



**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

QUALIFICATION : BACHELOR OF ENVIRONMENTAL HEALTH SCIENCES	
QUALIFICATION CODE: 08 BOHS	LEVEL: 5
COURSE: WATER AND SANITATION	COURSE CODE: WAS512S
DATE: JANUARY 2025	SESSION: 2
DURATION: 3 HOURS	MARKS: 100

SECOND OPPORTUNITY /SUPPLEMENTARY: EXAMINATION QUESTION PAPER

EXAMINER: MRS. MOUYELELE HAUFIKU

MODERATOR: MS. CHARMAINE JANSEN

INSTRUCTIONS

1. Answer all questions on the separate answer sheet.
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: NONE

This examination paper consists of 4 pages, including the front page.

SECTION A: SHORT ANSWER QUESTIONS**[30 MARKS]****QUESTION 1****[10 MARKS]**

Differentiate between the following terms.

- 1.1 Permeable and impermeable [2]
- 1.2 Communicable and Non-communicable diseases with examples [4]
- 1.3 Shallow well and deep well [2]
- 1.4 Potable and Raw water [2]

QUESTION 2**[10 MARKS]**

2.1 Classify the following diseases as water-borne, water-washed, water-based and water-related

- 2.1.1 Giadiosis [1]
- 2.1.2 Conjunctivitis [1]
- 2.1.3 Shigellosis [1]
- 2.1.4 Schistosomiasis [1]
- 2.1.5 Malaria [1]

2.2 Interpret the following abbreviations in the context of water and sanitation

- 2.2.1 TCU [1]
- 2.2.2 TC [1]
- 2.2.3 MAWF [1]
- 2.2.4 COD [1]
- 2.2.5 WWTP [1]

QUESTION 3**[10 MARKS]**

3.0 Match the concepts in Column A to their most correct statement in Column B. Write the concept number and the letter representing the correct statement on your answer sheet. **1 mark each**

No	COLUMN A	COLUMN B	
3.1	Abstraction	A	A hole dug in the ground serving as soak away.
3.2	Colloids	B	The process of taking water from the source so that it can be used.
3.3	Surface water	C	Water that is pleasant to drink because its taste is good but it may not be safe to drink.
3.4	Soak pit	D	Parasitic worm that grow and multiply in sewage and wet soil.
3.5	Helminths	E	Means water in rivers, lakes, pools, and ponds.
3.6	Palatable water	F	Water is heated to steam, which is then cooled and collected as liquid, leaving behind microorganisms.
3.7	Black water	G	It is also called clarification.
3.8	Sedimentation	H	The means of collecting and disposing of excreta and community liquid waste in a hygienic ways as not to endanger the health of individuals.
3.9	Distillation	I	Disturbed, muddy appearance of water.
3.10	Turbidity	J	These are low diameter particles which are responsible for the turbidity or the colour of surface water.

SECTION B: LONG ANSWER QUESTIONS**[30 MARKS]**

Please answer ALL the questions in this section.

QUESTION 4**[10 MARKS]**

4.0 Polio is the disease caused by the poliovirus, which spreads primarily through the fecal-oral route.

4.1 List five (5) symptoms of Non-paralytic Polio. [5]

4.2 List five (5) symptoms of Paralytic polio. [5]

QUESTION 5**[20 MARKS]**

- 5.1 State any six (6) Advantages of an ecological sanitation latrines. [6]
- 5.2 Explain the four (4) key principles of ecological sanitation latrines. [8]
- 5.3 Mention the six (6) factors to consider in selecting a site for constructing waste stabilization ponds. [6]

SECTION C:**[40 MARKS]****QUESTION 6****[40 MARKS]**

- 6.1 In water treatment, sedimentation, or the removal by gravitational settling of suspended particles heavier than water, is perhaps the most widely useful operation. The water is allowed to sit in a large settling tank. The heavier flocs settle to the bottom, forming sludge, which is later removed. This process effectively removes larger suspended particles and some organic matter. Discuss the factors that influence effective sedimentation processes. [20]
- 6.2 Discuss Schistosomiasis under the following headings:
- 6.2.1 Explain how Schistosomiasis is transmitted/ life cycle. [14]
- 6.2.2 Outline any six (6) prevention and control measures for Schistosomiasis. [6]

END OF QUESTION PAPER