



PROGRAM : NATIONAL DIPLOMA
ENVIRONMENTAL HEALTH
SUBJECT : OCCUPATIONAL HEALTH AND SAFETY III
CODE : OHS 32-1
DATE : FINAL EXAMINATION
NOVEMBER 2016
DURATION : 3 (THREE) HOURS
WEIGHT : 50: 50
TOTAL MARKS: 150

EXAMINER : MR MASEKAMENI MASILU DANIEL

MODERATOR: MR KHOZA N 4075

NO. OF PAGES: 3 PAGES

INSTRUCTIONS TO STUDENTS:

1. Answers all the questions, answer all questions in the appropriate format and number accordingly.
 2. Read your questions carefully. You will be penalised if your answers are not properly structured.
 3. You can start with any question, but do not divide sub-questions of the same question.
 4. Please write neatly.
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QUESTION 1 (51 marks)

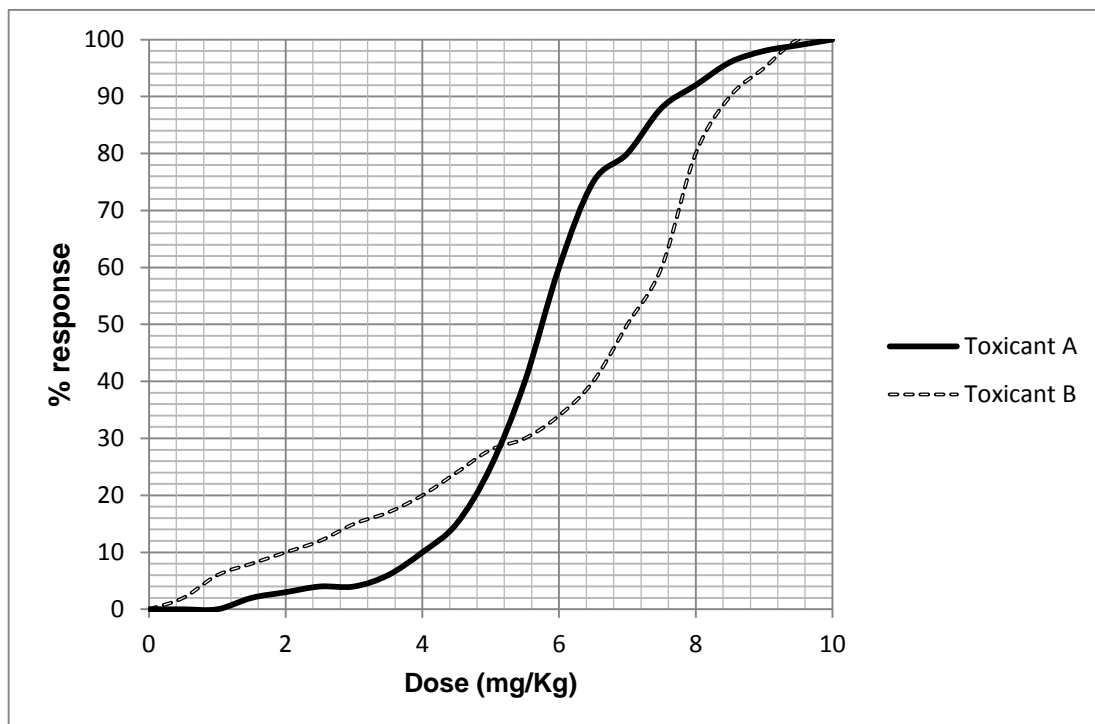
- 1.1. Globally, chemicals are daily produced for industrial and domestic use. Over 3 million chemicals are used in the industries, with majority being produced and used in developed countries. Studies suggest high incidences and prevalence of chemical poisoning in developed nations where, larger quantities of chemical are produced and used. Agree/ disagree [12]
- 1.2. You are employed by SASOL as the Occupational Hygienist; you are requested to participate in employment recruitment of personnel to work where gases and vapours will be dispersed in the ambient, thus increasing risk of exposure. What will be your requirements towards recruitment and why? [12]
- 1.3. Employers argue that the process of risk identification and evaluation is expensive therefore; instead of wasting money on this process, it is better to use the money on implementing controls. Do you agree or disagree, please motivate. [12]
- 1.4. Around the globe, Occupational hazards are classified in terms of toxicity. Kindly, explain the concept of toxicity in occupational settings, link your explanation to various toxicological effects of harmful chemicals [15]

QUESTION 2 (24 MARKS)

- 2.1 You are fortunate to be employed by ZZ2 as their occupational hygienist; you are requested to make a presentation about occupational dermatitis. In your presentation, you are requested to explain the difference between dermatosis and dermatitis, causes of dermatitis, different classes of dermatitis, clarify as to whether dermatitis is fatal or just mild, in case of high exposure, which control measures, will you suggest. Dear colleagues please remember ZZ2 business is centered around farming of tomato, however, the company have all sectors involved in normal industry excluding mining, imagine the employee responsible for mechanical activities and so on. Please constructively explain using categories mentioned above [15]
- 2.2. You are presiding over a case where the employee joined the organization with a pre-existing respiratory infection and later the diseases spread to other organs, due to minimum exposure to chemicals at his working station. You are further told that the employer and employee had a mutual agreement, indicating that, should the employee develop acute or chronic medical condition the employer will not be held responsible especially when the exposure were below OEL's. Please critique the case, in making my work easier, please first agree or disagree as to whether the agreement can be considered in solving the case [9]

QUESTION 3 (60 Marks)

- 3.1. In chemical setting, oxygen deficiency is a major occupational hazard associated with fatalities. Please, explain physiological response associated with oxygen deficiency, factors, which increase intake of contaminant and possible hazards associated. [12]
- 3.2. South Africa as part of the global community is a signatory under the Orlando Protocol. Agree or disagree. Please explain the relevance of this protocol in occupational health and safety. Align your presentation to African context. [15]
- 3.3. The user of an agricultural remedy request you to train him and his staff regarding the Material Safety Data Sheet. Please explain the important of MSDS and clearly state compulsory information to be included on the data sheet. Before answering this question, agree or disagree with the statement: MSDS and chemical label are the same. [15]
- 3.4. A lifeguard operator in the beach is reportedly exposed to silica dust because of his activities on daily basis. A second report indicate that a cement mixer in WBHO is complaining about dust exposure during his working schedule. Bear in mind how big is an ocean and the cement mixer use less than 20 bags of cement a day. The two work equal hours. Who will be at low risk of developing disease [8]
- 3.5. Use the figure below to answer toxicity of the two chemicals:



- (a) Estimate the threshold of Toxicant A and B [3]
- (b) Determine the LD₅₀ of toxicant A and B [2]
- (c) Which substance is more toxic at the dose of 6 mg/kg [3]

(d) What will be the LD₁₀₀ of A and B?

[2]

QUESTION 4 (15 MARKS)

- 4.1. Develop an Occupational Hygiene Program for TB hospital, please be specific on items or procedures you will implement at various stage of your program [15]

Total= 150 marks