higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

PLUMBING
NQF LEVEL 4

(12030544)

12 March 2018 (Y-Paper)
13:00–16:00

This question paper consists of 6 pages.

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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 question on a NEW page.
5. Sketches should be neat, labelled and large enough so that all details can clearly be seen.
6. Write neatly and legibly.

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QUESTION 1: BASIC BUILDING WORK AND BUILDING MANHOLES

1.1 What is a *collar-jointed wall*? (2)

1.2 Name FOUR common steps you need to follow when constructing a wall. (4)

1.3 What is a *half-channel*? (2)

1.4 Give a description of a *valve box* and state its purpose? (2)
[10]

QUESTION 2: BELOW-GROUND DRAINAGE SYSTEMS

2.1 What does the term *gradient of a drain* mean? (2)

2.2 Give ONE difference for each of the following:
2.2.1 Soffit (1)
2.2.2 Invert pipe (1)

2.3 State the purpose for providing access to underground drains. (1)

2.4 Name the TWO different types of levels that are used when laying underground drainage. (2)

2.5 Which THREE different types of materials can be used for bedding an underground drain? (3)

2.6 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'true' or 'false' next to the question number (2.6.1–2.6.3) in the ANSWER BOOK.

2.6.1 Never backfill all the material at once because this may damage the pipe or change the levels or direction of the pipe.

2.6.2 Settling is especially important where the trench runs across a busy street.

2.6.3 The Engineer must provide all labour and apparatus that may be required for carrying out a water test.

(3 × 1) (3)

2.7 Name TWO of the common procedures that needs to be followed when setting out and excavating trenches to a line level. (2)

2.8 Give a brief explanation of the term *manhole*. (3)

2.9 Name TWO kinds of tests that are used to detect leaks in a drainage system? (2)
[20]

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QUESTION 3: PLUMBING MAINTENANCE AND REPAIRS

3.1 What is the purpose of a chromium plated tap cover and flange? (1)

3.2 FIGURE 1 shows a sketch of a typical tap jumper. Name the components marked A−C.

3.2.1 A

3.2.2 B

3.2.3 C

(3 × 1) (3)

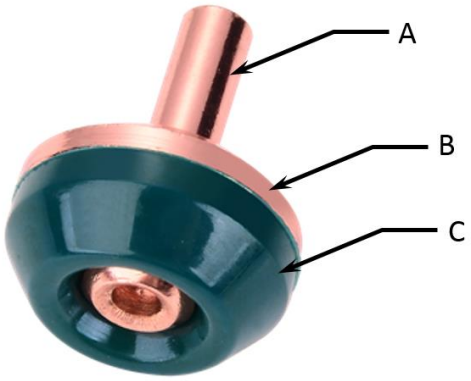

FIGURE 1

3.3 List FIVE procedures (in sequential order) that should be followed when joining two copper pipes. (5)

3.4 Name TWO hand tools that can be used to cut a copper pipe? (2)

3.5 Why should we try to avoid water from freezing in the pipes? (1)

3.6 What determines the pressure of the water that we have in our homes? (1)

3.7 List FOUR steps that needs to be followed when repairing a section of a damaged waste soil, vent pipe? (4)

3.8 How does a Kinetic ram gun operate? (2)

3.9 What is the function of a plunger? (1)

[20]

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QUESTION 4: BOX GUTTERS AND CHIMNEY FLASHINGS

4.1 Where are stop ends in gutters positioned? (2)

4.2 Name TWO procedures that could be applied to prevent a reaction between aluminium and newly placed cement. (2)

4.3 Name THREE types of materials that are used to manufacture soakers? (3)

4.4 Name TWO hand tools that can be used to cut chimney flashing. (2)

4.5 Name THREE components that could form part of a chimney flashing? (3)

4.6 What is a *soaker* and what is it used for? (2)

4.7 Where are box gutters fitted? (1)

[15]

QUESTION 5: INSTALL AND MAINTAIN SOLAR SYSTEM

5.1 Complete the following paragraph by using the words provided in the list below. Write only the word(s) next to the question number (5.1.1–5.1.8) in the ANSWER BOOK.

run out; feel every day; radiant energy; primary source; harmful by-products; rays; solar energy; sources of energy

(5.1.1 …), or energy form the sun is something we (5.1.2 …). The (5.1.3 …) from the sun makes us hot, because they contain (5.1.4 …) It is a (5.1.5 …) of energy and unlike other (5.1.6 …), it does not (5.1.7 …) or create (5.1.8 …).

(8 × 1) (8)

5.2 What is the function of a solar collector? (2)

5.3 Name TWO types of passive solar water heaters. (2)

5.4 What is meant by a stand-by heat loss? (2)

5.5 Give TWO reasons to state why it is important to have a back-up heating system in a solar water heating system? (2)

5.6 Give the difference between the terms *glazed* and *polymer?* (2)

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5.7 Name TWO important factors that must be considered prior to the installation of solar heating system. (2)

5.8 When conducting a site survey for the purpose of installing a solar hot water system, name FIVE important questions that must be answered during the process. (5)

[25]

QUESTION 6: BASIC BUSINESS CONCEPTS

6.1 There are a number of important items that should be include in a business plan. Give THREE of these items. (3)

6.2 Name THREE methods with which clients can make payments for goods purchased. (3)

6.3 List FOUR advantages of making electronic transfers. (4)

[10]

TOTAL: 100

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