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**UNIVERSITI TUN HUSSEIN ONN
MALAYSIA**

**FINAL EXAMINATION
SEMESTER II
SESSION 2014/2015**

COURSE NAME : OCCUPATIONAL SAFETY AND HEALTH
COURSE CODE : BFC 43502
PROGRAMME : BACHELOR OF CIVIL ENGINEERING WITH HONOURS
EXAMINATION DATE : JUNE 2015 / JULY 2015
DURATION : 2 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF SIX (6) PAGES

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- Q1** (a) Management plays an important role in implementing safety measures on construction site. With the aid of a diagram, demonstrate how the 'lack of management control' can lead to 'accident'?
- (5 marks)
- (b) Section 15 of Occupational Safety and Health Act (OSHA) 1994 underlines the 'general duties of employers and self-employed persons to their employees' to ensure safety, health and welfare of all employees while at work. Explain **four (4)** general duties of the employers or self-employed persons to their employees.
- (8 marks)
- (c) Section 30 of Occupational Safety and Health Act (OSHA) 1994 highlights the 'establishment of safety and health committee at place of work.'
- (i) Describe the establishment conditions for the committee.
- (ii) Discuss the functions of safety and health committee.
- (iii) Provide details of the liability the employer shall face if he/she contravenes the provision of this section.
- (7 marks)
- (d) As the main contractor of an on-going construction project, you understand that can play the role to ensure the safety and health of workers during construction stage. Outline **five (5)** administrative controls that you can do to minimize the chance or probability of the workers to be harmed by the exposure to the hazards.
- (5 marks)
- Q2** In the area of Occupational Safety and Health (OSH), risk management can be defined as a procedure to control the level of risk of injury of ill-health and death, and to mitigate the effects of risk. HIRARC applies the concept of risk management that provides the evaluation of the risks involved in the workplace and the recommended control measures to avoid accident.
- (a) Describe **four (4)** sources of hazard.
- (4 marks)
- (b) There are 4 basic components of risk management, which are hazard identification, risk assessment, risk control and review. Explain **two (2)** methods for identifying hazards.
- (4 marks)
- (c) With the aid of a diagram, discuss the 'As Low As Reasonably Practicable (ALARP)' principle for determining appropriate risk control.
- (5 marks)

- (d) **Figure Q2** shows a scenario that happened on a site where the construction works took place. To ensure work activities being carried out safely and healthily, potential hazards need to be identified, assessed and controlled.

Analyze the photo given, prepare and produce HIRARC to ensure the hazard is as ALARP.

(12 marks)

- Q3** (a) Safety and health planning is very important in hazard control. In, mechanical handling, state **four (4)** factors to be taken into account before and during lifting work.

(4 marks)

- (b) Workers may expose to chemical hazards during construction activities. Examples of chemicals found in construction work include paints, silica (in concrete), cutting oils and epoxy resins. Discuss **three (3)** routes of exposures by which chemicals can contact and/or enter human's body.

(6 marks)

- (c) Given the scenarios below, identify the hazards involved and the potential effects of the exposure to the hazards for each scenario. Propose the control measures that can be taken to avoid the hazards or minimize the risks.

- (i) The workers are working on a scaffolding platform to do the finishing works of external wall at 10 meter high. There are three workers standing on the same platform at the same time.

(5 marks)

- (ii) The worker is vibrating the concrete of the precast concrete wall panel using the hand-held concrete vibrator. The average of accumulated amount of time spent when doing work is more than 50% work hours (more than 4 hours/shift for an 8 hour-shift).

(5 marks)

- (iii) Traffic management at construction site utilizes two-way system and enables vehicle to reverse anywhere. Pedestrian and vehicle routes are neither separated nor fenced.

(5 marks)

Q4 (a) Incident is an unexpected or unplanned event that may result in physical harm, death, losses and damage of properties. Based on your understanding, describe **four (4)** basic types of incidents.

(8 marks)

(b) Question b(i), b(ii) and b (iii) refer to the article below:

Company should take steps to restore public confidence

22 SEPTEMBER 2014 @ 8:08 AM

THE decision by MRT Corporation to reveal the findings of its investigations on the fatal accident involving three Bangladeshi workers at its Kota Damansara worksite on Aug 18 is most laudable.

Making the report public is in line with transparency, as this is a matter of public interest concerning safety at all MRT worksites.

