



**National Open University of Nigeria**  
**Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja**  
**Faculty of Science**  
**APRIL, 2019\_1 EXAMINATIONS**

**COURSE CODE: ESM 343**

**COURSE TITLE: CLIMATE CHANGE AND THE ENVIRONMENT**

**CREDIT: 2 Units**

**TIME ALLOWED: 2 Hours**

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

**Q1a**

- i. What are the factors that influence temperature distribution on earth's surface? **(3 marks)**
- ii. Explain the basic composition of the atmosphere **(3 marks)**
- b.
  - i. Draw and label the zones of the atmosphere **(3 marks)**
  - ii. List and explain the processes that modify solar radiation **(3 marks)**
- c.
  - i. State the processes by which earth surface is being heated **(2 marks)**
  - ii. Describe energy characteristics of urban areas. **(2 marks)**
- d. Briefly explain the following:
  - i. Temperature **(2 marks)**
  - ii. Pressure **(2 marks)**
- e.
  - i. Define the term acid precipitation and pH **(3 marks)**
  - ii. List four factors responsible for climate change **(2 marks)**

**Q2a.**

- i. What is ocean current and what are their causes?**(3 marks)**
- ii. Discuss how the history of past climate can be reconstructed. **(3 marks)**
- b.
  - i. What are proxy data? Explain three (3) examples that you know **(3 marks)**
  - ii. State the importance of three (3) gases to plant, man and the environment **(6 marks)**

**Q3a.**

- i. Elaborate on the term environmental lapse rate **(3 marks)**
- ii. Describe each layer of the atmosphere **(5 marks)**
- b.
  - i. Define the term albedo **(3 marks)**
  - ii. List uses of solar energy **(4 marks)**

**Q4a.**

- i. Explain what is meant by atmospheric pressure. **(3 marks)**

- ii. Examine the Gas Law as it relates to the atmosphere. **(4 marks)**
  - b.
  - i. Air has mass and exerts pressure in space. Explain. **(3 marks)**
  - ii. Describe a simple experiment on how to measure atmospheric pressure. **(5 marks)**
- Q5a.
- i. With the aid of annotated diagrams, explain how atmospheric pressure can be measured. **(5 marks)**
  - ii. Describe the formation of acid precipitation **(4 marks)**
  - b.
  - i. State the effects of acid deposition on the environment **(3 marks)**
  - ii. Define climate change **(3 marks)**