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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020**

COURSE NAME : OCCUPATIONAL SAFETY & HEALTH
COURSE CODE : BNQ 20403
PROGRAMME : BNN
DATE : DECEMBER 2019 / JANUARY 2020
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

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- Q1**
- (a) Define the term hazard and risk (4 marks)
 - (b) Safety committee of a chemical company which produced pharmaceutical products is required to do hazard identification, risk assesment and risk control (HIRARC) for their company. Propose **FIVE (5)** hazard identification techniques that the committee can use. (5 marks)
 - (c) Explain briefly, why the use of personal protective equipment (PPE) is the least desirable control. (2 marks)
 - (d) Propose **TWO (2)** Personal Protective Equipments associated with the following jobs/workplace.
 - (i) Working at height. (2 marks)
 - (ii) Working with electrical equipments. (2 marks)
 - (iii) Working with acidic, corrosive and volatile chemicals. (2 marks)
 - (iv) Exposure to more than 90 dBA continuously (8 hours per day). (2 marks)
 - (e) Answer the following questions by referring to the hazard symbol shown in **Figure Q1(e)**.



Figure Q1(e). Flammable hazard symbol.

- (i) Suggest **ONE (1)** hazard associated with **Figure Q1(e)**. (2 marks)
- (ii) Estimate **ONE (1)** potential risk or effect of the suggested hazard in **Q1(e)(i)**. (2 marks)
- (iii) Suggest **TWO (2)** control measures according to the hierarchy of control. (2 marks)

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- Q2** (a) (i) Define the term physical hazard and give **FOUR (4)** examples of physical hazards. (4 marks)
- (ii) Demonstate the conditions or situations which cause a machine to be considered as dangerous (by giving **FIVE(5)** different conditions). (5 marks)
- (b) An electrician received a severe electrical shock while doing electrical installation on building. The worker had received some training but the employer did not realize that the electrician was still not knowledgeable enough to perform the task he was given. The electrician was incorrectly doing the electrical installation job. Other than incorrectly doing the installation job,
- (i) suggest **THREE (3)** other hazards associated with electrical works. (3 marks)
- (ii) estimate **ONE (1)** physical injuries associated with the suggested hazards. (1 mark)
- (iii) propose **TWO (2)** engineering control, **TWO (2)** administrative control countermeasures in order to minimize the electrical hazards. Describe your answer in detail. (8 marks)
- (c) Describe **FOUR (4)** examples of hazards related to confined spaces. (2 marks)
- Q3** (a) Demonstrate the term health hazard by giving an example. (3 marks)
- (b) List **FIVE (5)** categories or group of hazards and give **ONE (1)** example of hazard for each categories. (5 marks)
- (c) Answer the following questions by referring to the hazard symbol shown in **Figure Q3(c)**.

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Figure Q3(c). Poison hazard symbol.

- (i) Suggest **ONE (1)** activity (at a workplace) and **ONE (1)** hazard associated with the activity and **Figure Q3(c)**.
(4 marks)
- (ii) Estimate **TWO (2)** routes of entry of the suggested hazard in **Q3(c)(i)**.
(2 marks)
- (iii) Identify **THREE (3)** documents that are necessary in terms of safety and health of the employee of the suggested activity.
(3 marks)
- (iv) Suggest a program which the employer can provide (administrative control) for minimizing risk associated with the hazard answered in **Q3(c)(i)**.
(2 marks)
- (v) Explain the exposure monitoring and control listed below that can be taken related to health hazard/hazard described in **Q3(c)(i)**.
1. personal monitoring,
 2. environmental monitoring
 3. medical monitoring
- (6 marks)

- Q4** (a) Define the term accident.
(2 marks)
- (b) Discuss the importance of managing workplace emergencies and accidents.
(2 marks)
- (c) List **SIX (6)** potential workplace emergencies.
(3 marks)
- (d) As a Safety and Health officer (Safety Committee) for a chemical company, you are assigned to coordinate an investigation of a serious accident. You visited the location and have the opportunity to look around and meet with people who were present at the time. Answer the following questions by referring to the given scenario.

The scenario: A distillation column with hot diesel material leaked and caught fire. 10 employees were treated for minor burns and received first aid.

- (i) Develop an investigation techniques for the above case. (7 marks)
- (ii) Evaluate and identify **FIVE (5)** possible causes of accident described above. (5 marks)
- (iii) Based on the identified causes of accidents in question **Q4(d)(ii)**, propose FIVE(5) countermeasures for preventing the recurrence of similar incident. (5 marks)
- (iv) Explain the step under accident investigation that has to be taken after the countermeasures have been implemented. (1 marks)

- END OF QUESTION -

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