



NATIONAL OPEN UNIVERSITY OF NIGERIA
Plot 91, Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
DEPARTMENT OF ENVIRONMENTAL SCIENCE AND RESOURCE MANAGEMENT
2025_1 EXAMINATION

COURSE CODE: ESM424

COURSE TITLE: Fresh Water Ecology

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) Explain the roles of plants in maintaining a healthy freshwater ecosystem **(7marks)**

1b) Exound on the structure and characteristics of fresh water ecology **(15marks)**

1c) What are Benthic Invertebrates? **(4marks)**

1d) List the four subdivisions of aquatic organisms. **(4marks)**

2a) What are aquatic organisms? **(1mark)**

2b) Describe the following microorganisms that are found within a freshwater ecosystem **(13marks)**

(i)Algae **(4marks)**

(ii)Periphyton and Biofilm **(5marks)**

(iii)Rooted macrophytes **(4marks)**

2c) With specific examples, explain the key features of both the lentic and lotic habitats. **(6marks)**

3a) Discuss how the abiotic and biotic factors affect the development and operations of fresh water ecosystems **(6marks)**

3b) Discuss the following freshwater invertebrates **(14marks)**

(i)Zooplankton **(6marks)** (ii) Molluscs **(4marks)** (iii)Worms **(4marks)**

4a) Justify the existence of bacteria as an important microorganism in an environment **(9marks)**

4b) Write briefly on the ecological pyramid of a freshwater ecosystem **(11marks)**

5a) Highlight the factors that influence the distribution of fish found in different water bodies **(6marks)**

5b) Explain why conservation measures is a must for an ecosystem **(6marks)**

5c) Discuss the importance of temperature to enzymes **(8marks)**