



**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

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

- COURSE NAME : GEO ENVIRONMENT
- COURSE CODE : BFG 40303
- PROGRAMME CODE : BFF
- EXAMINATION DATE : JANUARY / FEBRUARY 2024
- DURATION : 3 HOURS
- INSTRUCTIONS :
1. ANSWER ALL QUESTIONS
  2. THIS FINAL EXAMINATION IS CONDUCTED VIA
    - Open book
    - Closed book
  3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

- Q1** (a) Explain the difference between waste containment and waste minimization  
(5 marks)
- (b) Due to urbanization and industrialization, there has been an increase in solid waste generation and has become a global of contaminated soil and hence can have a severe impact on human health. Predict **FOUR (4)** impact on human health if surrounded by heavy metals such as arsenic, cadmium, mercury and chromium.  
(8 marks)
- (c) Oil spills that happen in rivers, bays and the ocean most often are caused by accidents involving tankers, barges, pipelines, drilling rigs and storage facilities, but also occur from recreational boats and in marinas. Briefly describe **FOUR (4)** major impact of oil spill to the environment and its ecosystem.  
(12 marks)
- Q2** (a) Identify the law governed by Resource Conservation and Recovery Act (RCRA).  
(5 marks)
- (b) Briefly describe **FOUR (4)** characteristics of hazardous waste under Resource Conservation and Recovery Act (RCRA)  
(20 marks)
- Q3** (a) Crude oil and natural gas are primary energy and raw material sources that influence numerous aspects of modern life and the world economy. Identify the ecological problems that could be occurred caused by crude petroleum.  
(4 marks)
- (b) The soil-water contamination interaction is a pollution caused by pollutants, which are discharged on earth's surface both on land and in water. Distinguish **FOUR (4)** types of pollution under this category.  
(8 marks)

- (c) Environmental pollution is not a new phenomenon, yet it remains the world's greatest problem facing humanity, and the leading environmental causes of global environmental pollution. Air, water, and soil pollution are the three main kinds of pollution causing health hazards and proffers solutions in combating pollution for sustainable environment and health. Justify and briefly discuss the pollution of earth surface: water and soil due to noise, thermal and radioactive.

(13 marks)

- Q4** (a) Differentiate **THREE (3)** mechanisms which contaminants transport in saturated media to receiver

(6 marks)

- (b) An overview of chemical toxic pollution has been discovered in Pasir Gudang industrial area Johor Malaysia. These chemicals are found generated from industrial activity and easily breakdown through interaction with other chemicals and sunlight. These industrial toxic chemicals can pollute the environment and also harmful to human health especially to vulnerable groups such as children, elderly and pregnant mothers. Describe **TWO (2)** stages of site investigation for soil contamination remediation due to this case issue.

(6 marks)

- (c) Soil remediation methods provide contaminated soil solutions to restore soil to its natural, pollution-free state. Remediation of soil pollution purifies and revitalizes the soil by removing contaminants. Ultimately, ground remediation mitigates and manages risks from contaminated soils that could harm human health and the ecosystem. Recommend **FOUR (4)** methods to remediate the contaminated soil.

(8 marks)

- (d) The use of low-density direct current (DC) electricity into the soil has been practiced in geo-environmental application. Describe the difference between electrokinetic and electrical resistivity method in term of its application using current.

(5 marks)

- END OF QUESTIONS -