



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

Bachelor of Engineering Honours in Industrial and Manufacturing Engineering

DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING

Ergonomics and Industrial Safety

TIE 1204

Main Examination Paper

April 2015

This examination paper consists of 3 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: Answer book

Examiner's Name: Mr V S Moyo

INSTRUCTIONS

1. Answer any five (5) questions
2. Each question carries 20 marks
3. Use of calculators is permissible

MARK ALLOCATION

QUESTION	MARKS
1.	20
2.	20
3.	20
4.	20
5.	20
TOTAL	100

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Question 1

An employee is engaged in general cleaning activities in a large veterinary practice

- i) Identify four specific types of hazard that the cleaner may face as they undertake their cleaning [12]
- ii) Outline the precautions that could be taken to minimize the risk of harm from such hazards [4]
- iii) Describe four typical symptoms of skin dermatitis [4]

Question 2

The manager of a company is concerned about a substance that the company wants to introduce into one of the manufacturing processes.

- i) Briefly outline any possible four sources of information you might consult to know more about the substance. [10]
- ii) Explain how you would carry out a risk assessment for this substance. [10]

Question 3

Briefly but clearly explain the following terms as relating to fire management

- i) Fire certificate. [5]
- ii) Fire triangle. [5]
- iii) Fire assembly points [5]
- iv) Smothering [5]
- v) Fire escape routes [5]

Question 4

Explain, using suitable sketches, examples of signs that could be used to communicate the following:

- i) Prohibition [4]
- ii) Mandatory [4]
- iii) Radioactive material [4]
- iv) Slippery floors [4]
- v) Possibility of falling materials [4]

Question 5

Clearly explain the importance of the National Social Security Association [NSSA] to the welfare of employees in general. [20]

Question 6

Workplace design, workplace violence and workplace stress are common workplace issues that affect workers physically as well as psychologically. For each of the above three issues:

- i) Suggest two possible causes and their remedies. [10]
- ii) Briefly explain how these contribute to the economy of Zimbabwe? [10]

Question 7

Describe fully the arrangements to be put in place for the following types of people to address their special needs in a fire emergency:

- i) Workers who use crutches [5]
- ii) Workers who use wheel chairs [5]
- iii) Blind workers. [5]
- iv) Expectant mothers. [5]

End of Examination