higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

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NATIONAL CERTIFICATE

WATER AND WASTE-WATER TREATMENT PRACTICE N1

(8120011)

8 August 2019 (X-Paper)
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. Write neatly and legibly.

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QUESTION 1

1.1 State THREE aesthetic reasons for the treatment of water for domestic purposes. (3)

1.2 State the requirements of the Water Act 54 of 1956. (3)

1.3 State FOUR functions that influence the rate of evaporation. (4)

1.4 Explain why water is called an unsealed solvent. (4)

1.5 State SEVEN benefits of ecological greywater recycling. (7)
[21]

QUESTION 2

2.1 Write brief notes on groundwater sources. (6)

2.2 Which THREE factors influence the existence of springs? (3)

2.3 State FOUR things that should be done to maintain a valve. (4)

2.4 State SEVEN regular maintenance procedures of a reservoir and its distribution system. (7)
[20]

QUESTION 3

3.1 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'True' or 'False' next to the question number (3.1.1–3.1.5) in the ANSWER BOOK.

3.1.1 A compound is a substance that cannot be broken down into simpler substances.

3.1.2 Aerobic means the absence of oxygen in the system.

3.1.3 Anaerobic means that there is free oxygen available in the system.

3.1.4 Brackish water contains large amounts of dissolved salts.

3.1.5 A weak base can be buffered with its salts.

(5 × 1) (5)

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3.2 Define the following terms:

3.2.1 Gravity (2)

3.2.2 Pathogen (1)

3.2.3 Sludge (2)

3.2.4 Eutrophication (2)

3.2.5 Recycled water (2)

3.3 State THREE things that give water its flavour. (3)

3.4 What are THREE disadvantages of a simple pit latrine? (3)
[20]

QUESTION 4

4.1 Turbidity can be removed by clarification.

Name FIVE causes of turbidity. (5)

4.2 What is the purpose of disinfection-free, residual chlorine present in water? (4)

4.3 State FIVE procedures that are involved in activated sludge. (5)

4.4 What are the FOUR major components of secondary treatment in waste-water treatment? (4)

4.5 Name THREE products produced in the digestion system. (3)
[21]

QUESTION 5

5.1 Which THREE paths allow sludge to pass through from the secondary clarifier? (3)

5.2 Which FOUR factors affect nitrification? (4)

5.3 Safety measures are very important in the working environment due to many risk factors.

State EIGHT types of injuries and causes of death that can occur in a waste-water treatment plant. (8)

5.4 Explain what is meant by *safety* in waste-water treatment plants. (3)
[18]

TOTAL: 100

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