



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences
Department of Environmental Health Science

**BACHELOR OF SCIENCE IN ENVIRONMENTAL
MANAGEMENT & OCCUPATIONAL
HEALTH**

JULY 2016 SUPPLEMENTARY EXAMINATION PAPER

TITLE OF PAPER : **FUNDAMENTALS OF INDUSTRIAL
HYGIENE**

COURSE CODE : **EHM 428**

DURATION : **2 HOURS**

MARKS : **100**

INSTRUCTIONS

1. Read the questions & instructions carefully
2. Then answer ANY OTHER FOUR (4) questions
3. Each question is weighted 25 marks
4. Write neatly and clearly
5. Begin each question in a separate sheet of paper
6. Numbering within a chosen question should be in a sequential order
7. **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) What are the 2 design features that SCBA for fire fighting are depend on, and why are they expensive compared to other types? (6 marks)
- b) What is/are the time lapse that can force fire rescuer's to manually rescue one of their own? (4 marks)
- c) List the agricultural situations that would require SARs (3 marks)
- d) Name 5 types of quarter mask and state what they indicate (5 marks)
- e) Define filter efficiency (1 marks)
- f) What do the following letters used in respirators labelling mean?
N, R, P. (6 marks)

QUESTION 2

- a) If you were carrying out air sampling in the workplace, you would consider where to sample. What factors will you be focussing on? (8 marks)
- b) How does a Tyndal Beam Light **Effe**ct function and its limitation? (10 marks)
- c) What type of environments are the following: Oxygen deficiency and Oxygen enriched including their percentage ranges? (4 marks)
- d) Define a fit test (3 marks)

QUESTION 3

- a) Compliance surveys are carried out where exposure stressors are quantified and evaluated by comparison to published health standards. Name these standards (4 marks)
- b) If as an OSH officer one has to undertake a walk-through survey, what would be the rationale of such an exercise? (10 marks)
- c) Workers exposed to various hazards will more often bring complaints to your office. Briefly outline the different steps that you would take to address this (8 marks)

- d) Define an IDHL atmosphere (3 marks)

QUESTION 4

- a) If you were to quantify exposure, what would be the 3 key parameters you will take into account? (6 marks)
- b) What biological indices would one find in the following media? (6 marks)
- Urine
 - Blood
 - Exhaled air
- c) Define the following terms used under OELs? (6 marks)
- Regulatory standard
 - Voluntary guidelines
 - Local limits
- d) What do these acronyms stand for WBV and HBV? (4 marks)
- e) Outline the three purposes of integrated sampling (3 marks)

QUESTION 5

- a) Name the three (3) basic types of LEV hoods that industries may utilise to control workplace contaminants. (3 marks)
- b) List the possible sources of health hazards produced by heat in the workplace (4 marks)
- c) What do the following acronyms stand for in relation to industrial hygiene? (2 marks)
- i. PS4R and
 - ii. HIS?
- d) Define Equivalent Sound Level (Leq). (2 marks)
- e) Explain briefly what the following terms mean (12 marks)
- i) Lower exposure action values
 - ii) Upper exposure action values
 - iii) Exposure limit values
- f) What do you understand by a 5dB doubling concept (2 marks)