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higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T1370**(E)**(A2)T

NATIONAL CERTIFICATE

PLUMBING THEORY N1

(11022041)

2 August 2019 (X-Paper)
09:00–12:00

This question paper consists of 6 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. Sketches must be large, neat and fully labelled.
5. ALL the abbreviations and symbols must comply with the latest National Building Regulations and all relevant SANS-codes.
6. Write neatly and legibly.

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QUESTION 1: SAFETY AND HOUSEKEEPING

State FIVE main functions that health and safety representatives should perform. **[5]**

QUESTION 2: TOOLS AND MACHINES

2.1 Explain the difference between the following:

2.1.1 Centre punch

2.1.2 Prick punch

(2 × 2) (4)

2.2 Explain what the following tools and machines are used for:

2.2.1 Jenny machine

2.2.2 Compactors

2.2.3 Guillotine

2.2.4 Rolling machine

(4 × 1) (4)

2.3 Which tool is used for a firm grip on round pipes? (1)

2.4 What is a *pedestal drill press*? (1)

[10]

QUESTION 3: METALS AND MATERIALS

3.1 Describe each of the following terms:

3.1.1 Elasticity

3.1.2 Expansion

(2 × 2) (4)

3.2 State FOUR types of protection against corrosion. (4)

[8]

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QUESTION 4: SOLDERING AND WELDING

4.1 Define the following terms associated with oxyacetylene gas welding:

4.1.1 Back-flow

4.1.2 Carburising flame

4.1.3 Neutral flame

(3 × 2) (6)

4.2 Name TWO components of a basic gas-welding torch. (2)

[8]

QUESTION 5: COLD-WATER SUPPLY

5.1 Explain the difference between the following with regard to their installation:

5.1.1 Bib taps

5.1.2 Pillar taps

(2 × 2) (4)

5.2 Describe the following with regard to cold-water supply to a domestic dwelling:

5.2.1 Connection pipe

5.2.2 Supply pipe

5.2.3 Service pipe

(3 × 2) (6)

5.3 Name the FOUR classes into which copper pipes are classified and give their end cap colour classification. (8)

[18]

QUESTION 6: HOT-WATER SUPPLY

6.1 Name and explain the THREE principles of heat transfer that are applicable to hot-water installations. (3 × 2) (6)

6.2 State TWO advantages and TWO disadvantages of a high-pressure geyser. (2 × 2) (4)

6.3 State ONE advantage and ONE disadvantage of a solar water-heating system as compared to an electric, hot-water heating system. (2)

[12]

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QUESTION 7: DRAINAGE

7.1 Adequate access to any drainage installation must be provided for the purpose of inspection, testing or internal cleaning.

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

7.2 Name TWO kinds of tests that are used to detect leaks in a drainage system. (2)

7.3 Show, with the aid of TWO sketches, the difference between tubular Q-traps and S-traps and also show the water seal, soffit and crown. (6)

7.4 Name THREE types of storage cisterns that can be installed to supply water to a toilet. (3)

7.5 Write the following abbreviations of sanitary fittings and fixtures in full:

7.5.1 SVP

7.5.2 uPVC

7.5.3 WT

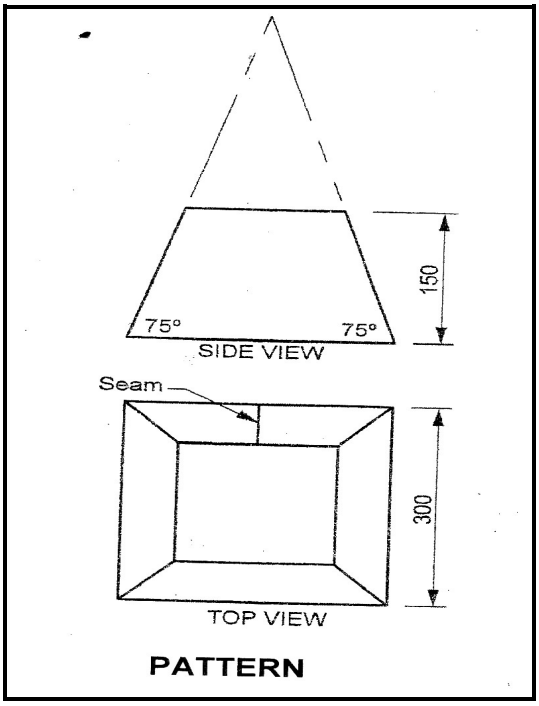
(3 × 1) (3)

[19]

QUESTION 8: SHEET METALWORK

The FIGURE below shows a pattern of a right-truncated pyramid that is parallel to the base. Use the radial-line method and develop the pattern.

Use a scale of 1:10.



[12]

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QUESTION 9: CALCULATIONS

A rectangular stand has a length of 100 m and a width of 85 m. The stand must be fenced with wire netting.

Calculate the following:

9.1 The area of the stand (3)

9.2 The total length of wire netting required to enclose the stand (5)
[8]

TOTAL: 100

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