



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**Faculty of Health, Natural  
Resources and Applied  
Sciences**

**School of Health Sciences**

**Department of Preventative  
Health Sciences**

13 Jackson Kaujeua Street T: +264 61 207 2970  
Private Bag 13388 F: +264 61 207 9970  
Windhoek E: dphs@nust.na  
NAMIBIA W: www.nust.na

<b>QUALIFICATION:</b> BACHELOR OF ENVIRONMENTAL HEALTH SCIENCES	
<b>QUALIFICATION CODE:</b> 08BOHS	<b>LEVEL:</b> 6
<b>COURSE:</b> AIR POLLUTION AND NOISE	<b>COURSE CODE:</b> APN 612S
<b>DATE:</b> NOVEMBER 2024	<b>SESSION:</b> 2
<b>DURATION:</b> 3 HOURS	<b>MARKS:</b> 100

**FIRST OPPORTUNITY: QUESTION PAPER**

**EXAMINER:** *Prof Omotayo Awofolu*

**MODERATOR:** *Dr Larai Aku-Akai*

**INSTRUCTIONS**

1. Answer all questions in the answer booklet provided.
2. Please write **neatly** and **legibly**.
3. Do not use the left side margin of the exam paper. This must be allowed for the examiner.
4. No books, notes and other additional aids are allowed.
5. Mark all answers clearly with their respective question numbers.

**PERMISSIBLE MATERIALS**

1. Non-Programmable Calculator

**ATTACHEMENTS**

1. None

**This paper consists of 3 pages, including this front page**

**SECTION A:****[25 MARKS]****QUESTION 1:****[25 MARKS]**

- 1.1 Particulate Matter (PM), called “fine particles,” can cause serious respiratory ailments in human beings when inhaled. Provide the characteristics of these particles. (4)
- 1.2 Some characteristics can be used to describe odour during measurement by sensory technique. List these characteristics. (4)
- 1.3 Learners at a high school are exposed to environmental noise from nearby construction work at about 92 dB. Enumerate **any five (5)** possible effects of the noise on the learners. (5)
- 1.4 A resident in the Windhoek West neighbourhood complained about noise emanating from another resident. In stages, list the process you will take to investigate the noise. (7)
- 1.5 (i). Explain the term “Photochemical Smog”. (2)  
(ii). State **any two (2)** of its impacts on human health. (3)

**SECTION B:****[33 MARKS]****QUESTION 2:****[33 MARKS]**

- 2.1 (i). Define the term “organoleptic method”. (2)  
(ii). State its advantage over the chemical method. (2)
- 2.2 EHS students were found to be exposed to a sound pressure level (SPL) of 50  $\mu\text{Pa}$ . Assuming the human hearing threshold value is 20  $\mu\text{Pa}$ . Calculate the SPL in dB. (5)
- 2.3 Describe the process of measuring pollutant gas using the Bubbler System. Explain your answer with a diagram. (6)
- 2.4 State the desirable characteristics expected of all air sampling devices. (10)
- 2.5 Some houses in a community are exposed to noise pollution from vehicles due to their closeness to a highway. Explain **any four (4)** control measures you will propose to solve the noise pollution. (8)

**SECTION C:****[42 MARKS]****QUESTION 3:****[42 MARKS]**

- 3.1 Briefly describe the concept of the Natural Greenhouse Effect. Use an illustration to further explain your answer. (8)
- 3.2 Organisations/businesses can contribute to the issue of air pollution. State any four (4) of these contributions. (8)
- 3.3 There are situations where municipal bylaws allow for the broadcast of noise. State **any four (4)** of these situations and give an example in each case. (8)
- 3.4 (i). State the characteristics of carbon monoxide (CO) gas (2)  
(ii). Briefly explain the sources, environmental and human health effects of carbon monoxide (CO) gas in the environment. (6)
- 3.5 Briefly explain the following terms:  
i. Statutory Law and Regulatory/Administrative Law. (6)  
ii. Give an example of the implementation of the law in each case. (4)

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**END OF QUESTION PAPER**