higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

WATER AND WASTE-WATER TREATMENT PRACTICE N1

1 AUGUST 2018

This marking guideline consists of 5 pages.

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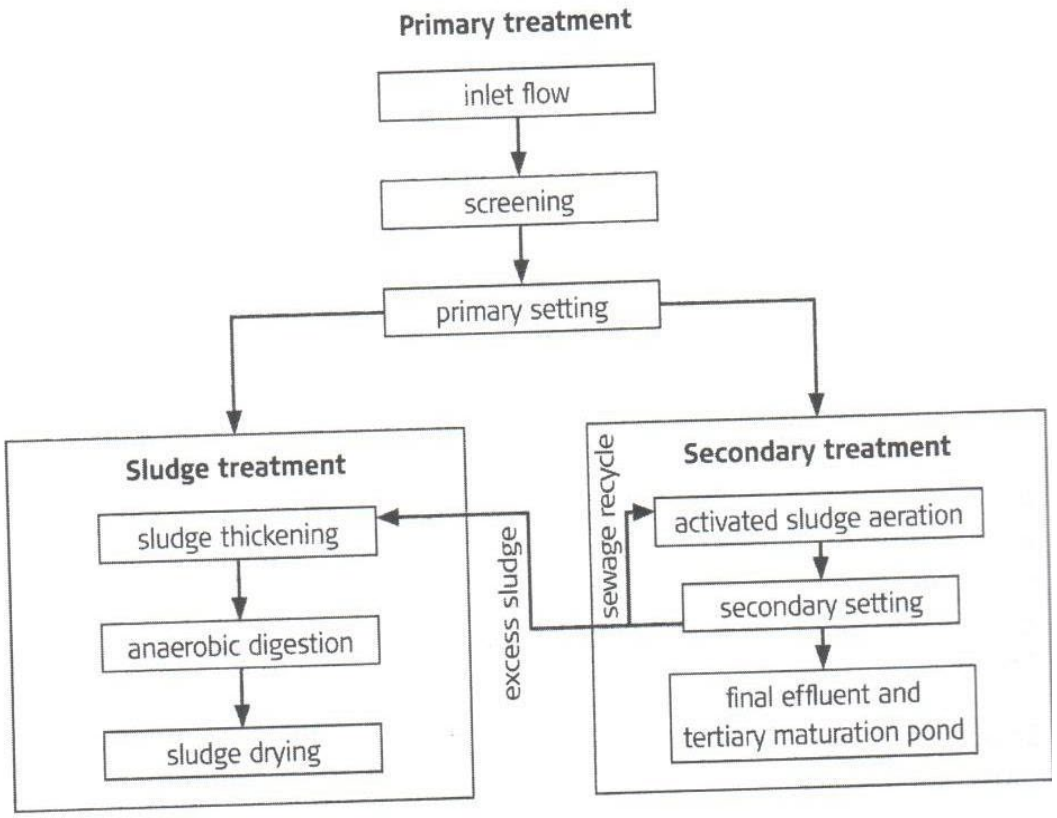
QUESTION 1

1.1
- Water treatment.
- Waste-water treatment. (2)

1.2
- To render it hygienically safe
- To render it suitable for discharge into rivers
- To render it inoffensive to eyes and nose
- To render it fit for re-use
- To comply with legislation
- To convert it to a stable form (Any 5 × 1) (5)

1.3
- Colour
- Odour
- Taste
- pH
- Dissolved solids
- Faecal coli (Any 5 × 1) (5)

1.4



1 mark for a correct sketch
9 marks for correct labelling (10)
[22]

QUESTION 2

2.1
- Oceans✓ 97%✓
- Polar ice glaciers✓ 2,24%✓
- Freshwater lakes✓ 0,009%
- Brackish lakes✓ 0,008%✓
- Rivers and canals✓ 0,001% (10)

2.2
- Swamps exist in areas with poor drainage and sufficient water supply to keep the ground waterlogged.
- Swamps are similar to lakes but they are much shallower.
- Swamps are covered with water, but this water is shallow enough to allow plants to grow. (3 × 2) (6)

2.3
- They withdraw water from the source.
- They pump water from the source to the purification works via pipes.
- They draw treated water from the water works to the distribution centre. (3 × 1) (3)

2.4
- Roto-dynamic pumps
- Positive displacement pumps
- Diaphragm pumps
- Air-lift pumps
- Screw pumps (Any 4 × 1) (4)

[23]

QUESTION 3

3.1
3.1.1 False

3.1.2 False

3.1.3 True

3.1.4 True

(4 × 1) (4)

3.2
3.2.1 Destruction of all living micro-organisms by boiling the water.

