



Index No:

FACULTY OF FISHERIES AND MARINE SCIENCES AND TECHNOLOGY

Academic Year 2023/2024

Bachelor of Science Honours in Fisheries and Marine Sciences Degree

Bachelor of Science Honours in Marine and Freshwater Sciences Degree

Level III Semester 1 Examination October/ November 2024

CHM 3112 - ADVANCED AQUATIC CHEMISTRY

Answer All questions

Time: 2 hours

Select the most appropriate or correct answer and underline it in the question paper for all the questions given in Part I. Write the answers for questions in part II only in the space provided. Use answer writing book/papers for answering questions given in Part III

Part III

- Use the answer book provided for this question.

01. Answer **all** parts

- i. Imagine that you are purging air into water containing in a BOD bottle at 25 °C. If the partial pressure of water vapor at that temperature is 0.0313 atm, calculate the maximum concentration (ppm) of oxygen in water that you can dissolve by purging air.

(assume that the oxygen fraction in dry air is 20.95% and Henry's Law constant for oxygen is  $1.28 \times 10^{-3} \text{ mol L}^{-1} \text{ atm}^{-1}$  at the same temperature).

- ii Briefly explain the occurrence of N-cycle associated with aquatic environment showing major conversion steps.

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