



**NATIONAL OPEN UNIVERSITY OF NIGERIA  
14-16 AHMADU BELLO WAY, VICTORIA ISLAND, LAGOS  
SCHOOL OF SCIENCE AND TECHNOLOGY  
JANUARY/FEBRUARY 2013 EXAMINATION**

**ESM 341 :                      INTRODUCTION TO INSTRUMENTATION  
MEASUREMENT                      AND FIELD METHODS IN ENVIRONMENTAL  
SCIENCE**

**Answer any FOUR questions**

**TIME ALLOWED:        2 HOURS**

1. List and describe FIVE field and laboratory equipment used for environmental investigations.
- 2
  - a. Explain THREE reasons for sampling in research.
  - b. Describe FOUR sampling methods.
- 3
  - a. What is remote sensing?
  - b. List the advantages and disadvantages of remote sensing.
  - c. List at least one application area of remote sensing in
    - i. Agriculture and Forestry.
    - ii. Geology.
    - iii. Water resources.
    - iv. Oceanography and Marine.
    - v. Environment.
- 4
  - a. Discuss the guidelines related to field activities.

OR

  - b. Discuss the records that one needs to keep as investigator.
5.
  - a. Describe FOUR biological sampling instruments.
  - b. Itemise the Investigator's checklist before a field project.

6. a. Describe FIVE meteorological observation instruments and corresponding variables they measure.
- b. Compare fixed and mobile meteorological observation stations.