

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING

ERGONOMICS & INDUSTRIAL SAFETY - TIE 1104

1ST SEMESTER EXAMINATIONS – APRIL 2009

Instructions to Candidates

1. Time allowed 3 hours
2. Answer **Five** Questions only
3. Each Question Carries **20 marks**

Question 1

Shop licences are issued to authorise an entity to deal in the provision of goods and services

- a) Discuss the importance of codes and standards relative to licence-issuing [10]
- b) What control role do licences play [5]
- c) Explain the importance of shop hours [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

Machine design and workshop layout are critical features in workshop safety.

State and describe two factors each that you think are critical in maintaining safety and health in the work environment. [20]

Question 4

WMS D's and CTD's are common disorders that occur among workers in an engineering environment.

- a) Clearly explain the meanings of these terms [5]
- b) Describe the causes that lead to their development [5]
- c) Describe five risk factors that lead to their development [10]

Question 5

Explain the following terms in the context of ergonomics and give one example each.

- Work rest cycles [5]
- Fatigue [5]
- Biomechanics [5]
- Anthropometry [5]

Question 6

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

End of Exam