**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. Sipiwe 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

1. What is the importance of NSSA? [10]
2. How should it help the employee? [10]

**Question 3**

1. Describe two requirements that the Factories and Works Act places on the employers and explain why they apply to employers. [10]
2. How do the employees meet their obligations according to the Factories and Works Act?

Give two examples. [10]

## Question 4

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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;

1. Supervisors, [2]
2. Department Head, [3]
3. 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

1. Define toxicology? [2]
2. Discuss Carbon monoxide poisoning, Lead poisoning, Mould poisoning, under the headings highlighted below:
3. Sources of the problem, [6]
4. Control Measures, [6]
5. Prevention Measures. [6]

## Question 7

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a) Define First Aid. [2]

b) Explain using an illustration where possible how you would apply First Aid techniques in the following situations:

1. Electrical Shock, [3]
2. Poisoning, [3]
3. Head injuries , [3]
4. Unconsciousness, [3]
5. Burns and Scalds, [3]
6. Choking. [3]