

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS**

**SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE OF  
BACHELOR OF PUBLIC HEALTH**

**PUHE 238: ENVIRONMENTAL POLLUTION AND CONTROL**

**STREAMS: PUHE Y2S2**

**TIME: 2 HOURS**

**DAY/DATE: WEDNESDAY 16/4/2025**

**8.30 A.M. – 10.30 A.M.**

**INSTRUCTIONS:**

1. Do not write anything on the question paper.
2. Mobile phones and any other reference materials are NOT allowed in the examination room.
3. The paper has three sections. Answer ALL questions in Sections I and II and ONE question in section III.
4. All your answers for Section I (MCQs) should be on one page.
5. Number ALL your answers and indicate the order of appearance in the space provided in the cover page of the examination answer booklet.
6. Write your answers legibly and use your time wisely

**SECTION 1: MULTIPLE CHOICE QUESTIONS [10 MARKS]**

1. Pollutants which remain in the environment for a long period of time without any change in its original form are can best classified as

- [a]. Natural pollutants
- [b]. Quantitative pollutants
- [c]. Persistent pollutants
- [d]. Primary pollutants

2. The following are key heavy metal pollutant in water, EXCEPT

- [a]. Al
- [b]. Cd
- [c]. As
- [d]. Pb

3. \_\_\_\_\_ on substances that deplete ozone layer was signed in 1987 and entered into force in 1989

- [a]. Kyoto protocol
- [b]. Montreal protocol
- [c]. Bamako protocol
- [d]. Alma Ata protocol

4. The following are green-house gases, EXCEPT  
[a]. Carbon dioxide  
[b]. Methane  
[c]. Nitrous oxide  
[d]. All are green-house gases
5. \_\_\_\_\_ measures wind speed and direction  
[a]. Thermometers  
[b]. Hygrometers  
[c]. Anemometers  
[d]. Barometers
6. The lowest dose of a pollutant at which there is an observable health effect is  
[a]. LD<sub>50</sub>  
[b]. Threshold  
[c]. Physiological half-life  
[d]. LC<sub>50</sub>
7. \_\_\_\_\_ is usually known for paralysing the bronchial cilia thus enhancing the synergistic effect following exposure to other air pollutants  
[a]. Ozone  
[b]. Smoke  
[c]. Asbestos  
[d]. Gaseous mercury
8. Uncontaminated rain has a pH of about  
[a]. 2  
[b]. 5.6  
[c]. 7.2  
[d]. 6.6

**In question 9 and 10, indicate whether the statement is TRUE or FALSE.**

9. Chlorofluorocarbons (CFCs) are nontoxic, nonflammable chemicals containing atoms of carbon, ozone, and fluorine [True/False]
10. LC<sub>50</sub> is the amount of material which causes death of 50% of experimental animals (True/False)

**SECTION II: SHORT ANSWER QUESTIONS [40 MARKS]**

1. Define the following terms  
[a]. Pollutant [2 marks]  
[b]. Carbon footprint [2 marks]
2. Various arguments have been advanced to explain the roots of human environmental destructive tendencies. Explain three (3) popular arguments that have been invoked to explain the roots of human environmental tendencies [6 marks]

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**3.** Dose-response evaluation is required in determining exposure scenarios for a pollutant and characterizing its health effects on humans. Explain five (5) characteristic features of the dose-response relationship as applied in environmental pollution [5 marks]

**4.** Stratospheric ozone is usually referred to as “good ozone” because of its environmental significance. State the main harmful environmental effect and four (4) associated human health effects that can result from the depletion of the stratospheric ozone [5 marks]

**5.** Air pollution can have a significant negative impact on animals, just as it does on humans. Explain five (5) main health effects of air pollution on animals [10 marks]

**6.** Indoor air pollution is an emerging public health concern associated with debilitating human health problems, especially for children, the elderly, and people with respiratory conditions. Explain five (5) key public health measures that can be deployed to reduce indoor air pollution in Kenya [10 marks]

**SECTION III: LONG ANSWER QUESTIONS [20 MARKS]**

**1.** Vehicle emissions is a growing public health concern that entails the release of various substances into the atmosphere from motor vehicles. The emissions can have significant negative impacts on human health and the environment if left uncontrolled. As a Public Health Officer employed to work in an urban County X, explain ten (10) key measures that you would recommend to control vehicle emissions [20 marks]

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