UNIVERSITI KUALA LUMPUR
INSTITUTE OF MEDICAL SCIENCE TECHNOLOGY

FINAL EXAMINATION

OCTOBER 2025 SEMESTER

COURSE CODE	:	HRB10203
COURSE TITLE	:	PRINCIPLES IN OCCUPATIONAL SAFETY & HEALTH
PROGRAMME NAME	:	BACHELOR OF OCCUPATIONAL SAFETY & HEALTH (HONOURS)
DATE	:	26 JANUARY 2026
TIME	:	2:00PM - 5:00PM
DURATION	:	3 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consist of TWO sections.
4. Answer ALL questions for Section A.
5. Section B consist of four questions. Answer THREE (3) questions only.
6. Please write your answer on the answer booklet provided.
7. Please answer all questions in English only.
8. Please answer MCQ/EMQ questions using OMR sheet. ☐ *Tick if applicable*
9. Refer to the attached Formula/ Appendies. ☐ *Tick if applicable*

SECTION A (Total: 40 marks)

Answer ALL questions.

Please use the answer booklet provided.

1. Which statement best distinguishes the concept of "safety" from "health" in an occupational setting?

   A. Safety focuses on preventing long-term diseases, while health focuses on preventing accidents.

   B. Safety manages physical hazards, while health only manages biological hazards.

   C. Safety focuses on immediate, acute physical injuries, while health focuses on preventing illness over time.

   D. Safety is the responsibility of the government, while health is the responsibility of the doctor.

2. The "Iceberg Theory" shown above illustrates the relationship between direct and indirect accident costs. If the tip of the iceberg represents direct costs (like medical bills), what does the larger, submerged portion represent?
Refer Below - Figure1 : Iceberg Theory .

