



National Open University of Nigeria
Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja
Faculty of Science
2021_1 EXAMINATION

COURSE CODE: EMT401

COURSE TITLE: ENVIRONMENTAL MONITORING SYSTEM AND TECHNIQUES

CREDIT: 3 Units

TIME ALLOWED: 2½ Hours

Instruction: Attempt question number ONE (1) and any other FOUR (4) questions. Question number one (1) is compulsory and carries 22 marks, while the other questions carry equal marks (12) each.

1a) What is impact assessment? (3marks)

1b) Allude the four major reasons for monitoring during construction or operations stages (4marks)

1c) Complete the Table (15marks)

Gas	Chemical Formula	Residence Time or Lifetime	Major Sources	Major Sinks
Carbon Dioxide	1	3 – 4 years	Biological, oceanic, combustion, anthropogenic	photosynthesis
Helium	He	NIL	Radiogenic	NIL
2	3	9 years	Biological, anthropogenic	OH
Hydrogen	H ₂	~ 2 years	Biological, HCHO photolysis	6
7	N ₂ O	150 years	8	O(¹ D) in stratosphere
Carbon Monoxide	CO	9	Photochemical, combustion, anthropogenic	OH
Sulfur Dioxide	10	11	Photochemical, volcanic, anthropogenic	12
13	NH ₃	2 – 10 days	14	gas-to-particle conversion
Ozone	4	Days – Months	Photochemical	15

2a) State the two sources that form the impetus to environmental monitoring (2marks)

2b) Discuss On-site Monitoring Assessment (10marks)

- 3a) List the components of the earth hydrosphere (5marks)
- 3b) Explain the scope of auditing in environmental monitoring systems and techniques (3marks)
- 3c) List the categories of techniques based on resources that exist according to Wiersma, (2004) (4marks)

- 4) Discuss extensively the ocean-atmosphere interactions (12marks)

- 5) Diagrammatically illustrate the flow of water within the atmosphere (12marks)

- 6a) Explain the depletion of stratosphere ozone layer (6marks)
- 6b) State the reversible effects of human activities on the global environment (3marks)
- 6c) List the major sources of SO₂ and NO_x in the atmosphere (3marks)