



NATIONAL OPEN UNIVERSITY OF NIGERIA
Plot 91, Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
DEPARTMENT OF ENVIRONMENTAL SCIENCE AND RESOURCE MANAGEMENT
2025_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 TWO (2) questions. *Question number one (1) carries 30 marks, while the other questions carry (20) marks each.*

- 1a). Briefly discuss the following: (8 marks)
 - i) Climate Change
 - ii) Ozone layer
 - iii) Global Warming
 - iv) Acid precipitation
- 1b). State three (3) functions of water vapour (3 marks)?
- 1c). Describe the operation of the instruments used to measure wind (6 marks)
- 1d). List four (4) factors responsible for climate change (4 marks)
- 1e). Explain the three (3) major processes by which the earth surface is being heated (6 marks)
- 1f). Write out the equation for the chemical reaction of photosynthesis (2marks)
- 1g). Explain waste water as an influent (1mark)
- 2a). Outline the characteristics of the troposphere. (7 marks)
- 2b). List five examples of proxy data (5 marks)
- 2c). Give the difference between direct solar radiation and diffused solar radiation. (4 marks)
- 2d). List four (4) sources of methane. (Any 4 = 4 marks)
- 3a). Discuss the three (3) options available in secondary sedimentation. (8 marks)
- 3b). Indicate four (4) basic objectives of wastewater treatment. (4 marks)
- 3c). Discuss the factors that influenced the distribution of temperature on the earth. (4 marks)
- 3d). List four (4) sources of sulfur
- 4a). Discuss the Stratosphere (10 marks)
- 4b). List five effects of a decrease in the concentration of ozone in the ozone layer. (5 marks)
- 4c). Discuss the tertiary method of treatment of wastewaters (5 marks)
- 5a). Discuss the role of the following in the atmosphere (16 marks)
 - i) Oxygen
 - ii) Nitrogen
 - iii) Carbon Dioxide
 - iv) Methane
- 5b). Highlight four (4) consequences of ozone layer depletion (4 marks)