

UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

Department of Environmental Health Science

Main Examination
December 2014

Title of paper: Principles of Ergonomics

Course code: EHM 420

Time allowed: 2 hours

Marks allocation: 100 Marks

Instructions:

- 1) Read the questions and instructions carefully
- 2) Answer any 4 questions
- 3) Each question is weighted 25 marks
- 4) Write neatly and clearly

This paper is not to be opened until the invigilator has granted permission

Answer any four (4) questions**Question 1**

- a) Define manual material handling [5 Marks]
- b) Manual material handling can be a safety and health risk to the worker. Is there a fixed load weight that is prescribed for a worker? Justify your response. [20 Marks]

Question 2

Define the following terms:

- a) Ergonomics [3 Marks]
- b) Anthropometry [3 Marks]
- c) Cumulative Trauma Disorder (CTD) [4 Marks]
- d) Work Related Upper Limb Disorders (WRULD) [5 Marks]
- e) Awkward posture (give examples) [5 Marks]
- f) Musculoskeletal disorders [5 Marks]

Question 3

- a) Define the two different types of vibration and give examples [4 Marks]
- b) Give four (4) factors that contribute to the increase of the adverse health effects of vibration? [8 Marks]
- c) Outline the adverse effects of vibration to the health and safety of the worker [10 Marks]
- d) Outline possible vibration exposure control measures. [3 Marks]

Question 4

- a) What are the objectives of human factors (ergonomics)? [5 Marks]
- b) Describe an ideal general sitting workstation (not specifically a computer workstation). [20 Marks]

Question 5

a) In relation to thermal environment explain the following:

- i. Psychometric
- ii. Temperature
- iii. Humidity

[9 Marks]

b) Explain the factors, which influence the thermal comfort of workers, and how the body tries to cope with cold working conditions.

[8 Marks]

c) For heat to be exchanged between the inside and outside of the body there should be a normal heat transfer mechanism. State the four (4) transfer mechanisms that should take place.

[8 Marks]