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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

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

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EXAMINATION DATE : DECEMBER 2019/JANUARY 2020
DURATION : 2 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FIFTEEN (15)** PAGES

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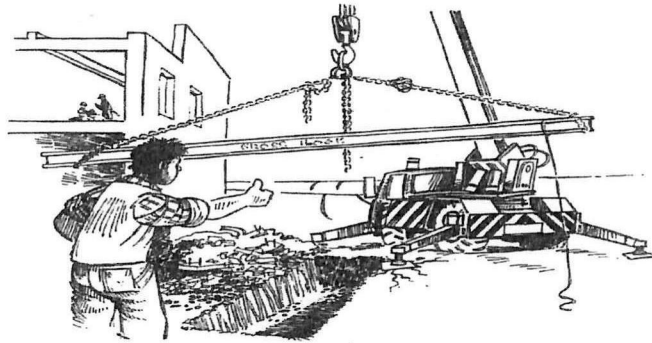
PART A: MULTIPLE CHOICE (50%).
Each Question Carries 1 Mark.

- Q1** While the management give their best effort to correct unsafe condition/practices, show the key observation require the employees to safe guard themselves.
- (a) Hazards (b) Safety
(c) Health (d) Risk
- Q2** List out leadership style that will have the most positive effect on subordinate satisfaction for employees who work on stressful, frustrating or dissatisfying tasks.
- (a) Supportive
(b) Achievement-Oriented
(c) Participative
(d) Contingency
- Q3** Identify type of fire classes that water is used to extinguish.
- (a) Class-A fires
(b) Class-B fires
(c) Class-C fires
(d) All of the above
- Q4** List out from the following that are included in the 'Hazard Identification' process:
- I. Workplace inspection
II. Hazard elimination
III. Investigate accident records
IV. Hazard isolation
- (a) I and III only (b) I, II and III only
(c) I, II, III and IV (d) None are correct

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- Q5** Illustrate the safe range of electric current to be touched with bare hands.
- (a) 1mA – 5mA
 - (b) 6mA – 15mA
 - (c) 16mA – 30mA
 - (d) 31mA and above
- Q6** Common law differs from statutory law. Determine a **TRUE** statement from the list below.
- (a) Statutory law passed by a legislature
 - (b) Statutory law is defined over a period of years by judges
 - (c) Common law refers to a law that is often violated
 - (d) Common law is a statute that amends a state constitution
- Q7** Construct the categories of hazards from below:
- I. Mechanical Hazard
 - II. Electrical Hazard
 - III. Chemical Hazard
 - IV. Ergonomic hazard
- (a) I and II only
 - (b) I, II and III only
 - (c) I, II, III and IV
 - (d) None are correct
- Q8** As referring to OSHA 1994, state the established name of the Council.
- (a) National Council for Occupational Safety and Health
 - (b) National Council for Occupational Safety and Welfare
 - (c) National Council for Occupational Goodness and Fitness
 - (d) National Council for Occupational Victims and Care

Q9 Based on the figure below, match **TWO (2)** INCORRECT methods used in the crane lifting operation.



- I. No safety clips on crane hook.
- II. Signaller person not wearing safety helmet
- III. The crane lifts the steel rods too high.
- IV. Only one crane used in the lifting operation

- (a) I and II only
- (b) I, II and III only
- (c) I, II, III and IV
- (d) None are correct

Q10 Give a functional area that is typically responsible for functions related to design, construction, standards, and repair.

- (a) Engineering
- (b) Facilities
- (c) Logistics
- (d) Research and Design

Q11 Compare the following choices that is **NOT** the method used in Hazard analysis.

- (a) Job Safety Analysis (JSA)
- (b) Economic analysis
- (c) Hazards and Operability Studies (HAZOP)
- (d) Fault Tree Analysis

Q12 Choose from the following techniques that would be most likely to increase the motivation and satisfaction of people at your working place.

- (a) Job placement
- (b) Responsibility of workers
- (c) Satisfaction of workers
- (d) Job enrichment

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Q13 The terms incidents and injuries are often used interchangeably. Compare the actual the meaning between them.

