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Universiti Tun Hussein Onn Malaysia

**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER II  
SESSION 2018/2019**

COURSE NAME : OCCUPATIONAL SAFETY AND HEALTH  
COURSE CODE : BDA 31302  
PROGRAMME : 3 BDD  
EXAMINATION DATE : JUNE/JULY 2019  
DURATION : 2 HOURS  
INSTRUCTION : ANSWER **FOUR (4)** QUESTIONS ONLY

THIS QUESTION PAPER CONSISTS OF **SIX (6)** PAGES

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**TERBUKA**

**Q1** (a) It is very important for the employers to manage occupational safety and health at their workplaces because a lack of management control often leads to the existence of causes of accidents and costs implication on the organizations. Examine **Figure Q1(a)** and discuss with examples how the accidents will contribute to the costs to the organization.

(5 marks)

- (b) Act 514 Occupational Safety and Health Act 1994 Section 30 under the establishment of safety and health committee at place of work stated that: Every employer shall establish a safety and health committee at the place of work in accordance with this section if;
- (i) There are forty or more persons employed at the place of work; or
  - (ii) The Director General directs the establishment of such a committee at the place of work.

Discuss **FIVE (5)** major purposes for establishing the committee described in Section 30.

(10 marks)

- (c) The definition of safety culture is “an organisational atmosphere where safety and health is understood to be, and is accepted as, a high priority”. Select **FIVE (5)** main factors that make a good safety culture and support your answer by providing detail discussions with examples explaining each of them.

(10 marks)

**Q2** (a) Most informal risk assessment techniques consist of multiple steps where the worker is asked to look for hazards, determine the significance of the hazard, and take some action to mitigate the risk. Choose **FOUR (4)** common informal risk assessment techniques which are widely used in industries and briefly illustrate each of its function.

(8 marks)

- (b) In recent years, Hazard Identification, Risk Assessment and Risk Control (HIRARC) have become fundamental to the practice of planning, management and the operation of a business as a basic of risk management. Using suitable example for each item, compare **FOUR (4)** basic type of control in the Engineering Control technique by providing detail discussions about each of them.

(8 marks)

(c) Risk can be presented in variety of ways to communicate the results of analysis to make decision on risk control. For risk analysis that uses likelihood and severity in qualitative method, presenting result in a risk matrix is a very effective way of communicating the distribution of the risk throughout a plant and area in a workplace.

(i) With reference to **Table 1**, calculate the risk priority number by filling in risk matrix in **Table 2**.

(3 marks)

(ii) Construct suitable range value to categorize the risk priority number into suitable ranges of high, medium and low risk. Propose the required action plan for each risk range or category.

(6 marks)

**Table 1: Risk Ranking Tables**

<b>LIKELIHOOD</b>	<b>SEVERITY</b>
Certain/imminent = 6	Multiple fatalities = 6
Very likely = 5	Single fatalities = 5
Likely = 4	Major injury = 4
May occur = 3	Lost time injury = 3
Unlikely = 2	Minor injury = 2
Remote = 1	Delay only = 1

**Table 2: Risk Matrix**

	Multiple Fatalities	Single Fatalities	Major Injury	Lost Time Injury	Minor Injury	Delay Only
Certain/Imminent						
Very Likely						
Likely						
May Occur						
Unlikely						
Remote						



**Q3** (a) In a construction site meeting with the company management, the safety officer presented reports of several accidents happened within last few months. The management requested the officer to come up with action plan to overcome the problems. Using the common overview of a typical construction site, choose and interpret **SIX (6)** important countermeasures related to safety and health management within employers control that can be implemented in order to reduce the occurrence of accidents at the work site.

(6 marks)

(b) Electric is an energy resulted from conduction of electrons. It is a general term which includes the energy related to electric charges whether static or dynamic. Despite of all the advantages, the usage of electric equipment is also known to have several hazards which include:

- (i) Electric shock
- (ii) Excessive brightness
- (iii) Fire

Compare the above hazards by giving **TWO (2)** specific descriptions related to each of them.

(6 marks)

(c) You will be conducting a safety training for a group of workers that will involve with mobile crane or overhead crane operations. Your company has been operating many type of cranes for ten years and has a complete maintenance record for its operations. Based on the knowledge of crane operations and evaluation of the maintenance record, select **SEVEN (7)** type of frequently occurred mechanical defects associated with crane operations that you will highlight in the training.

(7 marks)

(d) Material Safety Data Sheets (MSDS) are one of the most important tools available to employers for providing information, and protection to workers from hazardous chemicals which are used in the workplace. Differentiate **SIX (6)** required information that must be available in MSDS by providing detail explanation for each of them.

(6 marks)

- Q4** (a) Industrial hygiene practitioner is a safety and health profession that is concerned with predicting, recognizing, assessing, controlling, and preventing environmental stressor in the workplace that can cause sickness or serious discomfort to workers.
- (i) Explain **THREE (3)** major element health hazard in industrial hygiene. (6 marks)
- (ii) With aids of sketch, explain the role of industrial hygiene practitioner. (7 marks)
- (b) The toxic effects of lead (Pb) are well documented for human. Workers' exposure to Pb can damage the central nervous system, cardiovascular system, reproductive system, haematological system, and the kidney. Using hierarchy of control methodology, propose and provide detail explanation **FOUR (4)** control techniques that can be used as exposure control measures during handling the Pb. (12 marks)
- Q5** (a) When an accident occurs, it is important that it be investigated thoroughly. The primary reason for investigating an accident is to determine the cause of the accident. As one of the safety and health committee member at your factory, suggest **FIVE (5)** critical steps for conducting an accident investigation. (10 marks)
- (b) Incident prevention is on a mission to be a major player in the reduction of job related accidents. Select **FIVE (5)** most important principles of incident prevention and justify their importance by giving suitable elobration. (10 marks)
- (c) Construction accidents can be prevented just by identifying the root causes of accidents, which is possible by accident investigation techniques such as theories of accident causation theories and human errors. These theories provide explanations of why accidents happen. Using suitable diagram, illustrate the Accident Causation Model (1974) in order to get a better understanding about accidents root cause. (5 marks)

– END OF QUESTION –

**FINAL EXAMINATION**

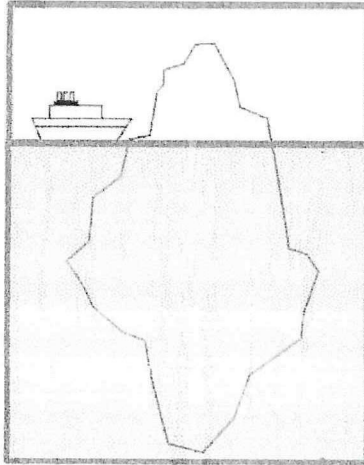
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**Figure Q1(a):** Tip of the iceberg