**

**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**FACULTY OF SCIENCES**

**DEPARTMENT OF ENVIRONMENTAL SCIENCES**

**Plot 91, Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja**

**JULY 2018 EXAMINATIONS**

**COURSE CODE:** ESM 421 **TIME ALLOWED:** 2 Hours

**COURSE TITLE:** Element of Land Surveying 2 Credit Units

**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) Define Surveying, and state the main objective of Surveying. **10marks**
2. Explain the primary divisions of surveying, and justify the basis for the division. **5marks**
3. Surveying can be classified based on various criteria, identify the various criteria  **10marks**
4. **(a)** Explain briefly the basic principles of surveying. **7marks**
5. You have been contracted to carry out the survey of a parcel of land for a residential building. Describe the survey processes involved. **8marks**

**3(a)** Discuss the purpose, suitability and unsuitability of chain survey as a survey method. **12marks**

**(b)**What is the main concern of chain survey**?**  **3marks**

**4(a**) Distinguish between the followings:

1. Ranging and chaining
2. Offset and Booking **7marks**

**(b)** Explain the main divisions of errors, and suggest the ways of eliminating or reducing them**. 8marks**

1. Using suitable diagrams, attempt a classification of the various types of obstacles that are usually encountered during chaining**. 15marks**