higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

WATER AND WASTEWATER TREATMENT PRACTICE N1

(8120011)

28 November 2022 (X-paper)
09:00–12:00

Nonprogrammable calculators may be used.

This question paper consists of 4 pages.

274Q1E2228

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
WATER AND WASTEWATER TREATMENT PRACTICE N1
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Start each section on a new page.
5. Use only a black or blue pen.
6. Write neatly and legibly.

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QUESTION 1

1.1	Why is water called a universal solvent?	(2)
1.2	List NINE characteristics of water.	(9)
1.3	Name THREE phases of water.	(3)
1.4	Water moves around the whole Earth in the form of vapour. Name FIVE processes of the water cycle.	(5)
1.5	Why is water important for our body to function?	(5)

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QUESTION 2

2.1	Define *domestic water.*	(2)
2.2	What can be done to conserve water?	(3)
2.3	List the potential ecological benefits of greywater recycling.	(8)
2.4	State FOUR factors that contribute to the aesthetic quality of water.	(4)

[17]

QUESTION 3

3.1	Give FOUR advantages of using simple pit latrines.	(4)
3.2	Define *sewage treatment.*	(2)
3.3	Briefly explain the activated sludge process in sedimentation and carbonation.	(5)
3.4	Give SEVEN advantages of using humus or composting toilets.	(7)
3.5	Draw a diagram of a purification process.	(8)

[26]

QUESTION 4

4.1	Which records must be kept by the owners of wastewater treatment plants?	(3)
4.2	What is the objective of record keeping?	(4)
4.3	Briefly explain *flocculation*.	(4)
4.4	Write brief notes about coagulation.	(6)

[17]

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QUESTION 5

5.1 In which units are the following measured?

5.1.1 Turbidity

5.1.2 Colour

5.1.3 Taste and odour

5.1.4 pH

(2 × 4) (8)

5.2 What are the FOUR required-permit confined spaces? (4)

5.3 What should regular maintenance of a pipeline include? (4)

[16]

TOTAL: 100

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