



UNIVERSITY OF SWAZILAND
FACULTY OF HEALTH SCIENCES

DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCE

BACHELOR OF SCIENCE IN
ENVIRONMENTMANAGEMENT & OCCUPATIONAL
HEALTH

JULY 2018 RESIT 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. Question 1 is compulsory
3. Then answer ANY OTHER THREE (3) questions
4. Each question is weighted 25 marks
5. Write neatly and clearly
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 does Ca 400 BC stand for in the writings of ancient Greece? (2 marks)
- b) Who described the lung disease in 1540? (2 marks)
- c) Morbis Artificum Diatriba was written by..... (2 marks)
- d)introduced an impregnated mask to control exposure to gases and vapours (2 marks).
- e) ----- introduced rats and mice even himself to CO in order to indicate gas toxicity (2 marks)
- f) Name the 2 bodies that were set up due to the industrial hygiene revolution in the USA around the 1920s – 1930s (4 marks)
- g) When were personal sampling pump and sampling head developed (2 marks)
- h) Write shortly about the 3 typical times that are observed in the exposure of workers to contaminants (6 marks).
- i) If you were to quantify exposure, what are the 3 key parameters you will take into account? (3 marks).

TOTAL MARKS: 25

QUESTION 2

- a) What factors would determine if a worker is a maximum risk worker (8 marks).
- b) If one is carrying out personal dust sample, one has to use RAM and RDM, what do these acronyms stand for and how useful will this information be that is obtained by the RAM and RDM? (5 marks).
- c) Name the chemical elements that one would be looking for during biological monitoring (3 marks).
- d) Why is it important to do lung function test to textile and mill workers (3 marks)
- e) Compare and contrast TWAs versus STELs (6 marks).

TOTAL MARKS: 25

QUESTION 3

- a) What information would one need when interpreting data sampling results? (6 marks).
- b) List the considerations that a sampling and analytical procedure is dependent on (6 marks).
- c) In point form, discuss sample collection considerations (7 marks).
- d) How many samples may an occupational health analyst take in order to influence acceptability of the results (2 marks).
- e) Why is it important to involve workers during hazard identification? (2 marks).
- f) Why is the administrative control least preferred compared to the others levels of the hierarchy of control (2 marks)

TOTAL MARKS: 25

QUESTION 4

- a) What would be the numerous variables that may complicate a sampling strategy (6 marks).
- b) List 5 steps of exposure assessment (5 marks).
- c) Under qualitative preliminary assessment, what will your duty be if you were to use visual observation? (8 marks).
- d) What will you use to calibrate direct reading instruments? (2 marks).
- e) List the factors one has to consider in choosing an instrument for data analysis (4 marks).
Instrument choice depends on:

TOTAL MARKS: 25

QUESTION 5

- a) You have been given responsibility for the RPE programme at your workplace. Discuss with relevant examples what needs to be considered in selecting air cleaning devices (10 marks)
- b) What are the following features for in SCBAs? (2 marks)
 - i. PASS and;
 - ii. ADSU,
- c) Differentiate between a True Protection Factor and an Assigned Protection Factor of RPE. (4 marks)
- d) Concisely write on what the OHS officer should do about IDLH atmospheres AND what exception may be allowed not to observe the other IDLH requirements? (9 marks)

TOTAL MARKS: 25