



**NATIONAL OPEN UNIVERSITY OF NIGERIA
UNIVERSITY VILLAGE, PLOT 91 CADASTRAL ZONE, NNAMDI AZIKIWE
EXPRESS WAY, JABI - ABUJA.**

FACULTY OF SCIENCES

DEPARTMENT OF PURE AND APPLIED SCIENCE

SEPTEMBER, 2020_1 EXAMINATION

COURSE CODE: CHM 314

COURSE TITLE: ENVIRONMENTAL CHEMISTRY

CREDIT UNIT: 2

TIME: 2 HOURS

INSTRUCTION: Answer questions one and any other three questions.

QUESTION ONE

1a. Using chemical equation explain how thermal decomposition of carbonate rocks or limestone leads to release of carbon (iv) oxide.

2 Marks)

1b. How will increased use of fertilizers results in ozone layer depletion?

(3 marks)

1c. Name the three major groups of airborne carcinogens.

1 ½ marks

1d. State the two important oxides of nitrogen that are emitted in significant quantities to the atmosphere.

1 mark

1ei. What is the primary source of hydroxyl (OH) radical in the atmosphere?

1 mark

1eii. Using chemical equations only show how the hydroxyl radical is formed from its primary source.

4½ mark

1eiii. Of what significance is the formation of hydroxyl radical in the atmosphere?

3 marks

1fi. What are asbestos?

1¹/₂ marks

1fii. Discuss briefly the environmental consequence(s) of asbestos.

2¹/₂ marks

1g. State four useful products that can be generated from wastes if effectively managed.

2marks

1h. List two methods for measuring water acidity.

1 mark

1i. State two significance of COD test of water.

2 marks

QUESTION TWO

2a. Define each of the following terms:

(1) Weather

1¹/₂ marks

(2) Climate

1¹/₂ marks

2b. State the importance of ozone in the stratosphere

3 marks

2c. Explain briefly using chemical equation the significance of CFCs in ozone layer depletion.

7¹/₂ marks

2d. State three major sources of soil pollution.

1¹/₂ marks

QUESTION THREE

3a. What are the criteria for classifying a pollutant as *priority pollutant*?

4 marks

3b. When is a water body said to be polluted?

3 marks

3c. Write short notes on the following pollutants of water:

(i) Persistent organic chemicals

4 marks

(ii) Heavy Metals

4 marks

QUESTION FOUR

4a. Explain briefly why cigarette smoking is especially dangerous for those with heart disease.

4 marks

4b. State the positive and the negative effects of ozone. 3 marks

4c. Explain why soil pollution is of great concern to man. 3 marks

4d. Complete the following table:

	Soil Pollutant	Sources (two)
1	Heavy Metals	
2	Hydrocarbons	
3	Nutrient-Rich Wasted	
4	Radionuclides	
5	Pathogenic Organisms	

5 marks

QUESTION FIVE

5a. Explain in a statement the term Primary Treatment of wastewater. 2 marks

5b. Describe briefly the following stages in Preliminary treatment of wastewater:

(i) Screening 2 marks

(ii) Sedimentation 2 marks

5ci. What are the conditions necessitating the reuse of waste water? 3 marks

5cii. State some purposes for which wastewater have been reused. 3 marks

5d. Explain briefly why ^{137}Cs and ^{90}Sr are considered serious pollutants in soils. 3 marks