



National Open University of Nigeria
Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja
Faculty of Science
OCTOBER, 2019_2 EXAMINATIONS

COURSE CODE: ESM 343

COURSE TITLE: Climate Change and 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) marks each.

1(a) Complete the table below: **(5 marks)**

Attribute	Early stages of succession	Late stages of succession
Plant biomass		
Plant longevity		
Ecosystem stability		
Plant species diversity		
Seed longevity		

(b) List three substitutes for chlorofluorocarbons. **(3 marks)**

(c) What is biomass? **(2 marks)**

(d) Explain how rice cultivation contributes to increase in methane concentration. **(5 marks)**

(e) Differentiate bond and normal albedo. **(4 marks)**

(f) What do you understand by environmental lapse rate? **(3 marks)**

(g) Explain how smog is formed and its implication for human health. **(3 marks)**

2(a) Wind in urban areas is generally calmer than those in rural areas, why? **(2 marks)**

(b) Explain how pollution may enhance rainfall. **(2 marks)**

(c) Based on temperature, describe the first layer of the atmosphere in detail. **(3 marks)**

(d) Explain the role of greenhouse gases in insulating the earth. **(3marks)**

(e) What is the significance of gravity? **(1mark)**

(f) Explain how Nitrogen is removed from the atmosphere and deposited on the earth's surface. **(1mark)**

(g) Briefly explain how to measure atmospheric pressure according to Evangelista Torricelli. **(3 marks)**

3(a) List three variables that are contributing to the increase in the amount of carbon dioxide in the atmosphere. **(3 marks).**

(b) Apart from rice cultivation, list four other sources of methane. **(4 marks)**

(c) Describe the ozone layer. **(3 marks)**

(d) Air pressure always decreases with increasing height above the ground, why? **(2 marks)**

(e) Briefly explain how acid deposition takes place. **(3 marks)**

- 4(a) Highlight five effects of acid deposition on human health. **(5 marks)**
- (b) What is greenhouse effect? **(2 marks)**
- (c) Differentiate between direct solar radiation and diffused solar radiation. **(4 marks)**
- (d) Differentiate between scattering and absorption. **(4 marks)**

- 5(a) What causes climatic differences between cities and rural areas? **(3 marks)**
- (b) Explain how fertilizer application leads to an increase of a particular greenhouse gas. **(4 marks)**
- (c) List three variables responsible for climate change. **(3 marks)**
- (d) Explain thermal usage of solar energy. **(5 marks)**