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higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

PLUMBING THEORY N1

(11022041)

3 August 2021 (X-paper)
09:00–12:00

Drawing instruments and nonprogrammable calculators may be used.

This question paper consists of 4 pages.

164Q1G2103

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
PLUMBING THEORY 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 question on a new page.
5. Only use a black or blue pen.
6. Write neatly and legibly.

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QUESTION 1: SAFETY AND HOUSEKEEPING

1.1 Define e*xcavation.* (2)

1.2 Name THREE precautionary measures when using step ladders. (3)
[5]

QUESTION 2: TOOLS AND MACHINES

2.1 Name THREE types of power tools and state their uses. (6)

2.2 Name FOUR marking or measuring tools. (4)
[10]

QUESTION 3: METALS AND MATERIALS

Define the following terms:

3.1 Atmospheric corrosion

3.2 Galvanising

3.3 Ferrous metals

3.4 Non-ferrous metals

(4 × 2) **[8]**

QUESTION 4: SOLDERING AND WELDING

4.1 Briefly explain the process of tinning a soldering iron. (4)

4.2 What is the difference between *arc welding* and *gas welding?* (4)
[8]

QUESTION 5: COLD WATER SUPPLY

5.1 Name FOUR advantages of galvanised mild steel pipes. (4)

5.2 Give ONE disadvantage of the following sources of water:

5.2.1 Wells

5.2.2 Rivers

5.2.3 Fountains

(3 × 2) (6)

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5.3 Show, with the aid of a sketch, how the cold-water supply to a domestic dwelling would be connected and label all the parts and relevant pipes. (7)
[17]

QUESTION 6: HOT WATER SUPPLY

6.1 THREE principles of heat transfer apply to hot water installations.

Name and explain these THREE principles. (6)

6.2 Explain TWO causes of air locks. (4)

6.3 State TWO advantages of a push-through geyser. (2)
[12]

QUESTION 7: DRAINAGE

7.1 Name the differences between the following:

7.1.1 *Ventilation pipe* and *ventilation valve* (4)

7.1.2 *Rodding eye* and *inspection eye* (4)

7.1.3 *Manhole* and *gully* (4)

7.2 Any drainage installation must be provided with adequate access to the installation for the purpose of inspection, testing or internal cleaning.

Name FIVE instances where access to pipes should be provided. (5)

7.3 Name THREE types of storage cisterns that one can install to supply water to a toilet. (3)
[20]

QUESTION 8: SHEETMETAL WORK

Show by means of sketches how one fixes the flashing against a parapet wall of a pitched roof and label the parts of the flashing. **[12]**

QUESTION 9: CALCULATIONS

Calculate the volume of a rectangular tank with the following dimensions:

Length = 18 m
Breadth = 95 cm
Height = 20 m

[8]

TOTAL : 100

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