



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) Expound 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 indifferent water bodies(**6marks**)
- 5b) Explain why conservation measures is a must for an ecosystem(**6marks**)
- 5c) Discuss the importance of temperature to enzymes(**8marks**)