**

**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**Plot 91, Casdestral Zone, NnamdiAzikwe Expressway, Jabi Abuja**

**FACULTY OF SCIENCES**

**DEPARTMENT OF ENVIRONMENTAL SCIENCE AND RESOURCE MANAGEMENT**

**JANUARY/FEBRUARY 2018 EXAMINATION**

**COURSE CODE: ESM 341. CREDIT UNIT: 2 TIME ALLOWED: 2 HOURS**

**COURSE TITLE: Introduction to Instrumentation and Field methods in Environmental Science**

**Instruction:** Attempt question number one (1) and any other three (3).

1. Write short notes on the following:

1. Chromatography **(5marks)**
2. Mass Spectrometry **(5marks)**
3. Colorimetric Analysis **(5marks)**
4. Atomic Absorption Spectrophotometer ‘AAS’ **(5marks)**
5. Random Sampling **(5marks)**

**2.** Discuss the scope of instrumentation in Environmental Science.**(15marks)**

**3. (a)** Mention five components of sound measuring system**. (5marks)**

**(b)** List five criteria for the selection of a tape recorder. **(5marks)**

 **(c)** Write short notes on the following meteorological variables and their instrument:

 i. Sunshine **(2.5marks)**

 ii. Soil **(2.5 marks)**

**4a.** Discuss the concept of Global Positioning System (GPS) **(5 marks)**

**4b.** Discuss the preparation for each sampling trip **(10 marks)**

**5**. Justify the view that instrumentation measurements and field methods in environmental science is an essential course in study of environmental science.**(15marks)**