



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

**SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
IN ENERGY ENGINEERING**

SET 516: SAFETY ENGINEERING

DATE: THURSDAY, 19TH APRIL 2012

TIME: 2.00 P.M. – 4.00 P.M.

INSTRUCTIONS:

This Paper consists of FIVE QUESTIONS

Answer ANY THREE Questions.

QUESTION ONE

- (a) Define risk assessment and work place hazard (2 marks)
- (b) Discuss in details five steps in risk assessment in the work place (10 Marks)
- (c) Discuss any SIX types of workplace hazards indicating their causes and effects in relation to occupational accidents work related diseases. (8 marks)

QUESTION TWO

- (a) Explain four important components that are important in an accident investigation report (2 marks)
- (b) Discuss the sequence of Domino theory of accident causation (4 marks)
- (c) Outline Four ways organisational and managerial failures have contributed to disasters or accidents (4 marks)
- (d) Discuss the classification of human errors in accident causation under the following sub heading:
 - (i) Active failures
 - (ii) Latent failures (10 marks)

QUESTION 3

- (a) Define safe work procedure (1mark)
- (b) Outline SIX basic steps in developing a safe work procedure (4 marks)
- (c) Outline the EIGHT contents of a safe work procedure (4 marks)

- (d) Discuss SIX major types of personal protective equipments indicating the occupational hazard and part of the body protected (4 marks)
- (e) Discuss Unsafe actions and unsafe status in the accident occurrence model (7 marks)

QUESTION FOUR

Discuss in details the components of an occupational health and safety management system
(20 Marks)

QUESTION FIVE

- (a) (i) Discuss the sources of fatigue in standing work (2marks)
(ii) Outline Four work station design principles (2 marks)
- (b) Outline SIX general guidelines Engineers need to take into consideration for a good ergonomic design. (6 marks)
- (c) Outline Snooks guideline for material handling/ manual lifting (5 marks)
- (d) Discuss the general guidelines in hand tool design (5marks)
