



UNIVERSITY OF MINES AND TECHNOLOGY, TARKWA
FIRST SEMESTER EXAMINATIONS, NOV/DEC 2018

COURSE NO: ES 383
COURSE NAME: ACCIDENT PREVENTION AND CONTROL
CLASS: ES III **TIME:** 3 HOURS

Name: _____ Index Number: _____

SECTION A:

ANSWER ALL QUESTIONS [30 Marks]

1. Differentiate between the following terms:
 - a. Preventive barriers and Mitigating barriers. [2 Marks]
 - b. Active and Latent failures. [2 Marks]
2. What are the key components of the epidemiological theory? [2 Marks]
3. List the THREE (3) broad factors that lead to human error in the human factors' theory. [3 Marks]
4. Identify any FOUR (4) stakeholders who are affected by accidents. [2 Marks]
5. State any TWO (2) limitations of event chain causality models of accident causation [2 Marks]
6. Identify FOUR (4) ways by which the investigation findings can be communicated to all who need to know. [2 Marks]
7. Identify TWO (2) limitation of FTA as an investigation tool. [2 Marks]
8. Identify the THREE (3) broad classification of errors that may lead to an accident. [3 Marks]
9. Identify any FOUR (4) common types of evidence that can be used for accident investigations. [2 Marks]
10. A comprehensive facts collection should cover FIVE (5) main areas. Name them. [3 Marks]
11. Outline FOUR (4) techniques for hazards identification in the workplace. [2 Marks]
12. Outline any FOUR (4) basic elements of any good accident prevention program. [2 Marks]
13. Why is it important to report all forms of incidents at work? [1 Marks]

SECTION B

ATTEMPT ALL QUESTIONS [30 MARKS]

1. Kramps Company Limited (**KCL**) is into the production and distribution of chemicals for metal recovery. In the year 2017, **KCL** experienced a total of 24 accidents, 8 disabling injuries and lost 300 days to injuries. If in that year the employees worked a total of 1500000 man-hours, calculate the following rates:
 - i) The accident frequency rate [2 Marks]
 - ii) The injury frequency rate [2 Marks]
 - iii) The accident severity rate [2 Marks]
 - iv) The average severity per injury [2 Marks]
 - v) Another manufacturing unit ran a campaign to reduce the number of knife cut injuries. As a result of this campaign the lost-time accident frequency rate at the unit fell by 20%. However, the accident severity rate fell by only 10%. **Explain** why the two indicators may not have fallen by the same proportion. [2 Marks]

2. Identify any FIVE accident investigation tools and briefly explain one of the tools including its benefits and limitations. [10 Marks]

- 3A Other than the combination theory, briefly describe any of the theories of accident causation. [6 Marks]

- 3B **Giving** reasons in **EACH** case, **identify FOUR** persons` who could be interviewed to provide information for an investigation into a workplace accident. [4 Marks]

Examiner: F. Krampah