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OF SCIENCE AND TECHNOLOGY**

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| QUALIFICATION : <b>BACHELOR of SCIENCE HONOURS</b>                    |                             |
| QUALIFICATION CODE: <b>08BOSH</b>                                     | LEVEL: <b>8</b>             |
| COURSE: <b>ENVIRONMENTAL POLLUTION, MONITORING AND<br/>REMEDATION</b> | COURSE CODE: <b>EPM821S</b> |
| DATE: <b>NOVEMBER 2024</b>                                            | SESSION: <b>1</b>           |
| DURATION: <b>3 HOURS</b>                                              | MARKS: <b>100</b>           |

**FIRST OPPORTUNITY: QUESTION PAPER**

**EXAMINER:** *Ms Mary Mutwa*

**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.

**This paper consists of 3 pages including this front page**

**QUESTION 1:** [20]

1.1 Define the following: (10)

- a) Mitigation
- b) Waste
- c) Remote sensing
- d) Brackish water
- e) Industrial metabolism

1.2 What are the advantages and benefits of EIA? (8)

1.3 Explain overtopping in terms of tailing dam failure. (2)

**QUESTION 2:** [20]

2.1 What information does an EIA report provide for decision makers/stakeholders? (5)

2.2 What are the nine general principles of EIA application? (9)

2.3 What are the 3 categories of water treatment? Explain them briefly (6)

**QUESTION 3:** [20]

3.1 List the five major components of an industrial ecosystem. (5)

3.2 List and explain the five options for disposing hazardous waste. (10)

3.3 What are the factors that must be taken into account when designing and operating an industrial water treatment facility? (5)

**QUESTION 4:** [20]

4.1 Differentiate between (4)

- a) Analysers and Monitors
- b) Bioaccumulation and Biomagnification

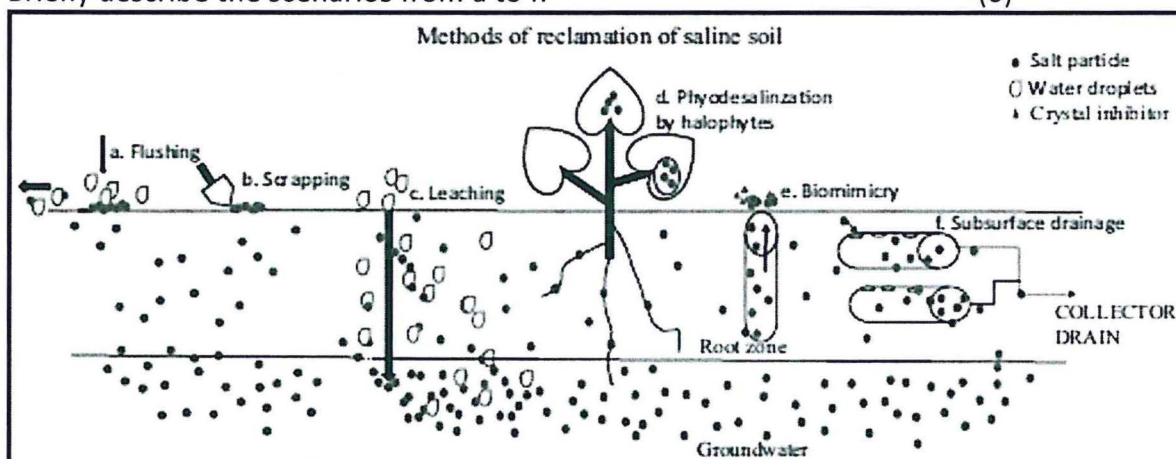
4.2 What factors determine how much brine can be disposed of in a field? (assuming the brine does not contain Boron) (6)

4.3 What are the 5 hazardous substances to avoid in Green Chemistry? Explain them briefly (10)

**QUESTION 5:** [20]

5.1 The figure below shows methods of reclamation of saline soils.

Briefly describe the scenarios from a to f. (6)



5.2 The following are international bodies concerned with waste. Briefly outline their different aims/purposes. (10)

- a) UNEP
- b) UNCED
- c) UNCTAD
- d) OECD
- e) Basal convention

5.3 Explain what is meant by the term "polluter pays principle" (PPP). (2)

5.4 Explain why the term "mine waste storage" is preferred to the more common "mine waste disposal". (2)

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END OF QUESTION PAPER