

# **NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**

## **FACULTY OF INDUSTRIAL TECHNOLOGY**

### **DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING**

#### **ERGONOMICS & INDUSTRIAL SAFETY - TIE 1104**

#### **1<sup>ST</sup> SEMESTER EXAMINATIONS – FEBRUARY 2010**

**Time allowed 3hrs**

#### **INSTRUCTIONS TO CANDIDATES**

- 1** Answer **Five Questions** only
- 2** **Question 1 is compulsory**
- 3** All questions carry equal marks

#### **QUESTION 1**

“The design and layout of a workshop contributes quite significantly towards improving worker safety and health”

- a) Discuss the above statement using specific examples of features you would expect to find in a workshop setup. [10]
- b) What measures should workers take in order to minimize stress and fatigue especially when:
  - i. doing highly repetitive work?
  - ii working in a high temperature environment?
  - iii working in a dusty environment ?
  - iv working while in a standing position? [10]

#### **QUESTION 2**

“WMSDs and CTDs are common disorders that occur among workers as a result of some working habits”

- a) Explain the meanings of these terms [4]
- b) State the causes that lead to their development [8]
- c) Describe the risk factors that are responsible for their development [8]

#### **QUESTION 3**

- a) Ergonomics is basically divided into three broad domains.
  - i) State the three domains. [3]
  - ii) Briefly explain each one and show how they relate to each other. [6]
  - iii) Briefly explain the meaning of ergonomics. [2]

- b) Of what value is the study of ergonomics to:
  - i) the employee? [3]
  - ii. the employer? [3]
  - iii the nation of Zimbabwe in general ? [3]

#### **QUESTION 4**

The Factories and Work's Act is a legal document produced to give guidelines to both the employer and employee.

- a) Identify and describe any two provisions stated in the act that are directed at the employee. [5]
- b) Describe any two provisions stated in the act that are directed at the employer. [5]
- c) In your own opinion who does the Factories and Works Act protect and why? [10]

#### **QUESTION 5**

- a) Briefly explain what you understand by NSSA as a statutory body. [10]
- b) Describe how NSSA is of help and benefit to the employees especially
  - i) during their working lifetime. [5]
  - ii) during their retirement stage . [5]

#### **QUESTION 6**

Various environmental factors are responsible for various workers' ailments.

- a) Identify any four such factors of major concern as would be found in a typical production/manufacturing factory. [8]
- b) Explain why you think they are of major concern. [4]
- c) Describe and state specific areas or parts that each one of these factors can lead to potential damage. [8]

***END OF EXAM***