



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)