higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T1760(**E**)(A5)T

NATIONAL CERTIFICATE

WATER AND WASTE-WATER TREATMENT PRACTICE N2

(8120022)

5 April 2018 (X-Paper)
09:00–12:00

This question paper consists of 5 pages.

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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. Write neatly and legibly.

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QUESTION 1

Give ONE word or a term for each of the following descriptions. Write only the word or term next to the question number (1.1.1 – 1.1.5) in the ANSWER BOOK.

1.1. An indication of the bacterial pollution of water and the amount of organic material available as nutrients to the bacteria

1.2 The removal of small particles which are made up of microbes, silt and other suspended materials in water

1.3 A physical characteristic which makes water appear cloudy when suspended matter is present

1.4 A chemical element which is a greenish-yellow gas at ordinary temperatures and pressures; this gas is poisonous and has a strong smell

1.5 A methane-producing bacterium

(5 × 1) **[5]**

QUESTION 2

Choose an item from COLUMN B that matches a term in COLUMN A. Write only the letter (A–F) next to the question number (2.1–2.5) in the ANSWER BOOK.

COLUMN A		COLUMN B	
2.1	Venturi tube	A	aluminium sulphate
2.2	Flocculation process	B	tendency towards decay and infection
2.3	Flocculant	C	sodium thiosulphate
2.4	Septicity	D	magnesium chloride
2.5	Preservative	E	pressure-differential meter
		F	flash mixing

(5 × 1) **[5]**

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QUESTION 3

3.1 Redraw the table below in the ANSWER BOOK. Complete the table by writing down the missing information next to the question numbers (3.1.1 – 3.1.8) in the table.

Parameter	**General Standard**	**Special Standard**
Suspended solids	3.1.1 …	3.1.2 …
Faecal coliforms	3.1.3 …	3.1.4 …
Mercury	3.1.5 …	3.1.6 …
Arsenic	3.1.7 …	3.1.8 …

(8 × 1) (8)

3.2 Write short notes under the following headings:

3.2.1 Toxic substances (4)

3.2.2 Flow measurement (6)

3.2.3 Poly-electrolytes (7)

[25]

QUESTION 4

4.1 Name THREE main chemical dosing methods at a water treatment works. (3)

4.2 Give FOUR mechanisms commonly used to achieve 'flash mixing'. (4)

4.3 Write short notes on the storing of ferric chloride. (7)

4.4 Describe the process of *phosphate removal*. (6)

[20]

QUESTION 5

5.1 Describe a *constant velocity channel*. (6)

5.2 Name FOUR types of pump installation. (4)

5.3 Discuss the process of *nitrification*. (8)

5.4 When is water stable? (2)

[20]

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QUESTION 6

6.1 Describe the different *zones* in *breakpoint chlorination*. (6)

6.2 Write short notes under the following headings:

6.2.1 Grab sample (5)

6.2.2 Composite sample (5)

6.3 Fully discuss the *preservation of samples*. (9)
[25]

TOTAL: 100

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