

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING

Bachelor of Engineering Honours Degree Industrial & Manufacturing Engineering

1ST SEMESTER DECEMBER 2011 EXAMINATIONS

ERGONOMICS AND INDUSTRIAL SAFETY

COURSE CODE: TIE 1104

EXAMINATION DURATION 3 HOURS

INSTRUCTIONS TO CANDIDATES

1. Answer only **FIVE** questions
2. All questions carry 20 equal marks
3. Start each question on a new page

QUESTION 1

- a) Briefly explain why it is important to manage safety and health in industry. [8]
- b) Accidents do not happen. They are caused. Give four examples of accident causes in a work setup. [8]
- c) Explain how you relate the consequences of such incidents. [4]

QUESTION 2

Explain the following terms as relating to ergonomics and give one example each:

- a) Anthropometry [4]
- b) Fatigue [4]
- c) Biomechanics [4]
- d) Tendonitis [4]
- e) Carpal tunnel syndrome [4]

QUESTION 3

- a) List and explain four risk factors associated with Work-related Musculoskeletal Disorders's (WMSD) [4]
- b) Explain , giving one example each of how WMSD's occur, [4]
- c) How can the risk factors be reduced by employing:
 - i) Mechanization [3]
 - ii) Job enlargement and enrichment [3]
 - iii) Team work [3]
 - iv) Work place design [3]

QUESTION 4

- 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 5

- a) Fully describe the role National Social Security Authority plays in the life of an employee in general. [10]
- b) Fully explain what you understand by the Occupational Safety Health and Standards 18000 as an Industrial Safety Management System. [10]

QUESTION 6

- a) Why is it important to report actual and near- miss accidents? Give two reasons. [5]
- b) Explain the logic behind accident/incident investigation. [5]
- c) Explain what criteria would you use to initiate an accident investigation. [5]
- d) How would you decide whether it was advisable to report and document all accidents? [5]

END OF EXAM