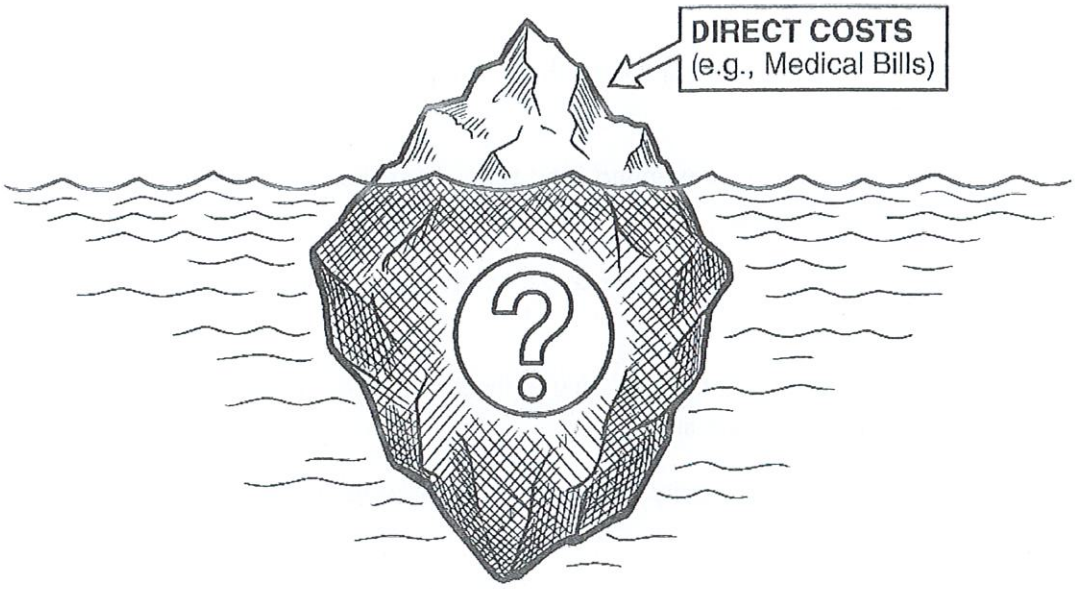

Figure 1: Iceberg Theory

A. The cost of insurance premiums.

B. The fines paid to the government.

C. The profit made by the company.

D. The hidden, often higher costs like lost time, investigation time, and reputation damage.

3. Why is the "moral argument" considered the most fundamental reason for implementing OSH standards?

A. Society deems it unacceptable to treat human workers as disposable commodities.

B. Workplace accidents result in high costs for insurance companies.

C. The law requires companies to pay fines for non-compliance.

D. Companies with strong safety records tend to have higher stock market values.

4. Which of the following best explains the "self-regulation" philosophy in modern OSH management?

   A. Safety officers are not required if the boss is present.

   B. The government writes every safety rule, and the company just obeys them.

   C. The company is responsible for identifying its own specific risks and creating its own rules to manage them.

   D. Employees are allowed to regulate their own working hours.

5. In the context of OSH, what does the term "near-miss" signify?

   A. A hazard that has been completely eliminated.

   B. An unplanned event that did not result in injury or damage but had the potential to do so.

   C. An event where an injury occurred, but it was not reported.

   D. An accident that caused minor first-aid injury only.

6. The Occupational Safety and Health Act 1994 (OSHA 1994) is based on the concept of "so far as is practicable." What does this phrase imply for an employer?

   A. The employer is only responsible for safety when the business is making a profit.

   B. The employer must balance the severity of the risk against the cost and effort required to mitigate it.

   C. The employer only needs to follow safety rules if they are convenient.

   D. The employer must eliminate all risks regardless of the cost.

7. Under Section 15 of OSHA 1994, the employer has a duty to provide "information, instruction, training, and supervision." What is the primary purpose of this duty?

   A. To ensure workers can pass a written exam.

   B. To fulfill the requirements of the Human Resources department only.

   C. To reduce the salary of untrained workers.

   D. To ensure workers are competent to perform their tasks safely and understand the risks.

8. Section 24 of OSHA 1994 outlines the duties of employees. Besides taking reasonable care of themselves, what is another critical duty of the employee?

   A. To formulate the company's safety policy.

   B. To purchase their own Personal Protective Equipment (PPE).

   C. To repair broken machinery without asking for permission.

   D. To cooperate with the employer in complying with the Act and any OSH regulations.

9. Which category of workers is excluded from the scope of OSHA 1994?

   A. Office and administration staff.

   B. Manufacturing factory workers.

   C. Construction workers.

   D. Armed Forces and personnel on board ships.

10. What is the primary function of the Safety and Health Committee as per the OSH (Safety and Health Committee) Regulations 1996?

    A. To discipline workers who are late for work.

    B. To organize the company's annual dinner and social events.

    C. To review safety measures and investigate complaints regarding safety and health matters.

    D. To approve the salary increments for safety officers.

11. Which of the following scenarios best illustrates a psychosocial hazard?

    A. A worker slipping on a wet floor.

    B. A worker handling a corrosive chemical without gloves.

    C. A worker experiencing extreme stress due to bullying and unrealistic deadlines.

    D. A worker lifting a heavy box using poor posture.

12. Noise-Induced Hearing Loss (NIHL) is a long-term effect caused by which type of hazard?

    A. Biological Hazard.

    B. Psychosocial Hazard.

    C. Physical Hazard.

    D. Ergonomic Hazard.

13. The worker shown in the figure below is demonstrating a poor lifting technique that could lead to musculoskeletal disorders (MSDs). What category of hazard is this?
Refer Below - Figure2 : Poor Lifting Technique .

Figure 2: Poor Lifting Technique

A. Chemical Hazard.

B. Biological Hazard.

C. Physical Hazard.

D. Ergonomic Hazard.

14. You see this GHS pictogram on a chemical drum in your workplace. What does it indicate about the substance inside?
Refer Below - Figure3 : GHS pictogram .

