



National Open University of Nigeria
Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja
Faculty of Science
2023_1 POP EXAMINATION.

COURSE CODE: ESM322

COURSE TITLE: Water and Waste Water Management

CREDIT: 2Units

TIME ALLOWED: 2 Hours

Instruction: Attempt question number ONE (1) and any other TWO (2) questions. Question number one (1) carries 30marks, while the other questions carry (20) marks each.

- 1a). Succinctly discuss the different group sources of water according to Ogedengbe (1998) **(21marks)**
- 1b). Discuss the scope of wastewater concept **(9marks)**
- 2a) Highlight the interactions between the major cations and anions **(2marks)**
- 2b). Explain the roles major ions of in water bodies **(10marks)**
- 2c). Discuss 8 causative agents of water pollution **(8marks)**
- 3). Discuss how the following contribute to polluting water;
- Land based activities **(4marks)**
 - Drainage Basins **(7marks)**
 - Urban/Industrial areas **(9marks)**
- 4a). Explain the role of agriculture in polluting water sources**(5marks)**
- 4b). Discuss the sewer system operation **(5marks)**
- 4c). List the types of latrine systems exist and how they are treated **(5marks)**
- 4d). Using a diagram describe a pour flush latrine**(5marks)**
- 5a). Define Secondary Treatment**(2marks)**
- 5b). During the preliminary methods, explain the applications and efficiency of waste water treatment during the following processes **(18marks)**