3.2.2 A substance that does not dissolve in particular liquids

3.2.3 Poison produced by a pathogen which causes disease

3.2.4 Water which contains very few dissolved calcium and magnesium salts with a soap filling.

3.2.5 It is due to visible matter in a suspension and is caused by colloidal matter present in water.

(5 × 2) (10)

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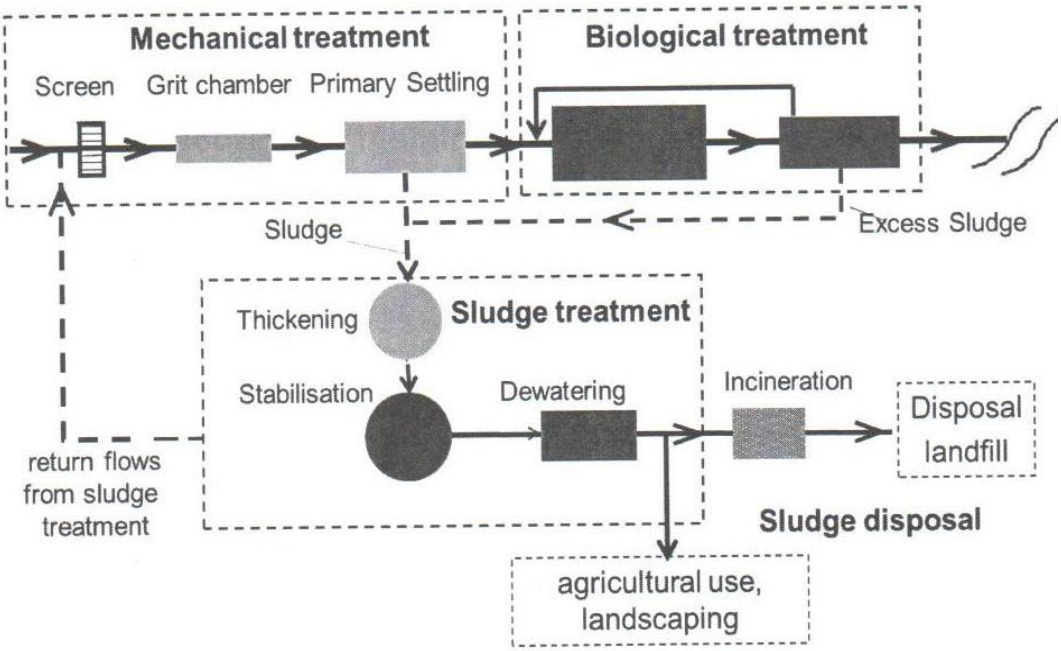
3.3
- For good health
- To remove suspended solids so that it will not be turbid
- To make it colourless
- To remove odour
- To make it taste better

(5)
[19]

QUESTION 4

4.1



12 marks for any correct labelling only (12)

4.2
- Gastric fever
- Dysentery
- Typhoid fever
- Tuberculosis
- Hookworm, tapeworm, roundworm
- Many viruses

(Any 5 x 1) (5)
[17]

QUESTION 5

5.1
- Venturi flowmeter
- Orifice flowmeter
- Propeller velocity meter
- Turbine velocity meter
- Portable open-channel flowmeter
- Veriflux flowmeter (Any 5 × 1) (5)

5.2
- For planning
- For troubleshooting
- To see flow trends
- For assessment of rainwater or groundwater (4)

5.3
- Use common sense.
- Be aware of special precautions.
- Ensure that stores are labelled clearly.
- Ensure that the first aid box is readily available.
- Don't work carelessly. (5 × 1) (5)

5.4
- Use acknowledged processes and equipment.
- Supply spares.
- Use the correct tools.
- Have a planned programme. (4)

5.4
- Cleaning
- Lubrication
- Replacement
- Inspection (Any 2 × 1) (2)

[20]

TOTAL: 100

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