



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**FACULTY OF SCIENCES**  
**DEPARTMENT OF ENVIRONMENTAL SCIENCE**  
**Plot 91, Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja**  
**2021\_2 EXAMINATION**

**COURSE CODE: ESM421**

**COURSE TITLE: ELEMENTS OF LAND SURVEYING**

**CREDIT UNIT: 2**

**TIME: 2Hours**

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

1.a Describe processes of chain surveying under the following sub-headings.

- i. Reconnaissance Survey
- ii. Ranging
- iii. Running a chain line
- iv. Measurement of offsets
- v. Booking

1.b. What are the sources of errors in chain survey?

2. Explain the meaning and types of compass survey.

2.b. Explain the term bearing.

3. Write short notes on the following

- i) Back and fore bearing.
- ii) Traversing and plotting with the compass survey
- iii) Error of Closure
- iv) Leveling Staff

4.a. Give a detail meaning of plane tabling.

4.b Identify the instruments for plane tabling survey

5. Write detail notes on the following chain surveying instruments.

- i. Arrows or Chain Pins
- ii. Ranging Pole as Rod
- iii. Optical Squares
- iv. Cross Staff