higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

PLUMBING
NQF LEVEL 2

(12020162)

2 December 2020 (X-paper)
09:00–12:00

This question paper consists of 5 pages.

221Q1N2002

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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 section on a new page.
5. Use only a black or blue pen.
6. Write neatly and legibly.

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QUESTION 1: INTRODUCTION TO PLUMBING

1.1 Which metal did the ancient Romans use in their plumbing? (1)

1.2 What is plumbing? (2)

1.3 Give THREE main properties of water. (3)

1.4 Give THREE phases of the water cycle. (3)

1.5 What is meant by the term *waste water?* (2)

1.6 List FOUR tasks of a plumbing project manager. (4)

[15]

QUESTION 2: PLUMBING PRINCIPLES AND CODE OF PRACTICE

2.1 Briefly explain the term s*urface water.* (2)

2.2 Give THREE examples of surface water. (3)

2.3 What is the primary function of a desalination plant? (2)

2.4 Name THREE certificates of approval. (3)

2.5 Write down the formula used to calculate water pressure. (1)

2.6 Explain the difference between a *code of practice* and a *national standard*. (4)

[15]

QUESTION 3: MATERIALS, TOOLS AND EQUIPMENT

3.1 Choose a description from COLUMN B that matches an item in COLUMN A. Write only the letter (A–F) next to the question number (3.1.1–3.1.5) in the ANSWER BOOK.

COLUMN A		COLUMN B	
3.1.1	Dumpy level	A	check that downpipes are straight
3.1.2	Spirit level	B	knock pegs into the ground
3.1.3	Scriber	C	transfer levels from one point to another
3.1.4	Plunger	D	clear waste that are blocking pipes
3.1.5	Club hammer	E	sharp instrument used to mark lines when you are measuring
		F	plane instrument used to draw a circle

(5 × 1) (5)

3.2 Briefly explain the term *soil water*. (2)

3.3 Give TWO examples of soil water fixtures. (2)

3.4 Give ONE type of ladder that you would use in the plumbing industry. (1)
[10]

QUESTION 4: WATER PIPE ASSEMBLY

4.1 What is the main function of a pipe reamer on a copper tube cutter? (2)

4.2 Describe the procedure that should be followed when joining two copper pipes with capillary fittings. (9)

4.3 Name TWO tools that could be used to cut copper pipe. (2)

4.4 Indicate whether the following statements are TRUE or FALSE by writing only 'true' or 'false' next to the question number (4.4.1–4.4.5) in the ANSWER BOOK.

4.4.1 Multilayer pipes are pipes with walls made of many layers.

4.4.2 Mono means one layer.

4.4.3 Monolayer pipes can be cut straight across with a hacksaw.

4.4.4 Crimping is a special method used for joining multilayer pipes.

4.4.5 Multilayer pipes are cut with a hacksaw.

(5 × 1) (5)

4.5 Briefly explain what the following abbreviations stand for:

4.5.1 PVC

4.5.2 uPVC

4.5.3 mPVC

(3 × 1) (3)

4.6 List FOUR methods you can use to bend a multilayer pipe. (4)
[25]

QUESTION 5: CUTTING AND JOINING OF METALS

5.1 Explain what is meant by the term *flashing.* (2)

5.2 Name FIVE types of flashing. (5)

5.3 What is the most common hand tool we use to cut sheet metal? (1)

5.4 Name TWO flux substances that are used for brazing (2)

[10]

QUESTION 6: SET OUT BELOW GROUND DRAINAGE SYSTEMS

6.1 List SIX main points to consider when laying out a drainage system. (6)

6.2 Give TWO main functions of the gully. (2)

6.3 What is a *gradient* on a plumbing plan? (2)

6.4 What is the difference between a *manhole* and an *inspection chamber*? (4)

6.5 Draw a diagram of each of the following symbols:

6.5.1 North point

6.5.2 Centre line

6.5.3 Datum level

6.5.4 Invert level

6.5.5 Diameter (outside)

(5 × 1) (5)

6.6 What is the function of temporary timbering? (2)

6.7 Name TWO types of materials used for bedding. (2)

6.8 What is the purpose of bedding? (2)

[25]

TOTAL: 100

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