higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

MASONRY
NQF LEVEL 2

(12020152)

11 March 2020 (Y-paper)
13:00–16:00

This question paper consists of 6 pages.

495Q1S2011

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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 AND BACKGROUND

Illustrate, with simple sketches, FIVE types of courses that can be laid with face brick. **[10]**

QUESTION 2: SETTING OUT MASONRY WALLS

2.1 State the main function of each of the following used in masonry:

2.1.1 Gauge rod

2.1.2 Profiles

2.1.3 3:4:5 method

2.1.4 Spirit level

2.1.5 Site plan

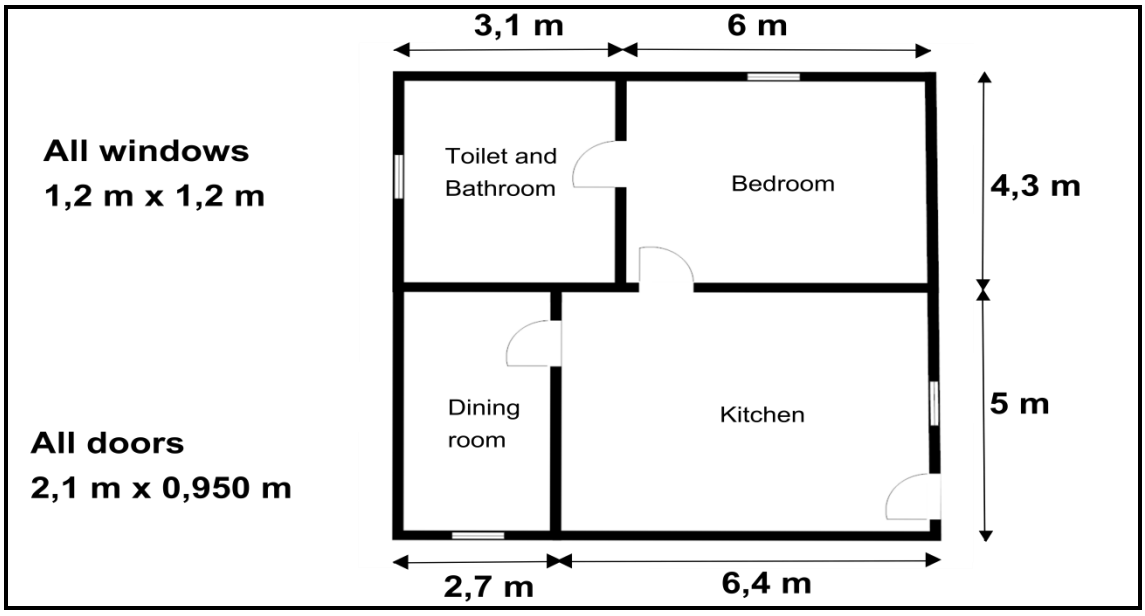
2.1.6 Joint rulers

(6 × 2) (12)

2.2 Explain the procedure to check the levelness of foundations. (5)

2.3 Explain why the bumps may not be too high and the holes not too deep when preparing foundation footings. (3)

2.4 The diagram below shows the floor plan of Heidi's new four-room outhouse.



2.4.1 Give the total number of windows required. (1)

2.4.2 Calculate the total area of the kitchen. (3)

2.4.3 Give the total number of internal doors required. (1)

[25]

QUESTION 3: BASIC CONSTRUCTION OF MASONRY WALLS

3.1 Choose ONE term from the list below for each of the following descriptions and write it next to the question number (3.1.1–3.1.5) in the ANSWER BOOK.

DPC; bed-joint reinforcing; modular; single-leaf wall; stretcher bond; English bond

3.1.1 Another name for brick force

3.1.2 Consists of separate parts or units joined together

3.1.3 Acts as a barrier that prevents moisture rising through a wall

3.1.4 Consists of stretcher bricks set in rows offset by half a brick

3.1.5 Single row of bricks laid end-to-end

(5 × 1) (5)

3.2 Explain under which circumstances clay bricks and precast masonry units may be mixed. (5)

3.3 A bricklayer must set up profiles correctly to build a double-leaf wall in stretcher bond and ensure the wall and measurements are accurate upon completion of the project.

Rearrange the following setting-out activities in the logical and progressive sequence, so that the setting out of profiles will be done correctly and ready for construction of the wall:

- Place the profile exactly over the mark.
- Direct the assistant to move the profile supports until the profile is plumb.
- The profile supports should be held in place by placing heavy masonry or stones.
- String the builder's line.
- Use the spirit level to check again to ensure the profile is plumb after it has been secured.
- The supervisor will mark out exactly where the end of the first wall will be.
- Mark the gauges on the profile using the gauge rod.
- Check whether the profile is vertical using the spirit level. (8)

3.4 State TWO ways in which mortar joints can be finished and regarded as 'fair' finished jointing. (2)

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3.5 Bricks can be laid in different ways to form a bond in a wall.

3.5.1 Define the term *bond* as used in brickwork. (2)

3.5.2 Name FOUR types of bonds that can be used for brickwork construction. (4)

3.6 Name FOUR places were DPC can be laid. (4)
[30]

QUESTION 4: ADVANCED CONSTRUCTION OF MASONRY WALLS

4.1 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (4.1.1–4.1.6) in the ANSWER BOOK.

4.1.1 A nonstructural wall is part of the superstructure of a building and it is a load-bearing wall.

4.1.2 Roof anchors tie a wall to roof trusses and must be positioned according the drawings to ensure the best possible load-carrying capacity.

4.1.3 A control joint is a groove or joint inserted into a concrete surface to control cracking.

4.1.4 A composite beam is a beam in which the same material is joined together.

4.1.5 Toothing is a method that forms a stepped-like pattern to join brickwork.

4.1.6 Lintels should be installed with a minimum of 15 mm end bearing at both ends.

(6 × 1) (6)

4.2 Draw a neat labelled simple sketch of a semicircular arch showing the following details:

- Keystone
- Extrados
- Intrados
- Voussoirs
- Arch support
- Springer
- Springer line

(10)

4.3 Explain the procedure to install and correctly build in a window frame so that the top of the window frame is aligned with the doorframe and level. (6)

4.4 State the implications of building a lintel without a detailed drawing. (2)

4.5 Define each of the following terms used in masonry:

4.5.1 Racking back

4.5.2 Anchor

4.5.3 Cross wall

4.5.4 Jamb

(4 × 2) (8)

4.6 Explain how concrete that is weak in tension can be strengthened. (3)

[35]

TOTAL: 100

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