NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING

ERGONOMICS & INDUSTRIAL SAFETY - TIE 1104

1ST SEMESTER EXAMINATIONS – JANUARY 2011

Instructions to candidates
1. Time allowed 3 hours
2. Answer any 5 Questions
3. All questions carry 20 marks each .

QUESTION 1

(a)   What is the distinction between the following terms:-
          (i) Accident and incident   [2]
          (ii) Safety and Health   [2]
(b)   Define the following terms
          (i) Hazard   [2]
          (ii) Risk   [2]
          (iii) Safety   [2]
          (iv) Accidental Loss   [2]
(c)   What are the four subsystems that interact and are affected by incidents.   [8]

QUESTION 2

(a) "All accidents are preventable in relation to Occupational accidents".
     Discuss this statement giving examples.   [5]
(b) In the Bird Ratio Study, what is the relationship between major injuries/illnesses
       and minor/injuries and illnesses, property damage accidents and near misses?   [5]
(c) Explain the Systems Theory of Accident Causation?   [10]

QUESTION 3

(a) What does "Lack of Control" in the Incident Causation model refer to?   [10]
(b) Explain the "Problem Solving Model" in the Incident Causation Model   [10]

QUESTION 4

(a) What is the role of a Factories Inspector in accordance with the Factories and Works Act?   [5]
(b) How does the Factories and Works Act uphold the need to create a safe work environment?
     Discuss.   [15]

QUESTION 5

(a) Describe how a company's emergency response should be coordinated.   [5]
(b) What factors should be considered when determining the type of emergency response teams an
      organisation needs?   [5]
(c) Describe the principle of multiple causes and its relation to the Incident Causation Model.   [5]
(d) List the major steps in an Incident Investigation.   [5]

QUESTION 6

(a) What are the real challenges that organisations face in implementing OSHAS   18000?   [10]
(b) How can these challenges in (a) above be overcome?   [5]
(c) What is the relationship between OSHAS 18000 and the Factories and Works Act?   [5]

The End