



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**FACULTY OF SCIENCES**  
**DEPARTMENT OF ENVIRONMENTAL SCIENCE AND RESOURCE MANAGEMENT**  
**Plot 91, Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja**  
**2022\_1 EXAMINATIONS**

**COURSE CODE: ESM 421**

**COURSE TITLE: Elements of Surveying**

**CREDIT: 2 Units**

**TIME ALLOWED: 2 Hours**

**SET A**

**Instruction:** Attempt question number ONE (1) and any other TWO (2) questions. Question number one (1) carries 30 marks, while the other questions carry (20) marks each.

- QUESTION 1**
- a. Provide a definition of surveying
  - b. State the objective of surveying
  - c. List the division of surveying
  - d. Explain any one mentioned 1c above
  - e. Categorized survey based on instrument used
  - f. Classify survey based on the surface and the area surveyed

- QUESTION 2**
- a. List the types of Traverse survey
  - b. Explain triangulation survey
  - c. Explain any two basic principles of surveying

- QUESTION 3**
- a. Enumerate the process of surveying
  - b. Explain any two mentioned 3a above
  - c. Explain the purpose of chain survey

- QUESTION 4**
- a. List the instrument used in chain survey
  - b. Differentiate between optical squares and cross staff
  - c. Give an insight on the operation of reconnaissance survey

- QUESTION 5**
- a. Account for the sources of errors in chain survey
  - b. Explain any two types of error in chain survey
  - c. Explain the step wise procedure adopted in overcoming obstacles which obstruct chaining but not ranging