



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

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

- COURSE NAME : CHEMISTRY FOR BIODIVERSITY & CONSERVATION
- COURSE CODE : BWJ 10303
- PROGRAMME CODE : BWW
- EXAMINATION DATE : JULY 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

TERBUKA

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- Q1** Chemistry of life explores the fundamental principles of chemistry in relation to biodiversity.
- (a) Explain how the concept of pH is relevant in biodiversity by providing **FIVE (5)** examples.
(10 marks)
- (b) Biochemistry is the branch of science that explores the chemical processes and substances that occur within living organisms.
- (i) List **FOUR (4)** key biomolecules.
(4 marks)
- (ii) Explain the importance of **THREE (3)** biomolecules in biodiversity as mentioned in **Q(b)(i)**.
(6 marks)
- Q2** Plant chemistry plays a critical role in conservation efforts and environmental chemistry, contributing significantly to biodiversity conservation.
- (a) Describe these **FIVE (5)** chemical processes involved in photosynthesis.
- (i) Absorption of Light
(ii) Water Splitting (Photolysis)
(iii) Generation of ATP and NADPH
(iv) Carbon Fixation (Calvin Cycle)
(v) Regeneration of RuBP
(10 marks)
- (b) Determine **FIVE (5)** importance of integrating environmental chemistry into biodiversity conservation efforts.
(10 marks)
- Q3** In a rural farming community, a group of farmers relied heavily on chemical pesticides to protect their crops from pests. Due to inadequate knowledge and understanding of proper pesticide use, they often applied these chemicals in excessive amounts and at incorrect times, leading to environmental contamination and health risks.
- (a) Prepare a **FIVE-STEP** strategy to educate rural farmers on practicing green chemistry.
(10 marks)

- (b) Discuss **FIVE (5)** benefits of biofertilizers in sustainable agriculture.
(10 marks)

Q4 Emerging technologies in chemistry, such as nanotechnology and bioprospecting, offer innovative solutions for biodiversity conservation through sustainable practices and the discovery of new medicines and technologies.

- (a) Determine **FIVE (5)** crucial roles that chemistry plays in the application of artificial intelligence and machine learning in biodiversity conservation.
(10 marks)
- (b) Describe **FIVE (5)** roles of nanotechnology in smart farming.
(10 marks)

- END OF QUESTIONS -