Figure 3: GHS pictogram

A. It is corrosive and can cause severe skin burns or eye damage.

B. It is flammable and catches fire easily.

C. It is a gas under pressure.

D. It is an explosive material.

15. In the HIRARC process, what is the main objective of the "Hazard Identification" stage?

A. To punish workers who created the hazards.

B. To calculate the budget required for safety equipment.

C. To determine the likelihood of an accident happening.

D. To pro-actively find and list all sources of potential harm before an incident occurs.

16. What two ratings are considered when calculating the risk level in a risk assessment?

    A. Number of employees and number of hazards.

    B. Training hours and accident history.

    C. Likelihood and severity.

    D. Cost of equipment and maintenance schedule.

17. Which control measure is considered the most effective in the Hierarchy of Controls?

    A. Administrative Controls.

    B. Personal Protective Equipment (PPE).

    C. Engineering Controls.

    D. Elimination.

18. If a risk is determined to be "High" in a risk assessment, what is the required action?

    A. Take immediate action to control the risk; work should not proceed until the risk is reduced.

    B. Ignore the risk if the cost to fix it is too high.

    C. Monitor the risk during the next annual review.

    D. Provide PPE to the workers and let them continue working.

19. What is the main difference between "administrative controls" and "engineering controls"?

    A. Engineering controls change the workplace/equipment, while administrative controls change worker behavior/procedures.

    B. Engineering controls require supervision, while administrative controls do not.

    C. Administrative controls are more effective than engineering controls.

    D. There is no difference; they are the same.

20. When should a HIRARC be reviewed or updated?

A. Only when the DOSH inspector asks for it.

B. Only after a fatal accident occurs.

C. Every 10 years.

D. Whenever there is a significant change in the process, equipment, or materials used.

21. The image below illustrates a critical safety procedure known as LOTO (Lock-Out/Tag-Out). What is the specific purpose of this procedure?
Refer Below - Figure4 : Lock Out Tag Out .

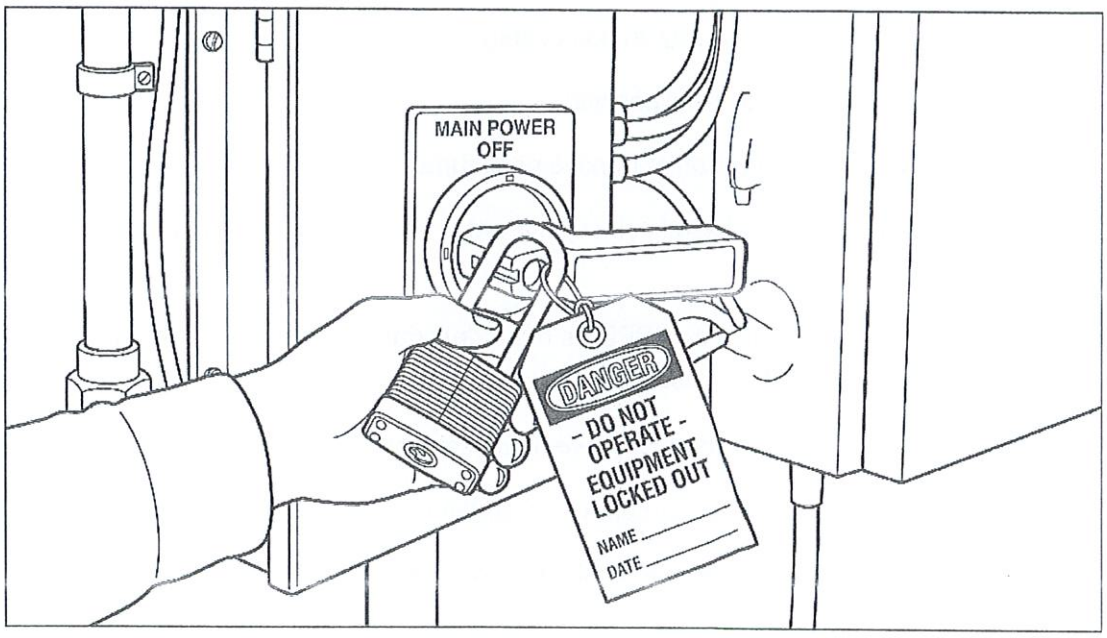

Figure 4: Lock Out Tag Out

A. To prevent the machine from being stolen.

B. To track how many hours the machine has been running.

C. To ensure the machine is kept clean during maintenance.

D. To prevent the accidental release of hazardous energy (e.g., electricity) while workers are servicing the equipment.

22. A "Safe System of Work" (SSOW) typically involves creating a Standard Operating Procedure (SOP). What is the main goal of an SOP?

    A. To ensure the work is done as fast as possible, regardless of safety.

    B. To provide a step-by-step written guide to perform a task safely and consistently.

    C. To replace the need for supervision.

    D. To confuse workers with legal jargon.

23. Which of the following actions is an example of "substitution" in the Hierarchy of Controls?

    A. Training the painter on how to paint safely.

    B. Wearing a respirator while painting.

    C. Installing a ventilation fan to remove paint fumes.

    D. Replacing a solvent-based paint with a water-based paint that is non-toxic.

24. Personal Protective Equipment (PPE) is often described as the "last line of defense" in the Hierarchy of Controls because it is _____.

    A. the most effective method for preventing accidents

    B. only relied upon after other control measures have been found insufficient

    C. the most expensive option to implement long-term

    D. intended only for emergency rescue situations

25. The image below shows a yellow guard rail used to stop workers from touching a moving conveyor belt. Which level of the Hierarchy of Controls does this represent?
Refer Below - Figure5 : Guard rail on conveyor belt .

