



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY

Bachelor of Engineering Honours Degree Industrial and Manufacturing Engineering

ERGONOMICS AND INDUSTRIAL SAFETY I

TIE 1104

First Semester Supplementary Examination Paper

August 2015

This examination paper consists of 3 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: None

Examiner's Name: Eng. Sipwe Trinity Nyadongo

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
6.	20
7.	20
TOTAL	100

Question 1

- a) In terms of ergonomics, clearly explain what the possible effects of continuous use of a rock breaking air-drill are on the user. [5]
- b) Identify and list five (5) body areas and parts that are susceptible to the above effects during the use of the machine. [10]
- c) List and explain five (5) damage control and health measures that you would make. [5]

Question 2

Employees are expected to make mandatory monthly contributions to NSSA

- a) What is the importance of NSSA? [10]
- b) How should it help the employee? [10]

Question 3

- a) Describe two requirements that the Factories and Works Act places on the employers and explain why they apply to employers. [10]
- b) How do the employees meet their obligations according to the Factories and Works Act? Give two examples. [10]

Question 4

- a) Define machine guarding. [1]
- b) Give any five (5) requirements for effective guards. [5]
- c) Explain the roles of the following in machine guarding;
 - i) Supervisors, [2]
 - ii) Department Head, [3]
 - iii) Safety Officer, [3]
- d) i) Explain the use of a fume hood. [2]
- ii) State any four (4) guidelines in using machine guards effectively. [4]

Question 6

- a) Define toxicology? [2]
- b) Discuss Carbon monoxide poisoning, Lead poisoning, Mould poisoning, under the headings highlighted below:
 - i. Sources of the problem, [6]
 - ii. Control Measures, [6]
 - iii. Prevention Measures. [6]

Question 7

- a) Define First Aid. [2]
- b) Explain using an illustration where possible how you would apply First Aid techniques in the following situations:
 - i) Electrical Shock, [3]
 - ii) Poisoning, [3]
 - iii) Head injuries , [3]
 - iv) Unconsciousness, [3]
 - v) Burns and Scalds, [3]
 - vi) Choking. [3]