- (a) Synonymous
- (b) Different
- (c) Diametrically opposed
- (d) Identical

Q14 Choose the hazard exposure monitoring process from below.

- I. Noise
- II. Heat
- III. Water pressure
- IV. Radiation

- (a) I and II only
- (b) III and IV only
- (c) I, II and IV only
- (d) I, II, III and IV

Q15 Discover the requirement of a safety system from the statements below.

- I. Safe system at work
- II. Safety documentation
- III. Appropriate training for staffs and students when required
- IV. Worker Representative

- (a) I and II only
- (b) I, II and III only
- (c) II, III and IV
- (d) I, II, III and IV

Q16 Define a substance to be known as a pollutant.

- (a) The substance may cause sickness to human
- (b) The substance may cause sickness to animals
- (c) The substance may remain in the environment for a period of time
- (d) The substance cannot be degraded by human

Q17 Construct the information stated in The Job and Safety Analysis (JSA) table format.

- I. Fact problems
- II. Related job description
- III. Learning issues
- IV. List of things that can go wrong

- (a) I and II only
- (b) I, II and III only
- (c) II and IV only
- (d) I, II, III and IV

Q18 Choose a type of Personal Protection Equipment (PPE) that a worker mixing chemicals must **NOT** wear.

- (a) Safety glasses
- (b) Goggles
- (c) Gloves
- (d) Long sleeves

Q19 Give a tool that enables a team to identify, explore and graphically display the possible causes of an incident or hazardous conditions.

- (a) A fishbone diagram
- (b) An affinity diagram
- (c) A matrix diagram
- (d) An interrelationship diagram

Q20 Illustrate the main functions of The Hazard and Operability Studies (HAZOP) method.

- I. Identify and evaluate safety hazard in the process plant
- II. Educate the public on the danger of hazards
- III. Review the standard regulations
- IV. Identify the operability problems

- (a) I and III only
- (b) I and IV only
- (c) I, II and IV only
- (d) I, II, III and IV

Q21 Define a job hazard analysis.

- (a) A tallying of all the hazards found on the job
- (b) A technique that focuses on job tasks as a way to identify and correct hazards
- (c) A technique for analyzing job hazards and assigning them to appropriate categories
- (d) A technique for evaluating employees on the job to make sure they are working safely

Q22 Illustrate the function of The Fault Tree Analysis method.

- I. Analyse how and why an incident could occur at working place
- II. Evaluate the chemical substance used at work
- III. Calculate the probability of end event
- IV. Justify the possible danger of tool system used at work

- (a) I and III only (b) I and IV only
- (c) I, II and IV only (d) I, II, III and IV

Q23 Give the main reason of realizing the safety issues at work.

- (a) To acquire a compensation from an insurance company after accident
- (b) To be promoted at work
- (c) To go home safely
- (d) To reduce the cost of the company

Q24 Choose the appropriate reaction of the provisions of OSHA 1994, in the event of any conflict or inconsistency between the provisions of OSHA 1994 and any other written law pertaining to occupational safety and health.

- (a) Be ignored
- (b) Deal with the company management
- (c) Be consistent with the benefit of the insurance company
- (d) Prevail and be construed as superseded

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Q25 Define the risk assessment term.

- (a) The process of documenting the risk and hazards at workplace
- (b) The legislation process of documenting the potential hazard at workplace
- (c) The process of evaluating the risks to safety and health arising from hazard at work
- (d) The process which hazard is identified, measured and taken mitigating necessary action

Q26 Choose from the list that are **NOT** considered as the major air pollutants?

- I. Smoking
- II. Barbecue
- III. Cars
- IV. Lorries

- (a) I and II only
- (b) II, III and IV only
- (c) III and IV only
- (d) I, II, III and IV

Q27 Define the mission of Occupational Safety and Health Act (OSHA).