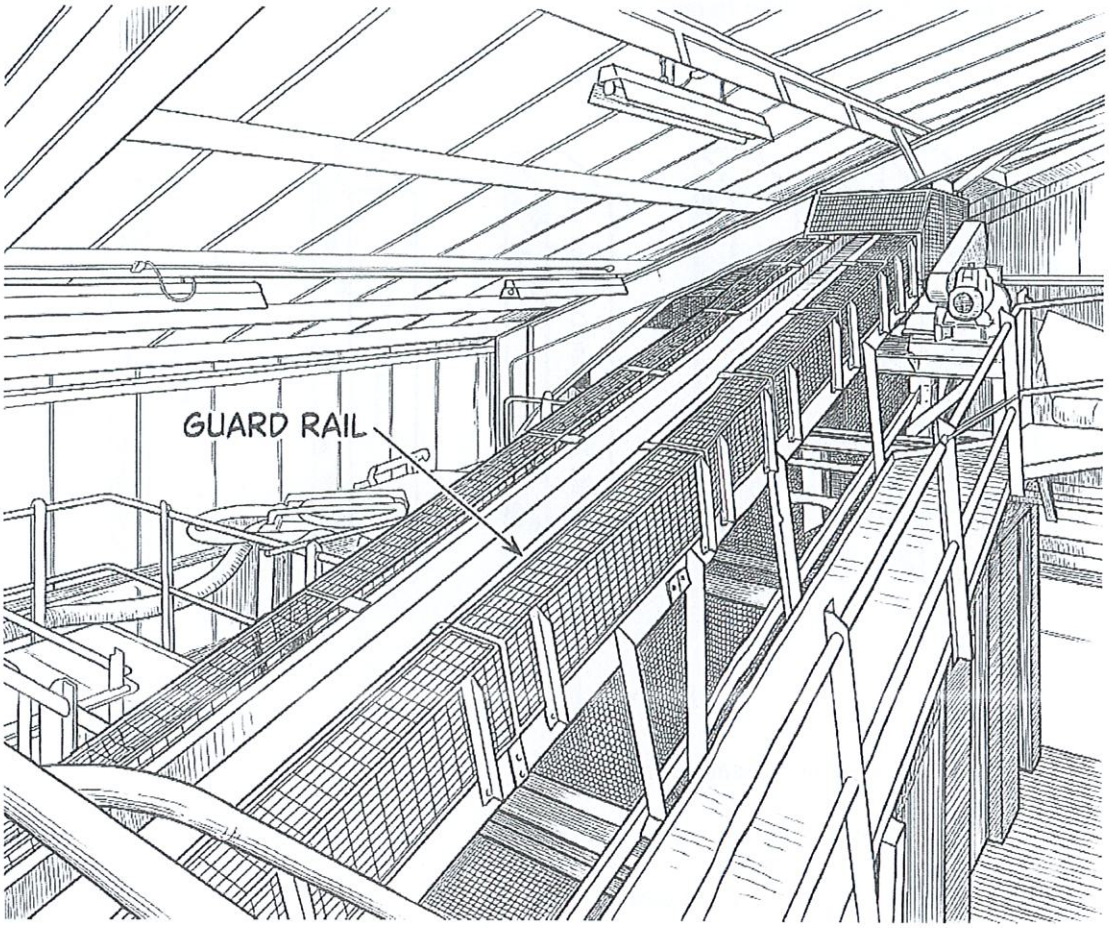

Figure 5: Guard rail on conveyor belt

A. Elimination.

B. Administrative Control.

C. Engineering control.

D. Substitution.

26. Heinrich's Domino Theory suggests that an accident is a sequence of events. According to this theory, which "domino" is the most critical one to remove to prevent the injury?
Refer Below - Figure6 : Domino Theory .

