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QUALIFICATION : **BACHELOR of SCIENCE**	
QUALIFICATION CODE: **08BOSH**	LEVEL: **8**
COURSE: **ENVIRONMENTAL POLLUTION, MONITORING & REMEDIATION**	COURSE CODE: **EPM821S**
DATE: **JANUARY 2024**	SESSION: **1**
DURATION: **3 HOURS**	MARKS: **100**

SECOND OPPORTUNITY / SUPPLEMENTARY: EXAMINATION QUESTION PAPER

EXAMINER: *Dr. Mpingana N. Akawa*

MODERATOR: *Prof. James Abah*

INSTRUCTIONS

1. Answer all questions on the separate answer sheet.
2. Please write neatly and legibly.
3. Do not use the left side margin of the exam paper. This must be allowed for the examiner.
4. No books, notes and other additional aids are allowed.
5. Mark all answers clearly with their respective question numbers.

PERMISSIBLE MATERIALS

1. Non-Programmable Calculator

This paper consists of 3 pages including this front page

QUESTION 1 **[20]**

a. Explain the following concepts:

   a) Mitigation (2)

   b) EIA statement (2)

   c) Phytoremediation (2)

   d) Rhizofiltration (2)

   e) Industrial ecology (2)

b. List the four activities identified as priorities for the improvement of Environmental Impact Assessment (EIA) systems. (4)

c. Briefly discuss the categories used to classify projects into different types of impact categories during EIA screening. (3)

d. Explain the concept of "the good, the bad, and the ugly" with respect to ozone. (3)

QUESTION 2 **[20]**

2.1 Discuss (with reactions) the use of wetlands as technique of choice for acid drainage (AD) prevention. (6)

2.2 Describe the process of wastewater treatment in an aerobic activated sludge technology (with generic reactions). (8)

2.3 What are the criteria that must be fulfilled by a sampling system for air quality analysis?(6)

QUESTION 3 **[20]**

3.1 It has been reported that temperature stabilization at or below 2°C above pre-industrial temperatures should be the goal of climate change policy. Discuss what could be the consequences of trespassing this threshold value. (5)

3.2 Name and discuss the categories of salt affected soils. How does high salinity affect plant growth and finally, discuss how the salt affected soils is reclaimed. (15)

QUESTION 4 **[20]**

4.1 State two principles of Green Chemistry and discuss their importance in our society. (10)

4.2 Discuss the following based on the principles of Green Chemistry.

i. The selection of a solvent for a product synthesis. (5)

ii. The choice of reaction conditions in chemical reactions. (5)

QUESTION 5 **[20]**

5.1 What is catalysis? How does catalysis contribute to the principles of Green Chemistry? Describe the attributes of the two major groups of catalysis.

END OF QUESTION PAPER