



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

FACULTY OF SCIENCES ¹²³⁴

DEPARTMENT OF PURE AND APPLIED SCIENCE

FIRST SEMESTER EXAMINATION 2021

COURSE CODE: CHM314

COURSE TITLE: ENVIRONMENTAL CHEMISTRY

TIME: 2 HOURS

INSTRUCTION: Answer question one and any other three questions.

QUESTION ONE

1a. Write the chemical equations of any two processes which introduce carbon dioxide into the atmosphere.

6 marks

1b. The shrinking world economy entails that scarce resources should be carefully utilized and that waste can be sustainably managed, explain how recycling can be an answer to the above assertion.

6 marks

1c. Temperature is an important parameter in evaluation of surface water system, show a justification for this statement and state how surface water receives its temperature

7 marks

1d. Discuss the major application of EDTA titration,

6 marks

QUESTION TWO

2a. Enumerate five ways by which solid waste can be disposed and explain briefly any two.

15 marks

QUESTION THREE

3ai. Mathematically define the pH of a water sample.

1 mark

3aii. With mathematical symbol list the range of CaCO_3 at which a water sample is said to be soft, moderately hard, hard and very hard

6 marks

3b. Parents are advised to desist from giving their infants water with high nitrate, state reason(s) for the advice

5 marks

3c. Mention three major pollution sources that affects the taste and odour properties of water

3 marks

QUESTION FOUR

4a. Outline four important sources that contribute oil and grease to municipal wastewaters.

2 marks

4b. Describe briefly difficulties that could arise in the process of treating wastewaters with high levels of oil and grease.

8 marks

4c. Account for the relevance of chromatography in Environmental Chemistry.

5 marks

QUESTION FIVE

5a. Explain the following processes with equations i. Ammonification ii. Denitrification

8 marks

5b. What are the processes involved in preliminary water treatment? Explain any one of them.

7 marks