

**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

**CARPENTRY AND ROOFWORK
NQF LEVEL 3**

NOVEMBER 2010

(12030333)

**23 November (X-Paper)
09:00 – 12:00**

This question paper consists of 4 pages.

<p>TIME: 3 HOURS MARKS: 100</p>

INSTRUCTIONS AND INFORMATION

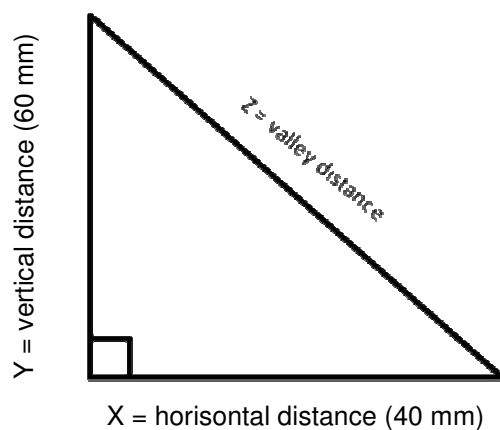
1. Answer ALL the questions.
 2. Read ALL the questions carefully.
 3. Number the answers correctly according to the numbering system used in this question paper.
 4. All sketches must be clear and neat.
 5. Rule off across the page after each completed question.
 6. All work you do not want to be marked must be clearly crossed out.
 7. Full marks = 100%
 8. Write neatly and legibly.
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QUESTION 1: BUILD A SIMPLE HIPPED ROOF

- 1.1 State TWO purposes of the regulated national standards of carpentry and roofwork. (2)
- 1.2 Explain the importance of national standards. (2)
- 1.3 Certain factors affect roof stability. List SIX of them. (6)
- 1.4 Name and explain the FIVE stages of roof planning, construction and approval. (5)
- 1.5 Draw and label a simple line diagram of the typical parts of a roof truss. (15)
- [30]**

QUESTION 2: BUILD A VALLEY ROOF INTERSECTION WITH AN INTERNAL GUTTER

- 2.1 Complete the following sentences/paragraph(s) by filling in the missing word(s). Write only the word(s) next to the question number (2.1.1 – 2.1.5) in the ANSWER BOOK.
- 2.1.1 A valley on a roof is the part of the roof where the ... meet. (2)
- 2.1.2 The valley ... a lot of ... when it rains. (2)
- 2.1.3 The top chord is often called a (1)
- 2.1.4 Bottom chords are also known as (2)
- 2.1.5 A tie beam's primary purpose is to ... the ... from ... (3)
- 2.2 Draw and label a line diagram of an L-shaped roof with gable ends. (5)
- 2.3 Calculate the slope distance (Z) of the valley in the diagram below by using Pythagoras' theorem.



- 2.4 Compile a list of FIVE steps in raising a valley girder. (5)

2.5 Describe the following terms:

- | | | |
|-------|-----------|-------------|
| 2.5.1 | Valley | |
| 2.5.2 | Datum | |
| 2.5.3 | Tack nail | |
| 2.5.4 | Debris | (4) |
| | | [30] |

QUESTION 3: INSPECT A ROOF STRUCTURE FOR STABILITY AND COMPLIANCE WITH NATIONAL STANDARDS

3.1 Describe the following professional terms:

- | | | |
|-------|---|-----|
| 3.1.1 | Professional engineer | (1) |
| 3.1.2 | Competent person | (1) |
| 3.1.3 | Responsible person | (1) |
| 3.1.4 | Professional, accredited roof inspector | (1) |

3.2 Before installing a roof, the roof frame must be inspected. Give FOUR reasons why the roof frame must be inspected. (4)

3.3 When fixing roof materials, battens should be set out. Give THREE reasons why the battens should be set out. (3)

3.4 State FOUR possible consequences of poor or non-inspection of a roof. (4)
[15]

QUESTION 4: CLAD A TIMBER ROOF STRUCTURE WITH HEAVYWEIGHT OR LIGHTWEIGHT CLADDING

4.1 State THREE advantages and THREE disadvantages of valley fasteners. (6)

4.2 Name SIX factors that affect the fixing of tiles. (6)

4.3 Name FOUR parts of a roof that are vulnerable to wind damage. (4)

4.4 A roof's design must take into account that the roof's covering material should support it safely. Make a list of FIVE elements of the design that will be affected by roof covering material. (5)

4.5 Explain the following terms:

- | | | |
|-------|----------------|-------------|
| 4.5.1 | Underlay | (1) |
| 4.5.2 | Overhang | (1) |
| 4.5.3 | Windward slope | (1) |
| 4.5.4 | DPC | (1) |
| | | [25] |

TOTAL: 100