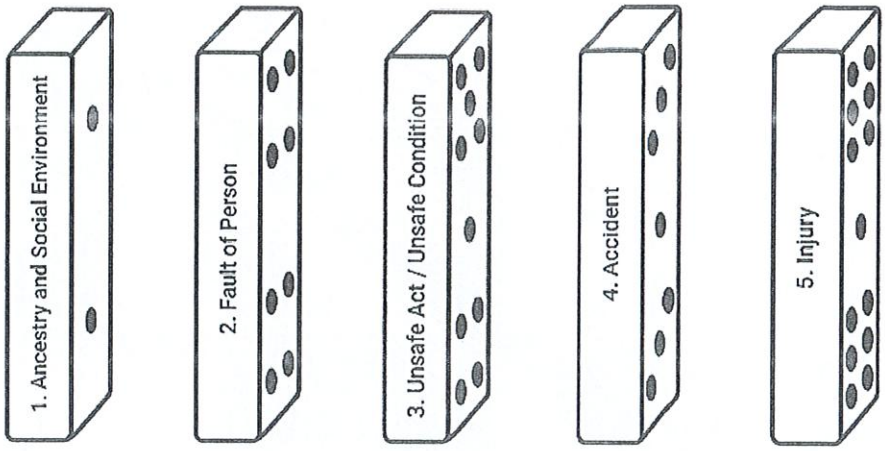

Figure 6: Domino Theory

A. The Unsafe Act / Unsafe Condition

B. The Accident

C. Ancestry / Social Environment.

D. Fault of Person.

27. In the Swiss Cheese Model shown below, what do the "holes" in the slices of cheese represent?
Refer Below - Figure7 : Swiss Cheese Model .

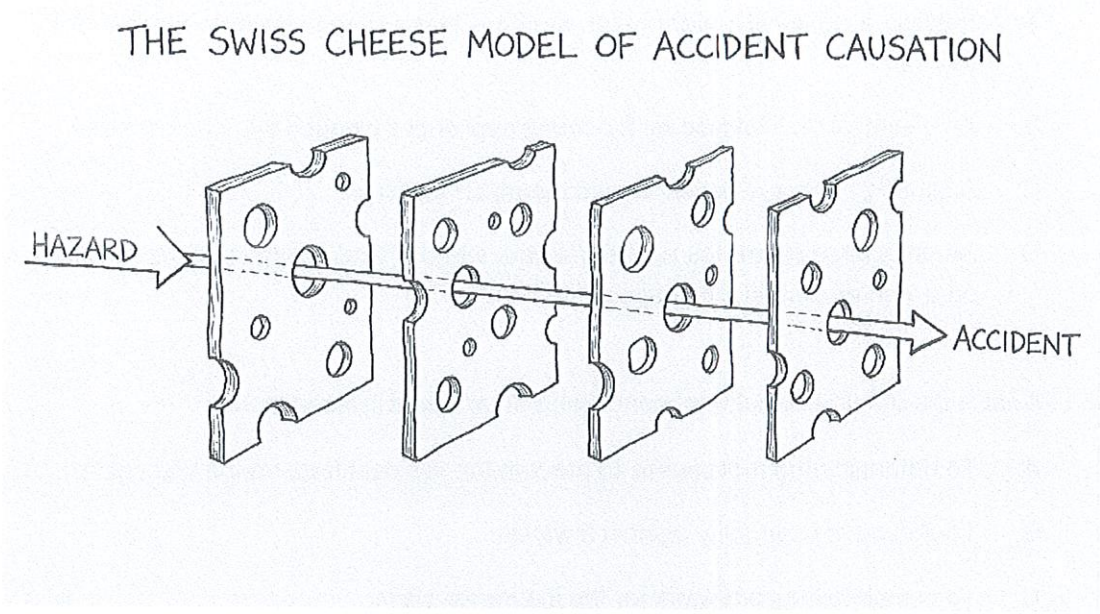

Figure 7: Swiss Cheese Model

A. The number of workers on site.

B. The financial budget of the company.

C. "Latent failures" or weaknesses in the system's defenses.

D. The types of PPE available.

28. Which factor distinguishes modern accident causation theories from traditional theories?

A. That accidents are usually caused by multiple causes and system failures.

B. That accidents are Acts of God.

C. That workers are always to blame.

D. That accidents are usually caused by a single event.

29. The Human Factors Theory attributes accidents to a chain of events caused by human error. One of the key factors in this theory is "Overload." What does "Overload" refer to in this context?

    A. Placing a physical weight on a machine that exceeds its safe working load (SWL).

    B. An electrical fault caused by too many appliances plugged into one socket.

    C. A situation where a worker is paid too much overtime.

    D. An imbalance where the environmental, internal, and situational factors placed on a worker exceed their capacity to cope.

