



UNIVERSITI KUALA LUMPUR
MALAYSIAN INSTITUTE OF CHEMICAL AND BIO-ENGINEERING TECHNOLOGY

FINAL EXAMINATION
OCTOBER 2025 SEMESTER

COURSE CODE : CPB40203
COURSE TITLE : PROCESS SAFETY MANAGEMENT 1
PROGRAMME NAME : BACHELOR OF CHEMICAL ENGINEERING TECHNOLOGY
(PROCESS) WITH HONOURS
DATE : 25 JANUARY 2026
TIME : 9:00AM - 12:00PM
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.

Question 1

Answer the following questions.

- (a) Identify FIVE (5) Employer responsibilities to contractors.
(5 marks)
- (b) Explain TWO (2) relevant statutory laws (local or international) related Process Safety Management (PSM).
(5 marks)
- (c) Name FIVE (5) example lagging indicators in Process Safety Management.
(5 marks)
- (d) Written Operating Procedures must be developed and consistent with the process safety information to address several elements . Identify those FOUR (4) elements.
(5 marks)

Question 2

Process Safety Management consist of 14 elements.

- (a) Provide FIVE (5) critical elements of Process Safety Management.
(5 marks)
- (b) Explain FIVE (5) duties of a fire watcher according to OSHA 29 CFR 1910.252.
(5 marks)
- (c) Provide FIVE (5) importance of training.
(5 marks)
- (d) Provide FIVE (5) examples of documented information in ISO 45001.
(5 marks)

SECTION B (Total: 60 marks)

Answer THREE (3) questions only.

Please use the answer booklet provided.

Question 1

All management system are considered as holistic approach, following Deming Cycle. And Occupational safety and health policy must be established by a company certified in ISO 45001.

- (a) Explain the good criteria of occupational safety and health policy as per Clause 5.2 ISO 45001.

(10 marks)

- (b) Management system is considered as a systematic approach in ensuring the information, leadership and structure is carried out in a consistent manner in an organization. Organize the major clauses of ISO 45001 to match the Deming cycle [Plan, Do, Act cycle].

(10 marks)

Question 2

Training is the important element for Process Safety Management and ISO 45001.

- (a) Differentiate between the training, education, and development.

(10 marks)

- (b) Explain **SEVEN (7)** training indicators indicates that the training is required to be conducted in an organization.

(10 marks)

Question 3

Emergency planning is a proactive step in process safety.

- (a) Emergency Preparedness and Response requires the process of planning, preparing, and training for emergencies. Explain **ALL** elements of the emergency planning.

(10 marks)

- (b) There are several levels of Personal Protective Equipment (PPE) used in Hazardous Waste Operation and Emergency Response (HAZWOPER). Discuss **ALL FOUR (4)** levels of Personal Protective Equipment (PPE).

(10 marks)

Question 4

Contractor management is one of the elements in Process Safety Management (PSM)

- (a) Explain **FIVE (5)** of the importance of contractor management in Process Safety Management.

(10 marks)

- (b) Explain **FIVE (5)** requirements of Log Out Tag Out according to OSHA's LOTO Standard 29 CFR 1910.147

(10 marks)

END OF EXAMINATION PAPER