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Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T1130**(E)**(N17)T
NOVEMBER EXAMINATION

NATIONAL CERTIFICATE

PLUMBING THEORY N1

(11022041)

17 November 2016 (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
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. Write neatly and legibly.

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QUESTION 1: SAFETY AND HOUSEKEEPING

1.1 What are the minimum and maximum distances at which a scaffold plank may project over the end of a trestle? (2)

1.2 Briefly explain what is meant by the term *good housekeeping.* (2)

1.3 Explain what an accident is. (1)
[5]

QUESTION 2: TOOLS AND MACHINES

2.1 Name and explain THREE safety measures that need to be in place when working with portable electric machinery. (6)

2.2 Name FOUR tools which a plumber can use to repair and install pipework. (4)
[10]

QUESTION 3: METALS AND MATERIALS

Define the following terms:

3.1 Dezinctification

3.2 Plumbosolvency

3.3 Corrosion

3.4 Electrolytic reaction

(4 × 2) **[8]**

QUESTION 4: SOLDERING AND WELDING

4.1 State TWO safety precautions that should be adhered to when an oxyacetylene welding apparatus is used. (2)

4.2 Give THREE reasons for using flux during the soft soldering process. (3)

4.3 Explain how to test for a good solder. (3)
[8]

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QUESTION 5: COLD-WATER SUPPLY

5.1 Show, by means of sketches, TWO methods that can be used to allow pipes to move during expansion and contraction. (6)

5.2 You as plumber, were requested to cut and fix a T-piece of capillary fittings on a long-run pipe.

Name the material and tools that you need to complete the task. (6)

5.3 Briefly explain the working principle of a stopcock. (4)

5.4 Give a definition of *drinking water.* (2)
[18]

QUESTION 6: HOT-WATER SUPPLY

6.1 Show, with the aid of a neat sketch, how provision is made for the expansion of hot water (during the heating process) in a combination hot-water geyser. (8)

6.2 What are the colour codes for geyser pressure relief valves with the following pressure ratings:

6.2.1 50 kPa

6.2.2 100 kPa

6.2.3 200 kPa

6.2.4 400 kPa

(4 × 1) (4)
[12]

QUESTION 7: DRAINAGE

7.1 What will happen if the gradient/fall of a sewer line is:

7.1.1 Too little

7.1.2 Too much

(2 × 1) (2)

7.2 Explain the preparation and the procedure used to join two 110 mm uPVC pipes in a sewer line. (8)

7.3 Can uPVC drainpipes be tested immediately after they have been laid? Give reasons for your answer. (2)

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7.4 Name ONE example of each of the following:

7.4.1 Waste fitment

7.4.2 Soil fitment

(2 × 1) (2)

7.5 What are earthenware drainpipes made of? (1)

7.6 Write the following abbreviations in full:

7.6.1 AO

7.6.2 BT

7.6.3 CE

7.6.4 G

(4 × 1) (4)
[19]

QUESTION 8: SHEET-METAL WORK

Use the parallel line method to develop a pattern of an equal cylindrical right-angled T-piece with a diameter of 30 mm. Scale 1 : 1 **[12]**

QUESTION 9: CALCULATIONS

9.1 Calculate the area of a semicircular canopy with a radius of 3 m. (5)

9.2 Calculate the volume of water that a rectangular tank will be able to hold. The dimensions of the tank are:

Length: 6 metres
Width: 4 metres
Height: 3 metres (3)
[8]

TOTAL: 100

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