



FIRST-TERM EXAM
JAN 2024



Program: Biological Oceanography
Chemical Oceanography (204 B.O.)

المستوي الثاني / برنامج علوم البحار البيولوجية
علوم البحار الكيميائية

Department: Zoology

Mark: 90

Time: 2 Hours

Date: 29/12/2024

Answer the Following Questions:

Question One: (20 Marks/ 2 each)

A- Complete the following statements with the suitable scientific word:

1. Mercury release occurs by both and processes.
2. Dead zone is a more common term for
3. is a fissure on the seafloor from which geothermally heated water issues.
4. The gas level in purified water at 25°C contains ppm nitrogen, ppm oxygen and 0.05 ppm
5. Inorganic mercury and particle-bound mercury enters the ocean through and deposition.
6. Seawater with salinity holds more gas than salinity water.
7. Bicarbonate and carbonate constitute the major in most natural waters.
8. Wind, waves, rapids and riffle areas are responsible for most of the found in the water.
9. Fish in waters containing excessive dissolved gases may suffer from
10. Ammonium is oxidized to nitrate in a process called

Question Two: (25 Marks)

A- Compare the characteristics of the epilimnion and hypolimnion in terms of temperature, oxygen levels, and biological activity. How do these differences influence the types of organisms found in each layer? (15 marks)

B- Provide a comprehensive identification of white and black smokers in the context of hydrothermal vents. (10 marks)

Question Three: (25 Marks)

A- Given that iron changes its form in the ocean, illustrate the iron cycle using diagrams only. (10 marks)

B- Indicate whether the following sentences are true or false and correct the false ones: (15 marks /3 ea)

1. Atmospheric deposition is the largest source of mercury in the oceans. ()
2. Organic complexation has been confirmed as one of the processes stabilizing the particulate phase of Fe. ()
3. Carbon dioxide is removed by ion-exchange within the purification system. ()
4. Cold water holds less gas than warm water. ()
5. Excess organic material in lakes and rivers can cause eutrophic conditions. ()

Question Four: (20 Marks)

A- Ocean acidification is expected to impact ocean species to varying degrees. Give examples. (10 marks)

B- Summarize the key aspects of aquatic chemistry as they relate to environmental chemistry using equations only. (10 marks)

انتهت الاسئلة

With Best Wishes

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