higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

WATER AND WASTE-WATER TREATMENT PRACTICE N1

(8120011)

5 December 2023
09:00–12:00

This question paper consists of 4 pages.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
WATER AND WASTE-WATER 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

Define the following terms:

1.1 Temperature

1.2 Freezing point

1.3 Evaporation

1.4 Precipitation

1.5 Effluent

1.6 Domestic water

1.7 Industrial water

1.8 Groundwater

1.9 Non water borne system

1.10 Sludge

(10 × 2) **[20]**

QUESTION 2

2.1 List any FIVE characteristics of water. (5)

2.2 What can be done to conserve water? (3)

2.3 Draw and label a neat sketch of an activated sludge plant with anaerobic digestion flow. (9)

2.4 Briefly explain *water pollution* caused by *air pollution*. (7)

[24]

QUESTION 3

3.1 What does regular maintenance of the penstock include? (5)

3.2 Write brief notes about the following:

3.2.1 Removal of temporary hard water (5)

3.2.2 Removal of permanent hardness (3)

3.2.3 Preliminary treatment (3)

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3.3 Name THREE parasites that are commonly found in contaminated water. (3)

3.4 What are sources of industrial water wastes? (3)
[22]

QUESTION 4

4.1 How is oxygen absorption (OA) measured? (3)

4.2 List THREE advantages and THREE disadvantages of a simple pit latrine. (6)

4.3 What are the disadvantages of chemical toilets? (3)

4.4 What is sewage treatment? (2)

4.5 Name any FIVE possible causes of injuries and even death that may occur in a water plant. (5)
[19]

QUESTION 5

5.1 Why is it important to wear the following protective clothing in a water plant?

5.1.1 PVC gloves (2)

5.1.2 Head protection (2)

5.1.3 Respiratory protection (3)

5.2 What must be done to prevent flooding in a water plant? (4)

5.3 What is the objective of record keeping? (4)
[15]

TOTAL: 100

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