30. What is the primary objective of conducting an accident investigation?

    A. To determine the root causes to prevent the accident from happening again.

    B. To defend the company against lawsuits.

    C. To complete the paperwork for the insurance claim.

    D. To find the person responsible and fire them.

31. When investigating an accident, why is it critical to interview witnesses separately and privately?

    A. To save time.

    B. To intimidate the witnesses.

    C. To prevent witnesses from influencing each other's stories and to get unbiased accounts.

    D. Because the interview room is too small for two people.

32. In an investigation report, what is the difference between an "Immediate Cause" and a "Root Cause"?

    A. The Immediate Cause is the system failure; the Root Cause is the injury.

    B. The Root Cause is always "bad luck."

    C. There is no difference; they are the same.

    D. The Immediate Cause is the unsafe act/condition; the Root Cause is the underlying management failure.

33. Under the NADOPOD Regulations (Notification of Accident, Dangerous Occurrence, Occupational Poisoning and Occupational Disease), when must a fatal accident be reported to DOSH?

    A. Within 1 year.

    B. Immediately by the quickest means and then formally within 7 days.

    C. Within 30 days.

    D. Only if the victim's family complains.

34. What is the specific purpose of the location marked by the sign below?
Refer Below - Figure8 : Signage .

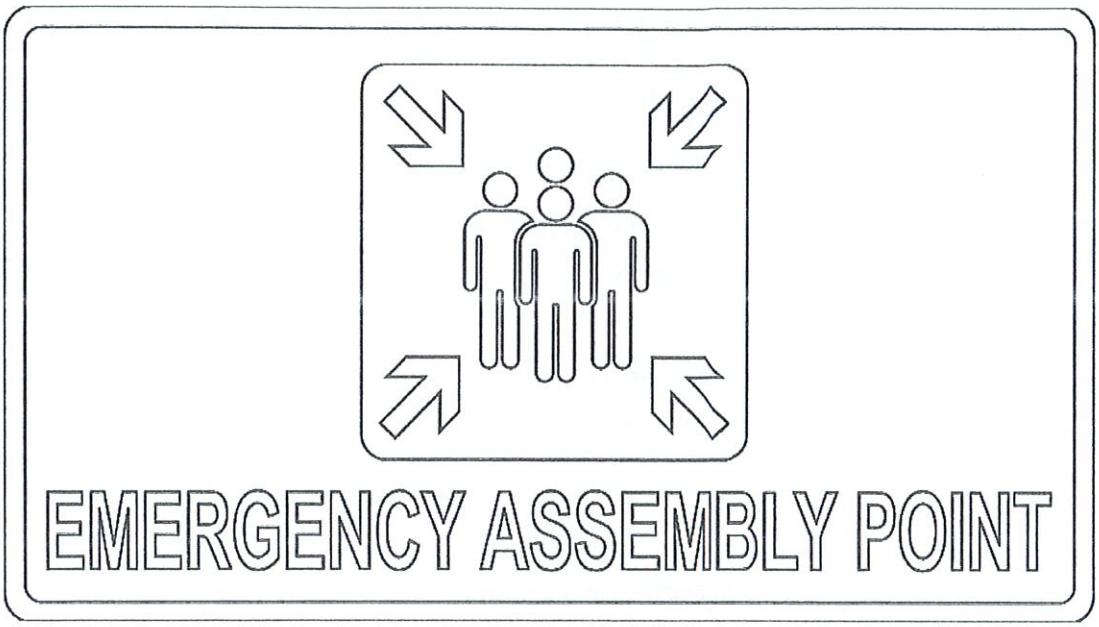

Figure 8: Signage

A. It is a designated safe area where all employees must gather during an evacuation for a head-count.

B. It is the location where the fire extinguishers are stored.

C. It is the parking spot for the boss.

D. It is a place for workers to smoke during breaks.

35. An Emergency Response Team (ERT) is a group of designated employees. What is their primary role during a fire incident before Bomba arrives?

A. To secure the company's valuable documents.

B. To continue working until the fire completely burns their workplace.

C. To run away immediately.

D. To attempt to control the incident if safe to do so, and assist in evacuation.

36. Why is it important to display "Evacuation Floor Plans" in key areas of a workplace?

A. To provide decorative artwork that improves the visual appearance of the walls.

B. To assist visitors and guests in locating the nearest restroom facilities.

C. To clearly indicate the location of the general manager's private office.

D. To show the current location and the safest routes to emergency exits.

37. How often should evacuation drills be conducted in a typical workplace?

A. Once every 10 years.

B. Never, as it disrupts production.

C. Regularly (e.g., annually) to ensure familiarity and identify weaknesses in the plan.

D. Only when a real fire happens.

38. The Fire Triangle below shows the three elements needed for a fire. Based on this model, how does a carbon dioxide (CO_2) extinguisher put out a fire?
Refer Below - Figure9 : Fire Triangle .