The investigation found that the "lack of shims had resulted in the span having limited instability and when parapets were installed on one side of the viaduct, it resulted in the viaduct deck span to topple".

The report also revealed a number of other factors, such as "failure to identify risks and implement mitigation measures, failure to provide a comprehensive inspection, failure to communicate risks between various parties involved in the works and poor sub-contractor management".

It was reported that MRT Corp had also identified the personnel, the main contractor and their sub-contractors responsible for the accident.

While it is noteworthy for MRT Corp to take steps to deal with those responsible for the fatal incident, it is imperative for the authority concerned to take legal action against the culprits as

It is necessary to institute legal proceedings against those responsible, to convey a clear message that those who flout the law must be made to pay for their negligence and failure to act safely and responsibly.

Meanwhile, MRT Corp should now reinforce all safety aspects of their worksites. It should also mount a major exercise to restore public confidence in the safety of its operations and construction activities.

Tan Sri Lee Lam Thye, Kuala Lumpur

(i) Based on the article above, discuss **four (4)** root causes of incidents that contributed to this unexpected incident.

(8 marks)

(ii) Incident investigation strategies involve several steps in order to propose appropriate corrective action to prevent the recurring of accident. Once the causes and root causes of incident are determined, there are several incident investigation steps involved prior to implementing the preventive and corrective action. Explain these steps.

(6 marks)

(iii) Discuss **three (3)** approaches for implementing the corrective and preventive action for the incident.

(3 marks)

- END OF QUESTION -



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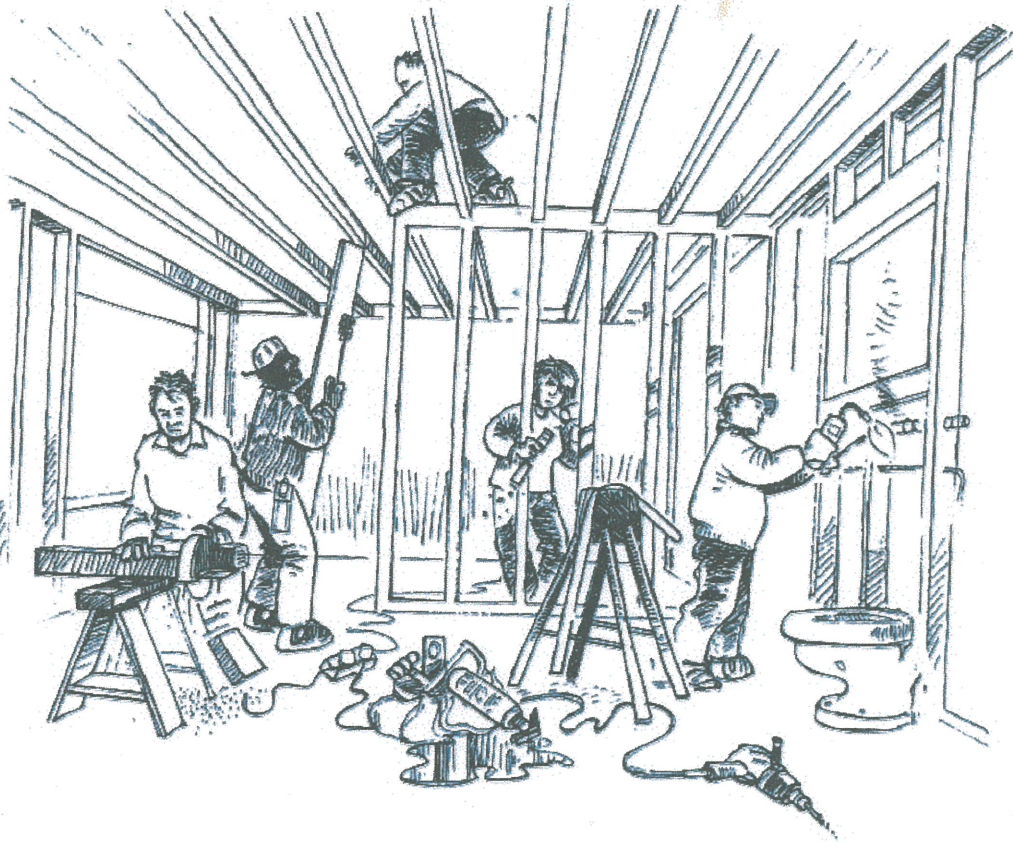


FIGURE Q2

