



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**FACULTY OF SCIENCES**  
**DEPARTMENT OF ENVIRONMENTAL SCIENCE AND RESOURCE MANAGEMENT**  
**Plot 91, Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja**  
**2024\_2 EXAMINATION**

**COURSE CODE: ESM 424**

**COURSE TITLE: Fresh Water Ecology**

**CREDIT: 2 Units**

**TIME ALLOWED: 2½ Hours**

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

- QUESTION 1**
- a. Explain ecological pyramids in fresh water ecology.
  - b. Explain trophic levels in a freshwater ecosystem food chain
  - c. State any three (3) aquatic organisms found in fresh water ecosystems
  - d. Describe bacteria as aquatic organism.
  - e. Enumerate the characteristics of Phytoplankton in aquatic ecosystems.

- QUESTION 2**
- a. State the relevance of aquatic macrophytes in aquatic ecosystems
  - b. State the factors that influence the distribution of fish in fresh water ecosystem
  - c. Characterize amphibians' mode of feeding in fresh water ecosystem

- QUESTION 3**
- a. List the factors of temperature influencing the functioning of fresh water ecosystem
  - b. Describe lentic (still water) fresh water ecosystem
  - c. Enumerate the features of lotic (running water) fresh water ecosystem

- QUESTION 4**
- a. Explain any two (2) transpiration problems in freshwater plant
  - b. Mention the sources of nutrients to fresh water plants
  - c. Mention the macro-elements required by fresh water plants

- QUESTION 5**
- a. Describe the term invertebrates.
  - b. Enumerate any four (4) benthic invertebrates.
  - c. Explain the features of any one.