NATIONAL OPEN UNIVERSITY OF NIGERIA
UNIVERSITY VILLAGE, PLOT 91 CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESS WAY, JABI - ABUJA.

FACULTY OF SCIENCES

DEPARTMENT OF PURE AND APPLIED SCIENCES

FEBRUARY/MARCH2018 EXAMINATION

COURSE CODE: **CHM 314**

COURSE TITLE: **ENVIRONMENTAL CHEMISTRY**

TIME: **2 HOURS**

INSTRUCTION: **Question one is compulsory. Answer question one and any other three questions.**

QUESTION ONE

1a**)** Discuss briefly on the carbon cycle. 7 marks

1b) Why are particulates air pollutants? Expatiate.5 marks

1ci) Enumerate on municipal wastewater characteristics.$4^1/_2$ marks

1cii) Differentiate between primary, secondary and tertiary wastewater treatment methods. 3 marks

1d) What is total dissolved solved solids. Mention any two significance of total dissolved solids.$4^1/_2$ marks

1f**)** Mention any one wet method of analysis used for the determination of chloride in a sample 1 mark

QUESTION TWO

2a)Write short note on causes of Eutrophication, and its consequences.$9^1/_2$ marks

2b) Explain composting.$5^1/_2$ marks

QUESTIONTHREE

1ai) With accompanying chemical equations, discuss the phenomenon "'acid rain".
15 marks

QUESTION FOUR

Discuss briefly the sources and consequences/significance of acidity and temperature in a water body.15 marks

QUESTION FIVE

5a) 10 ml of a river sample was transferred to a 300ml BOD bottle and diluted to 300 ml with organic free, oxygen saturated water. The initial dissolved oxygen was determined and found to be 9.1 mg/L. The BOD bottled was tightly stoppered and placed in the incubator at 20^0 C for five days after which the dissolved oxygen was again determined and found to be 4.4 mg/L. Calculate the BOD of this wastewater. If the WHO permissible limit of BOD in a sample of river water is 5 mg/L, what information can be derived from the calculated BOD?
12 marks

5b) State three applications of BOD data.3 marks