



UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2023/2024**

- COURSE NAME : OCCUPATIONAL SAFETY AND HEALTH
- COURSE CODE : BDX 20902
- PROGRAMME CODE : BDX
- EXAMINATION DATE : JULY 2024
- DURATION : 2 HOURS
- INSTRUCTIONS :
1. PART A: ANSWER **ONE (1)** QUESTION FROM TWO (2) QUESTIONS ONLY
 2. PART B: ANSWER ALL QUESTIONS
 3. THIS FINAL EXAMINATION IS CONDUCTED VIA
 - Open book
 - Closed book
 4. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

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PART A

Q1 The guiding principle of the Occupational Safety and Health Act (OSHA) 1994 is “The responsibilities to ensure safety and health at the workplace lies with those who create the risk and with those who work with the risk”. Interpret the duties related to OSHA 1994 for each of the roles listed below by providing **TWO (2)** explanations and/or examples for each of them:

- (a) Employers and self-employed persons (4 marks)
- (b) Designers, manufacturers and suppliers (plant and substance) (4 marks)
- (c) Employees (4 marks)
- (d) Safety and health officer (4 marks)
- (e) Safety and health committee (4 marks)

Q2 When conducting a Major Hazards Risk Assessment (MHRA), several risk analysis techniques and tools can be used. Interpret the common tools listed below by providing descriptions and/or related form illustrations for each of them:

- (a) Workplace Risk Assessment and Control (WRAC) (4 marks)
- (b) Failure Modes, Effects and Analysis (FMEA) (4 marks)
- (c) Fault / Logic Tree Analysis (FTA/LTA) (4 marks)
- (d) Hazard and Operability Studies (HAZOP) (4 marks)
- (e) Bow Tie Analysis (BTA) (4 marks)

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PART B

Q3 In the field of Occupational Safety and Health (OSH), the prevention of physical injury stands as a cornerstone in ensuring the well-being of workers. Every day, employees face various hazards in their workplaces. However, through the implementation of effective controls, the incidence of workplace injuries can be significantly reduced.

(a) Mechanical work normally involves the operations of machinery and its components. It is known that all these works are surrounded by some kind of hazards that need to be very well managed. You are an OSH consultant hired to assess safety at a manufacturing plant in Malaysia. The plant has experienced several incidents that have led to worker injuries.

(i) Demonstrate **THREE (3)** types of accidents that are commonly associated with mechanical works by providing elaboration and/or examples.

(6 marks)

(ii) Choose **THREE (3)** suitable methods for hazard prevention and control in mechanical works by providing detailed explanations and/or examples for each of them.

(6 marks)

(b) Using electrical safety knowledge, compare the effect of electrical hazards listed below by providing **TWO (2)** explanations and/or examples for each of them.

(i) Electrical shock

(4 marks)

(ii) Excessive brightness

(4 marks)

Q4 Maintaining a safe, healthy, and hygienic workplace environment is paramount to safeguarding the health and well-being of employees.

(a) Differentiate between physical and biological hazards. Provide elaborations and examples to support your comparison.

(6 marks)

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- (b) Mr. Maleq, an engineer at a manufacturing factory in Malaysia, has conducted a health safety meeting with the workers to discuss the chemical health hazards at the workplace. Based on a hazard identification study, he has decided to focus on the hazards of asbestos.
- (i) Determine the potential health hazards associated with asbestos exposure in the factory. Provide detailed elaboration on the types of health effects workers might experience from the exposure and/or give specific examples of how these health issues could manifest in the workplace.
(6 marks)
- (ii) Following the identification of the hazard, Mr. Maleq needs to ensure that all safety measures align with national regulations. Choose **TWO (2)** legislations related to the handling and exposure of asbestos in the workplace in Malaysia.
(2 marks)
- (iii) Choose **THREE (3)** appropriate control measures for handling asbestos hazards in the factory with suitable explanations and/or examples.
(6 marks)

Q5 In an aircraft component manufacturing factory, a technician suffered a hand injury while operating a high-precision milling machine. Preliminary findings suggest that the machine's safety guard was disabled during the incident. "Disabled safety guard" refers to a safety mechanism or protective device on machinery or equipment that has been intentionally deactivated, removed, or bypassed.

- (a) Demonstrate **TWO (2)** typical root causes of incidents due to poor management in the workplace with appropriate explanations and/or examples.
(4 marks)
- (b) Following the incident with the milling machine where a technician suffered a hand injury due to the disabled safety guard, the factory management initiated a formal incident investigation. Apply **EIGHT (8)** steps in the incident investigation for this situation by providing suitable descriptions and/or examples.
(16 marks)

- END OF QUESTIONS -

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