



UNIVERSITY OF SWAZILAND
Faculty of Health Science

Department of Environmental Health Sciences

Final Examination 2007/2008

Title of paper: Industrial Hygiene Aspect of Plant Operation II

Course code: EHS 563

Time allowed: 2 hours

Marks allocation: 100 Marks

Instructions:

- 1) Read the questions and instructions carefully
- 2) Answer any Four questions
- 3) Each question is weighted 25 marks
- 4) Write neatly and clearly

This paper is not to be opened until the invigilator has granted permission

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Answer any four (4) questions

Question 1

a) In relation to radiation, explain the meaning of **four** of the following:

- Sievert
- Non-stochastic effect
- Shielding
- Film badge
- Stochastic effect
- Ionizing radiation
- Non ionizing radiation

[12 Marks]

b) Explain why ionizing and non-ionizing radiation should be regarded as a hazard to health.

[10 Marks]

c) What measure would you recommend to reduce the exposure of a worker who uses a source of x-rays at work?

[3 Marks]

Question 2

In a certain training institution the purchasing officer, out of ignorance bought all types of extinguishers and positioned them in most of the building walls.

As a safety officer you notice that some extinguishers were not needed because of the type of fires the institution can have and some were not placed in good positions.

Alert management on the:

a) Types of fires the institution can possibly have

[5 Marks]

b) Reactive measures to be in place in case of fire.

[10 Marks]

c) Extinguishers that the **institution ought to have** explaining the advantages of each type

[10 Marks]

Question 3

- a) What is noise? [3 Marks]
- b) Illustrate how noise is transmitted to the human ear's three sections [6 Marks]
- c) As a safety officer outline all the steps you will take to ensure that workers are protected from hearing impairment activities in the workplace [10 Marks]
- d) How does noise affect the safety and health of the worker? [6 Marks]

Question 4

- a) What is vibration? [3 Marks]
- b) Define the two types of vibration [6 Marks]
- c) Outline the adverse effects of vibration to the health and safety of the worker. [10 Marks]
- d) In vibration, what increases the risk of ailment to the worker? [6 Marks]

Question 5

- a) Define Mean radiant temperature [3 Marks]
- b) As a safety officer outline the factors to consider when specifying the lighting system in a factory for the safety and visual comfort of the workers. [8 Marks]
- c) Outline the different electrical hazards [6 Marks]
- d) Describe measures you would recommend to protect workers who are working in very cold and very hot conditions [8 Marks]