



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 1 EXAMINATION

COURSE CODE: ESM 421

COURSE TITLE: ELEMENTS OF LAND SURVEYING

CREDIT: 2 Units

TIME ALLOWED: 2½ 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 the following: **(10 Marks)**
- i. Direct leveling,
 - ii. Trigonometric leveling, and
 - iii. Barometric leveling.
- 1b. Explain the concept of collimation error. **(5 Marks)**
- 1c. Describe how the error defined in 1b can be identified. **(5 Marks)**
- 1d. Describe how collimation error can be reduced to achieve more accurate leveling results. **(5 Marks)**
- 2a. Discuss five (5) advantages of chain survey. **(7.5 Marks)**
- 2b. Outline five (5) limitations of chain surveying. **(7.5 Marks)**
- 3a. Explain the concept of magnetic declination. **(7.5 Marks)**
- 3b. Describe methods to correct magnetic declination. **(7.5 Marks)**
- 4a. Explain the following; **(7.5 Marks)**
- i. Alidade
 - ii. Tripod, and
 - iii. Sighting device.
- 4b. Discuss three (3) advantages of plane tabling compared to other surveying methods. **(7.5 Marks)**
- 5a. Describe graphical errors and its impact on the accuracy of measurements. **(7.5 Marks)**
- 5b. Describe methods to identify and reduce graphical error **(7.5 Marks)**