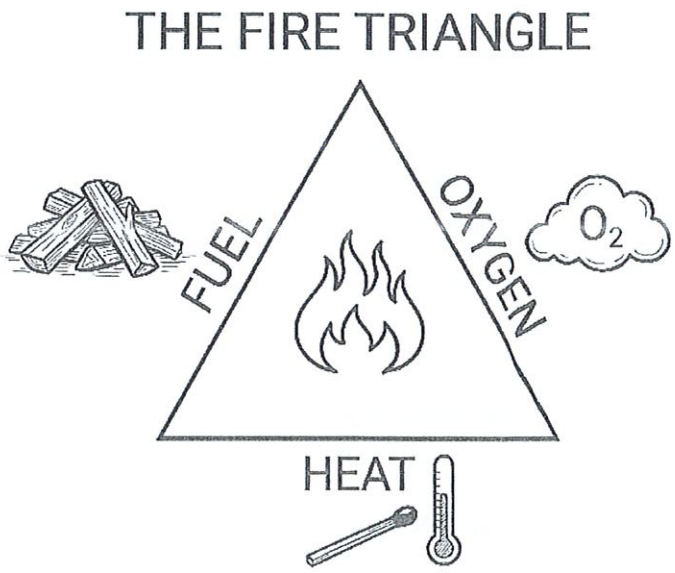

Figure 9: Fire Triangle

A. It creates a chemical reaction.

B. It removes the fuel.

C. It removes the oxygen.

D. It adds more heat.

39. How is a "Class A" fire defined?

A. Fire involving flammable gases.

B. Fire involving flammable liquids.

C. Fire involving solid organic materials.

D. Fire involving cooking oils.

40. The image below shows the standard "P.A.S.S." technique when using a fire extinguisher. What does "P.A.S.S." stand for?
Refer Below - Figure10 : PASS technique .

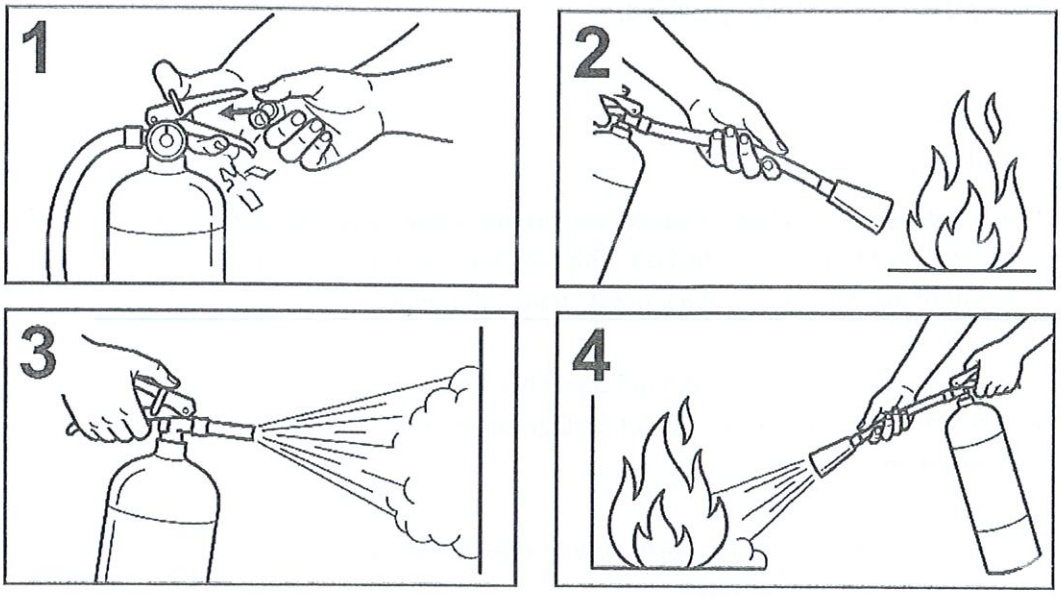

Figure 10: PASS technique

A. Push, Aim, Shake, Stop.

B. Pull, Ask, Scream, Sprint.

C. Point, Aim, Shoot, Spray.

D. Pull, Aim, Squeeze, Sweep.

SECTION B (Total: 60 marks)

Answer THREE (3) questions only.

Please use the answer booklet provided.