- (a) Protect the safety and health of the general public
- (b) Protect the safety and health of workers
- (c) Ensure that all workers receive the federal minimum wage
- (d) Ensure that all workers receive adequate workers' compensation payments

Q28 Interpret the severity level if under the Semi-Quantitative risk assessment method, a person whom was on medical leave for more than **FOUR(4)** consecutive days.

- (a) Level 1
- (b) Level 2
- (c) Level 3
- (d) Level 4

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Q29 Choose **NOT** a toxic substance in human body, from the following samples for the Biological Monitoring process.

- (a) Blood
- (b) Saliva
- (c) Urine
- (d) Teeth

Q30 Construct the composition of Safe and Health Committees.

- I. Chairman
- II. Secretary
- III. Management Representative
- IV. Worker Representative

- (a) I and II only (b) II, III and IV
- (c) I, II and III only (d) I, II, III and IV

Q31 Choose **NOT** a true statements about ‘Occupational Stress’.

- (a) Stress results in mental suffering for the worker
- (b) Stress has financial implications
- (c) Stress is something that cannot be avoided at the workplace
- (d) Stress can cause health problems

Q32 Classify a scenario that the decision for action is considered as **intolerable**, matching under the ‘As Low as Reasonably Practicable (ALARP)’ method,

- (a) The level of risk is not present on any ground
- (b) The level of risk is moderately justified on any ground
- (c) The level of risk is justified with some control measure present on any ground
- (d) The level of risk cannot be justified on any ground

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- Q33** There are several factors that are often used to determine when an organization should have the services of a full time Safety Professional. Show from the following that is generally acknowledged to be the prime-determining factor in assigning safety personnel.
- (a) The incident rate of organization
 - (b) The seriousness of incidents suffered by the organization
 - (c) The potential for serious injuries in the organization
 - (d) The type of industry the organization is involved in
- Q34** Illustrate the best measure that could prevent or minimised a person from the risk of electrical shock.
- (a) Regularly attend the necessary electrical course
 - (b) Aware with the circuitry diagram
 - (c) Possess a license to handle the equipment
 - (d) Ensuring using the good condition electrical equipment
- Q35** On the job injuries and illness cost money, time, and effort. Explain the most practical way to manage these losses.
- (a) Make sure safety is part of labor contracts
 - (b) Aggressive claims handling
 - (c) Effective safety and loss control programs
 - (d) Good insurance coverage
- Q36** Define the maximum fine due to guilty of an offence if any person who contravenes any of the provision of OSH regulation.
- (a) RM3,000
 - (b) RM5,000
 - (c) RM10,000
 - (d) RM50,000

Q37 Under the definition of FMA 1967, demonstrate the provisions related to the health.

- I. Keep a clean state and free from offensive effluvia arising from unattended and dirty circumstance sources
- II. Secure and maintain adequate ventilation by circulation of fresh air
- III. Deliver good meals every three working hours
- IV. Issue salary on promised time

- (a) I and II only (b) II, III and IV
(c) I, II and III only (d) I, II, III and IV

Q38 Environmental audit means a periodic, systematic, documented and objective evaluation to determine. Choose from the list that is **NOT** the main function of Environmental audit.

- (a) The compliance status to environmental regulatory requirements
- (b) The establishment of Environmental Fund Committee
- (c) The environmental management system
- (d) The overall environmental risk of the premises

Q39 Match the operations that contribute to the ergonomic risks.

- I. Doing repetitive work
- II. Using excessive force during work
- III. Work in long durations
- IV. Vibration due to the use of hand tools

- (a) I, II, III (b) II, III
(c) I, II, IV (d) All of the above

Q40 Under the definition of FMA, 1967, demonstrate the provisions related to the safety.

