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higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T1430(E)(N12)T
NOVEMBER EXAMINATION

NATIONAL CERTIFICATE

PLUMBING THEORY N1

(11022041)

12 November 2013 (X-Paper)
09:00–12:00

This question paper consists of 4 pages.

ENGINEERING

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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

1.1 Name TWO pre-cautionary measures when using step ladders. (2)

1.2 Define the term *excavation.* (2)

1.3 Name FIVE safety measures to be considered when safeguarding the public against excavations. (5) **[9]**

QUESTION 2

2.1 Show by means of a sketch how a G-clamp looks like. (3)

2.2 Name THREE types of vices used in the plumbing industry. (3)

2.3 Name FOUR different types of stakes. (4) **[10]**

QUESTION 3

Give FIVE reasons for producing alloys. **[10]**

QUESTION 4

4.1 Describe the following processes:

4.1.1 Hard soldering (2)

4.1.2 Arc welding (2)

4.2 Different types of fluxes are used on different metals. Match the correct metal in COLUMN A with correct flux to be used in COLUMN B. Write only the letter (A–E) next to the question number (4.2.1–4.2.5) in the ANSWER BOOK.

COLUMN A		COLUMN B
4.2.1	Soldering of zinc	A sal-ammoniac brick
4.2.2	Wrought iron	B gallipoli or olive oil
4.2.3	Stainless steel	C hydrochloric acid
4.2.4	Tinning of soldering iron	D zinc chloride
4.2.5	Pewter and block tin	E saturated zinc chloride in 50% hydrochloric acid

(5 × 1) (5) **[9]**

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QUESTION 5

5.1 Give ONE disadvantage of the following sources of water:

5.1.1 Wells

5.1.2 Rivers

5.1.3 Fountains (6)

5.2 Explain what happens when a stop cock is incorrectly fitted. (6)
[12]

QUESTION 6

6.1 With the aid of drawing(s), explain the principle of heat transfer in convection. (4)

6.2 Describe the differences between *primary return* and *primary flow* in an indirect hot water system. (4)

6.3 Explain TWO causes of air locks. (4)
[12]

QUESTION 7

7.1 Describe the difference between a ONE pipe system and a TWO pipe system with regard to drainage. (4)

7.2 With the aid of a drawing show how a two pipe system lay-out in a double storey building would be fixed. (10)

7.3 Name THREE causes of seal loss in a trap. (6)
[20]

QUESTION 8

Using the parallel line method, develop a pattern of a 90° square elbow. **[12]**

QUESTION 9

A copper hot water cylinder measures 1,8 m high and is 0,6m in diameter.

Calculate the mass of water in the cylinder. **[6]**

TOTAL: 100

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