

CHUKA



UNIVERSITY

**SUPPLEMENTARY/ SPECIAL EXAMINATIONS**

**EXAMINATION FOR THE AWARD OF DEGREE OF  
BACHELOR OF SCIENCE IN BIOCHEMISTRY**

**BIOC 314: ENVIRONMENTAL BIOCHEMISTRY**

**STREAMS: BSC (BIOC)**

**TIME: 2 HOURS**

**DAY/DATE: MONDAY 01/02/2021**

**2.30 PM – 4.30 PM**

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**INSTRUCTIONS:**

*Answer ALL questions*

**Questions (30 marks)**

- a) Distinguish between the following terms:
- (i) In situ and ex situ bioremediation (4 marks)
  - (ii) Bioaccumulation and biomagnification (4 marks)
- b) Giving an example of the heavy metal pollutant, explain any 6 sources of these pollutants (6 marks)
- c) Give the major sources of freons (3 marks)
- d) (i) Give two novel coenzymes discovered in methanogens (2 marks)  
(ii) State the main food substrates for methylotrophic methanogens (2 marks)
- e) Explain eutrophication of water and give its significance (4 marks)
- f) Describe the threats posed by depletion of the ozone layer (5 marks)

**Question 2 (20 marks)**

- a) Describe the five steps of in situ bioremediation (10 marks)
- b) Illustrate the sulphur cycle and give its importance (10 marks)

**Question 3 (20 marks)**

c) Describe in details the carbon cycle (10 marks)

d) Describe the steps in waste water treatment (10 marks)

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