



**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\_2 EXAMINATIONS**

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**COURSE CODE: ESM 407**

**COURSE TITLE: GEOGRAPHIC INFORMATION SYSTEM**

**CREDIT: 3 Units**

**TIME ALLOWED: 3 Hours**

**Instruction:** Attempt question number ONE (1) and any other THREE (3) questions. Question number one (1) carries 25 marks, while the other questions carry 15 marks each.

1a). Discuss how GIS technology utilizes the characteristics of geographical features to manipulate and analyze geographical data. (15marks)

1b). Define data editing(3mark)

1c). What are the characteristics of fields in an attribute database? (7marks)

2). Discuss the following hardware components of a Geographic Information System (GIS) (15 marks):

i. Output Devices (3 marks)

ii. Computer (5 marks)

iii. Input Devices (7 marks)

3. Discuss the processes of spatial data capture, data digitization, and the use of aerial photography in inputting spatial data (15 marks).

4a. Discuss the importance of geo-referencing in GIS (13 marks).

4b. Define Storage devices(2mark)

5. Discuss the role of people, referred to as the human ware or liveware, in a GIS environment (10 marks).

6a. Explain the concept of a Modern Geographic Information System (5 marks).

6b. List five geographical features. (5 marks)

6c. Describe how GIS can be utilized for facilities mapping and management. (5 marks)