sheet of paper.**

**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION
HAS BEEN GRANTED BY THE INVIGILATOR**

QUESTION 1:

- a) Outline the hazards that might be encountered by a gardener employed by a local authority parks department **(10 marks)**
- b) Discuss in detail what constitute child labour and further tabulate the effects of child labour. **(10 marks)**
- c) List factors that make children vulnerable to chemicals **(5 marks)**

(Total = 25 marks)

QUESTION 2:

- a) Define the following terms used in occupational hygiene and briefly explain their importance.
- i) Permissible Exposure Level (PEL) **(3 marks)**
 - ii) Threshold Limit Value (TLV) **(3 marks)**
 - iii) Time Weighted Average (TWA) **(3 marks)**
 - iv) Short Terms Exposure Level (STEL) **(3 marks)**

- b) When reading a material safety data sheets John found that one of the TLV had a C notation and in the other there was an S notation. What do the C and S stand for? Explain. **(4 marks)**

- c) Calculate the Threshold Limit Value (TLV) of a mixture of the following sample:

Substance (A) = 500ppm, (TLV, 800ppm)
Substance (B) = 200ppm, (TLV, 250ppm) and
Substance (C) = 150ppm, (TLV, 250ppm).

Comment on the resultant TLV **(9 marks)**

(Total = 25 marks)

QUESTION 3:

- a) Explain the following regarding noise control.
- i) Sound Pressure Level (3 marks)
 - ii) Sound Power Level (3 marks)
 - iii) Acoustic Impedance (3 marks)
 - iv) The Decibel (3 marks)
- b) List physiological and psychological effects of noise. (5 marks)
- c) While auditing a factory, you measure the noise levels of five (5) sound sources that generated the following sound levels in dB(A): 90, 87, 85, 94 and 82 dB(A).

What is the total noise level (to the nearest dB(A), when they occur at the same time? Comment on the overall Sound Pressure Level (SPL)
(8 marks)

(Total = 25 marks)

QUESTION 4:

- a) What are the three (3) main types of asbestos (include their common names). (3 marks)
- b) Briefly discuss three (3) health hazards associated with asbestos. (6 marks)
- c) Regarding the Occupational Safety and Health Act 2001;
- i) What are the powers of the inspector - as provided under Section 5 of the Act? (6 marks)
 - ii) What is the composition of the Experts Committee – as provided under Section 20 of the Act? (10 marks)

(Total = 25 marks)