NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
SCHOOL OF SCIENCE & TECHNOLOGY
MAY/JUNE 2012 EXAMINATION

CHM 314: Environmental Chemistry (2 CR)
TIME ALLOWED: 2Hours

INSTRUCTION(S): Answer any four Questions

INSTRUCTION:

1. a. List the basic processes of the nitrogen cycle. (4 marks)
   b. Discuss any two of these processes (7 marks)
   c. Discuss briefly the major processes through which water moves around our planet. (6 ½ marks)

2. a.
   i. List four types of detectors used in Gas Chromatographic (GC) analysis (4 marks)
   ii. Describe the use of any two of the named detectors. (6 marks)

   b. Discuss exhaustively one instrumental technique suitable for the analysis of heavy metals in the environment. (7½ marks)

3. a. List five classes of the chromatographic technique (5 marks)
   b. Discuss briefly each of the following soil pollutants
   (i) heavy metals (ii) Nutrient-Rich Wastes (5½ marks)
   c. Write briefly on:
   (i) The Minamata Bay disease (ii) Love Canal chemical odours (7 marks)

4. a. List four analytical methods used in 'wet chemistry" for the determination of anions.
   (4 marks)
   b. List four important sources that contribute oil and grease to municipal wastewaters.
   (2 marks)
   c. Write short notes on the followings:
   (i) Biochemical Oxygen Demand (ii) Chemical Oxygen Demand (iii) Dissolved Oxygen (11 marks)

5. (a) List four processes involved in wastewater treatment. (3 marks)
   (b) List the four most used waste disposal methods. (3½ marks)
   (c) Discuss the followings:
   (i) The environmental significance of iron and manganese in water supplies (6 marks) (ii) Oil and Grease in water. (5 marks)

6. (a) List four physical parameters relevant to water analysis. (4 marks)

(b) List four ways by which carbon dioxide can be released into the atmosphere (4 marks)

(c) Write short notes on the following.

(i) Eutrophication (ii) PAHs

(iii) The significance of the acidity of lake. (9½ marks)