- I. Structurally sound premises to sustain loads
- II. Handling explosive, inflammable substances
- III. Prevention for the workers to lift, carry or move any load so heavy as to be likely to cause bodily injury to him
- IV. Construction, maintenance and safe guard of machineries

- (a) I and II only (b) II, III and IV
(c) I, II and III only (d) I, II, III and IV

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- Q41** It is illegal for a manufacturing company to discharge mercury waste without treatment into the environment. Select the Act that complies the above statement.
- (a) EQA 1974
 - (b) OSHA 1994
 - (c) FMA 1967
 - (d) ISO 14000
- Q42** Explain the function of Factories and Machinery Act 1967.
- (a) To provide for the control of factories with respect to matters regarding the safety, health and welfare of person
 - (b) To promote the working efficiency at work
 - (c) To schedule the maintenance of the machine
 - (d) To provide a regulation to protect the machines and the workers
- Q43** Choose from the following that is **NOT likely** direct source of ground water contamination.
- (a) Industrial effluents
 - (b) Underground leaks
 - (c) Landfill leachate
 - (d) Chemical spills
- Q44** Show the requirement where the 'Quantitative' risk assessment method shall be conducted for the case.
- | | |
|--|---|
| (a) Hazards are identified as minor and the documentation process is simple | (b) Hazards are identified as tolerable and the documentation process is simple |
| (c) Hazard is identified as tolerable and the documentation process is complex | (d) Hazard is identified as numerous and the documentation process is complex |

Q45 Give an equipment **NOT** used to test indoor air quality.

- (a) Thermometer
- (b) Anemometer
- (c) Gas detector
- (d) Strain gauge

Q46 Company XYZ plans to upgrade its waste treatment facility in town BBB. Illustrate the right actions by the company.

- I. Seek advice from Member of Parliament (MP)
- II. State the reason of the upgrade through mass media
- III. Submit Environmental Impact Assessment (EIA) report
- IV. Seek approval from local authorities

- (a) I and II only (b) II, III and IV only
- (c) III and IV only (d) I, II, III and IV

Q47 Give **NOT** a reason that contributes to the change of climate.

- (a) Increase in AIDS patients
- (b) More lands will be inundated
- (c) Increase in skin related cancer cases
- (d) Increase sickness to human

Q48 Restate the likelihood of occurrence of hazard under “**unlikely**” category.

- (a) Frequently
- (b) Occasionally
- (c) Rarely
- (d) Never

Q49 Show the objectives of the Malaysia Environmental Policy.

- I. To have a clean, safe, healthy and productive environment
- II. To sustain the lifestyles of Malaysians
- III. To conserve cultural and natural heritage

- (a) I and II only
- (b) I and III only
- (c) II and III only
- (d) I, II and III

Q50 Apply the methods for waste management.

- I. Open burning
- II. Reduction of waste
- III. Recycling of waste
- IV. Reusing of waste

- (a) I and II only
- (b) II, III and IV only
- (c) III and IV only
- (d) I, II, III and IV

PART B: SUBJECTIVE (50%)

Q1 (a) Describe the importance of safety management to avoid physical injury in electrical work.

(4 marks)

(b) List **THREE (3)** hazards or physical injuries that can occur due to faulty of electrical system.

(3 marks)

(c) Illustrate **SIX (6)** potential source of hazards including their example.

(12 marks)

(d) Explain the importance of Risk Assessment in an organization.

(6 marks)

Q2 (a) List **FOUR (4)** types of accidents. (4 marks)

(b) An employee is working on a ladder and the ladder seems to collapse. The employee falls off the ladder and breaks arm.

The investigation reveals the following details:

- Employee had worked seven 12-hour shifts in a row.
- Accident happened at end of shift.
- Employee was standing on the top step of the ladder (an unsafe action).
- The employee was approximately 10 feet above floor level.
- No fall arrest or restraint system was used.
- A ladder inspection policy is in place, but there is no evidence that the ladder has ever been inspected.
- Investigation reveals the ladder was damaged and did not provide a stable working platform in any environment.
- Interviewing with the facility manager, reveals that he did not inspect the ladder when it was due for inspection. He was aware that ladder needed to be inspected.

(i) Examine either accident investigation is required or not. (5 marks)

(ii) Discover **SIX (6)** factors and possible causes affecting the incidences. (6 marks)

(iii) Explain the root cause of the accident. (4 marks)

(iv) Discover **THREE (3)** preventive measures that should be recommended to the company to prevent similar accident in the future. (6 marks)

- END OF QUESTIONS -