higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

WATER AND WASTE-WATER TREATMENT PRACTICE N2

(8120022)

28 November 2024 (X-paper)
09:00–12:00

Drawing instruments and nonprogrammable calculators may be used.

This question paper consists of 4 pages.

155Q1E2428

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
WATER AND WASTE-WATER TREATMENT PRACTICE N2
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. Use only a black or blue pen.
5. Write neatly and legibly.

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QUESTION 1

1.1 Define each of the following terms:

1.1.1 Free chlorine

1.1.2 Chlorine residual

1.1.3 Toxic substances

(3 × 3) (9)

1.2 Explain the process of using a DPD testing method for a wastewater plant. (3)

1.3 Name the FOUR key process stages of anaerobic fermentation. (4)

1.4 Explain how water gains its colour. (3)

1.5 Explain the THREE processes that take place during the stage known as preliminary water treatment. (3 × 2) (6)

[25]

QUESTION 2

2.1 Explain the term *turbidity*. (5)

2.2 Define water purification and explain what the goal of water purification is? (5)

2.3 List THREE flocculation processes. (3)

2.4 Calculate the flow rate (in m^3/s) of water in a pipeline with a radius of 700 mm at a velocity of 5 m/s. (7)

[20]

QUESTION 3

3.1 Explain the Green Drop certification programme. (5)

3.2 List FIVE activities that form part of an operations and maintenance plan for a water treatment plant. (5)

3.3 Explain the sludge draw-off process. (5)

3.4 Name FOUR types of flowmeters. (4)

3.5 Give SIX purposes of activated sludge. (6)

[25]

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QUESTION 4

4.1	Define and explain anaerobic fermentation.		(4)
4.2	Name SIX types of water filters.		(6)
4.3	Name and explain FOUR methods of final sludge disposal.	(4 × 3)	(12)
4.4	List the EIGHT sampling points at a waste-water treatment plant.		(8)
			[30]
		TOTAL:	**100**



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