



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 SCIENCE
2024 1 EXAMINATION

COURSE CODE: CHM 314

CREDIT UNIT: 2

COURSE TITLE: ENVIRONMENTAL CHEMISTRY

TIME: 2 HOURS

INSTRUCTION: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

Question one

- With the aid of diagram, briefly explain the water cycle. **10mks**
- Using equations only, describe the action of microorganisms in water and soil on SO_4^{2-} in the presence of carbohydrate to liberate H_2S . **5mks**
 - Outline four important sources that contribute oil and grease to municipal wastewaters, **5mks**
 - Discuss the major application of EDTA titration, **4mks**
 - 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, **6mks**

Question two

- Describe in detail the two main modes of chemical pollutants release into the environment. **10mks**
- Differentiate between contamination and pollution. **4mks**
- The monitoring of the presence and level of fluoride ion in water requires greater efforts than is given to chloride ion why? **6mks**

Question three

- Classify and explain each solid waste according to the sources from which they are generated. **12mks**
- Name the four most important properties of solid waste if it is to be used as fuel. **8mks**

Question four

- Name the methods used in the determination of Cl^- in water and write down the equation of the reaction. **12mks**
- Draw and label a carbon cycle, **8mks**

Question five

- Name 10 chemical parameters that is usually determined in water assessment. **10mks**
- Define water hardness and mention the ions causing hardness in water. **10mk**