

UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

DIPLOMA ENVIRONMENTAL HEALTH SCIENCES
SUPPLEMENTARY EXAMINATION PAPER 2005

TITLE OF PAPER : ENVIRONMENTAL AND OCCUPATIONAL HEALTH
COURSE CODE :EHS 302
DURATION : 2 HOURS
MARKS : 100
INSTRUCTIONS : READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
: ANSWER ONLY **FOUR** QUESTIONS
: EACH QUESTION CARRIES 20 MARKS.
: WRITE NEATLY & CLEARLY
: NO PAPER SHOULD BE BROUGHT INTO OR OUT OF THE EXAMINATION ROOM.
: BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR.

Question 1.

- a) According to ILO and WHO, what are the aims of occupational health? **(3marks)**
- b) Who is considered the father of occupational medicine? Briefly discuss his contributions to occupational medicine. **(5marks).**
- c) Discuss the health and safety issues of workers in small industries. **(10marks)**
- d) Describe what is an occupational health hazard **(3marks)**
- e) Explain the difference between toxicity and hazard. **(4marks)**
- (Total = 25marks)**

Question 2.

A. There are precise meanings of certain words commonly used in industrial hygiene. These must be correctly used in order to understand the requirements of the Occupational Health legislation and to effectively communicate with other health professionals. Match each of the following terms with its correct definition.

- Dust
- Fumes
- Smoke
- Aerosols
- Mists
- Gases
- Vapours

- a) The gaseous form of substances that are normally in the solid or liquid state at room temperature and pressure.
- b) Liquid droplets or solid particles dispersed in the air that are fine enough particle size to remain so dispersed for a period of time.
- c) A state of matter in which the material has a low viscosity. Can expand and contract greatly in response to changes in temperature and pressure and readily and uniformly distributes itself throughout any container.
- d) Suspended liquid droplets generated by condensation from the gaseous to the liquid state or by breaking up a liquid into dispersed state, such as splashing, foaming, or atomising.
- e) Solid particles generated by handling, crushing, grinding, rapid impact, detonation, and decrepitation of organic or inorganic materials.
- f) Airborne particulate formed by the condensation of solid particles from gaseous state usually generated after initial volatilisation from a combustion process, or from a melting process.
- g) An air suspension of particles originating from combustion or sublimation: generally contains droplets as well as dry particles.

(14 marks)

B. Briefly describe the following;

- i) Carpal tunnel syndrome

(3marks)

- ii) Coal workers pneumoconiosis (4marks)
- iii) The difference between irritant contact dermatitis and allergic contact dermatitis, irritant (4marks)

(Total = 25marks)

Question 3.

- a) What are the objectives of air pollution monitoring (10 marks)
- b) The Gaussian equation can be written as a product of three (3) terms. What are they? (3 marks)
- c) What is the difference between PM_{2.5} and PM₁₀ (4marks)
- a) What is the difference between primary and secondary air pollutants? (5 marks)

(Total = 25 marks)

Question 5.

A) Define the following terms that are related to noise pollution control. How are these derived?

- i) SPL (4 marks)
- ii) SWL (4 marks)
- iii) Acoustic impedance. (4 marks)

B) Briefly explain what is meant by **DIPOSITION** of a toxicant or xenobiotic. (3 marks)

C) How would you carry out an occupational health and safety evaluation for a small secondary lead smelter of 10 to 15 employees (10 marks)

Question 5.

- a) No other pollutant gas is found at such high concentrations in urban atmosphere as is the extremely toxic, odourless, and colourless carbon monoxide. Discuss this statement. (10 marks)
- b) What are the sources and health effects of fluorine? (10 marks)
- c) What are the health effects of asbestos? (5 marks)

(Total = 25 marks)