Question 1

At a busy manufacturing plant, a supervisor orders a maintenance worker to repair a large conveyor belt system that has jammed. The standard "lock-out/tag-out" (LOTO) procedure, which is part of the company's safety policy, takes 30 minutes.

The supervisor, under pressure to meet a production quota, tells the worker, "Just climb in and fix it quickly. We don't have time for all that paperwork. I will stand here and make sure nobody turns it on."

The worker is new and, feeling pressured, obeys the order. He bypasses the LOTO procedure and enters the machine.

(a) Analyze the supervisor's order by explaining how it breached three (3) specific employer duties.

(9 marks)

(b) Analyze the worker's decision by explaining how it breached two (2) specific employee duties.

(6 marks)

(c) Analyze the proactive role of a Safety and Health Committee by explaining how it could have prevented the underlying issues that led to this situation.

(5 marks)

Question 2

A new worker is asked to refill small spray bottles with "Product X," a strong cleaning solvent, from a large drum. The large drum has GHS pictograms for "Health Hazard" and "Irritant". The worker has not been trained for this specific task.

The decanting (transfer) is done in a small, windowless storage room with no mechanical ventilation. The worker is given standard rubber gloves, but the solvent soaks through them, causing skin irritation.The worker complains of a strong smell and feeling dizzy but is told to "open the door for some air" and finish the job quickly.

Refer Below - Figure11 : GHS Hazard Pictograms .

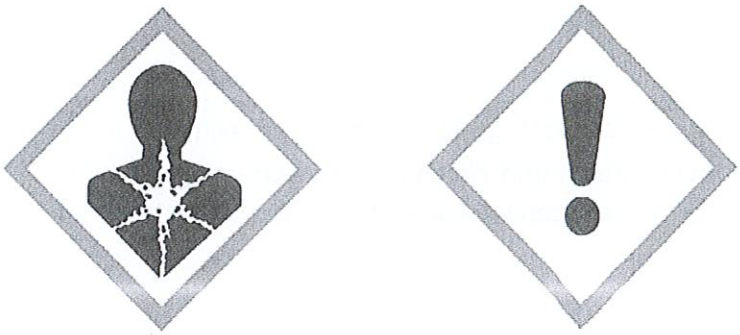

Figure 11: GHS Hazard Pictograms

(a) Differentiate between the three (3) main stages of the HIRARC process.

(6 marks)

(b) Based on the information given, conduct a simple risk analysis for two (2) hazards: inhaling solvent fumes and skin contact with the solvent. Explain your reasoning for your determination of the level of likelihood and severity of each hazard.

(10 marks)

(c) Based on your analysis in (b), select one engineering control and one administration control you could implement to control the hazards identified.

(4 marks)

Question 3

You are the OSH Officer at a workshop. A supervisor calls you, sounding panicked. He says, "You need to get down here! A worker is on the ground, bleeding from his hand. He was using the large drill press. The machine is still running, and his colleague is trying to help him!"

You run to the scene.

(a) You have just arrived at the chaotic scene. Prioritize the two (2) most critical actions you must take immediately. Point out why these actions must be done before beginning any investigation steps.

(6 marks)

(b) After the scene is safe, categorize the required evidence into three (3) types (Physical, Documentary, and Human). For each category, outline the specific method you would use to capture the evidence effectively.

(9 marks)

(c) Differentiate between the immediate cause and the root causes of an accident. Relate why your investigation must focus on finding the root causes.

(5 marks)

Question 4

A fire breaks out in a small restaurant kitchen when a deep-fat fryer is left unattended and the hot oil ignites. A kitchen assistant, in a panic, sees the flames and grabs the nearest extinguisher, which is a black carbon dioxide (CO_2) extinguisher. He aims the extinguisher at the fryer. The high-pressure blast of gas hits the surface of the burning oil, causing it to splash violently. The flaming oil lands on a nearby stack of cardboard boxes, which also catch fire.

(a) Classify the two distinct fires in this scenario (the oil fryer and the cardboard boxes) according to the standard fire classes.

(4 marks)

(b) Analyze the assistant's error by providing two reasons why the CO_2 extinguisher failed to put out the oil fire.

(6 marks)

(c) Identify the correct extinguisher for the deep-fat fryer. Outline the specific chemical mechanism by which the extinguisher put out the fire and prevent re-ignition.

(6 marks)

(d) Analyze why using water on the oil fire would be dangerous, even though it is the correct choice for the cardboard boxes.

(4 marks)

END OF EXAMINATION PAPER