higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

CARPENTRY AND ROOFING THEORY N2

(11022192)

24 November 2022 (X-paper)
09:00–12:00

This question paper consists of 7 pages.

189Q1E2224

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
CARPENTRY AND ROOFING THEORY N2
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer the question paper as follows:

   1.1 All candidates must answer QUESTION 1 to QUESTION 6.

   1.2 CARPENTRY CANDIDATES must answer QUESTION 7.

   1.3 ROOFING CANDIDATES must answer QUESTION 8.

   1.4 Do not answer both QUESTION 7 and QUESTION 8.

2. Read all the questions carefully.

3. Number the answers according to the numbering system used in this question paper.

4. Sketches must be neat, clear, labelled and done in pencil.

5. Write neatly and legibly.

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QUESTION 1

FIGURE 1 below, shows various equipment used in the setting-out procedures of a building project.

Identify and describe the specific function of each equipment as numbered, by writing down the answers next to the applicable question numbers (1.1–1.5) in the ANSWER BOOK.

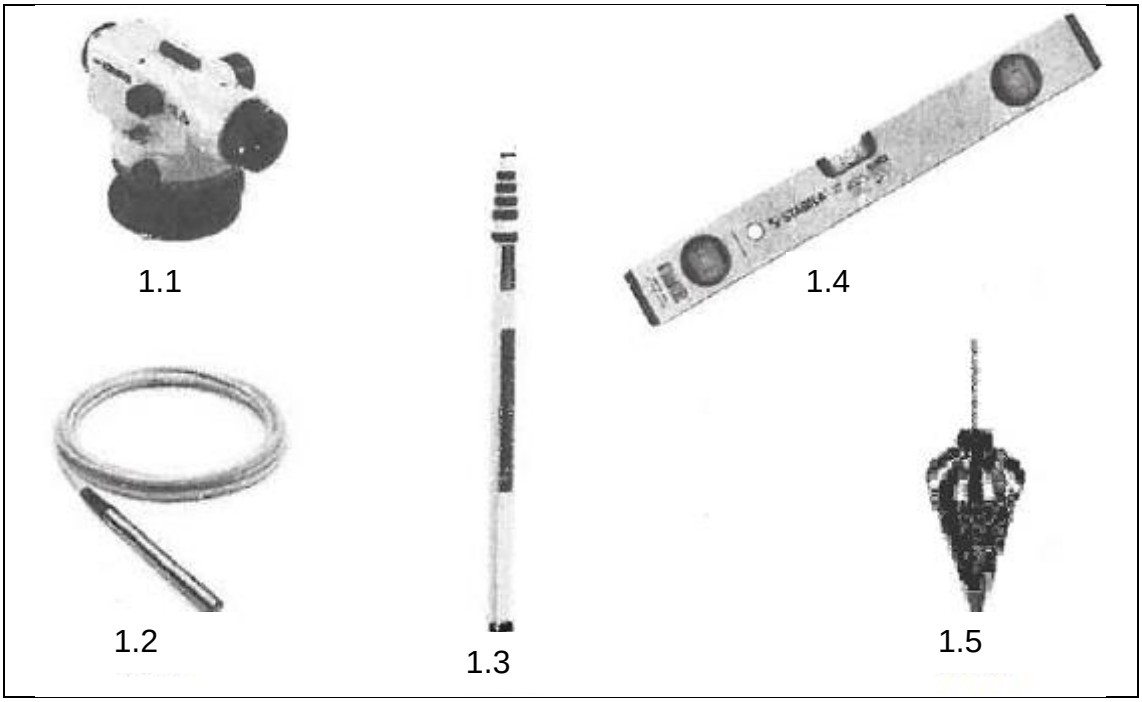


FIGURE 1 (5 × 2) **[10]**

QUESTION 2

2.1 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (2.1.1–2.1.5) in the ANSWER BOOK. Correct the statement if it is FALSE.

2.1.1 Nail plate connectors are used to assemble on-site manufactured roof trusses.

2.1.2 Purlins are nailed across the top rafters to support corrugated iron roof sheets.

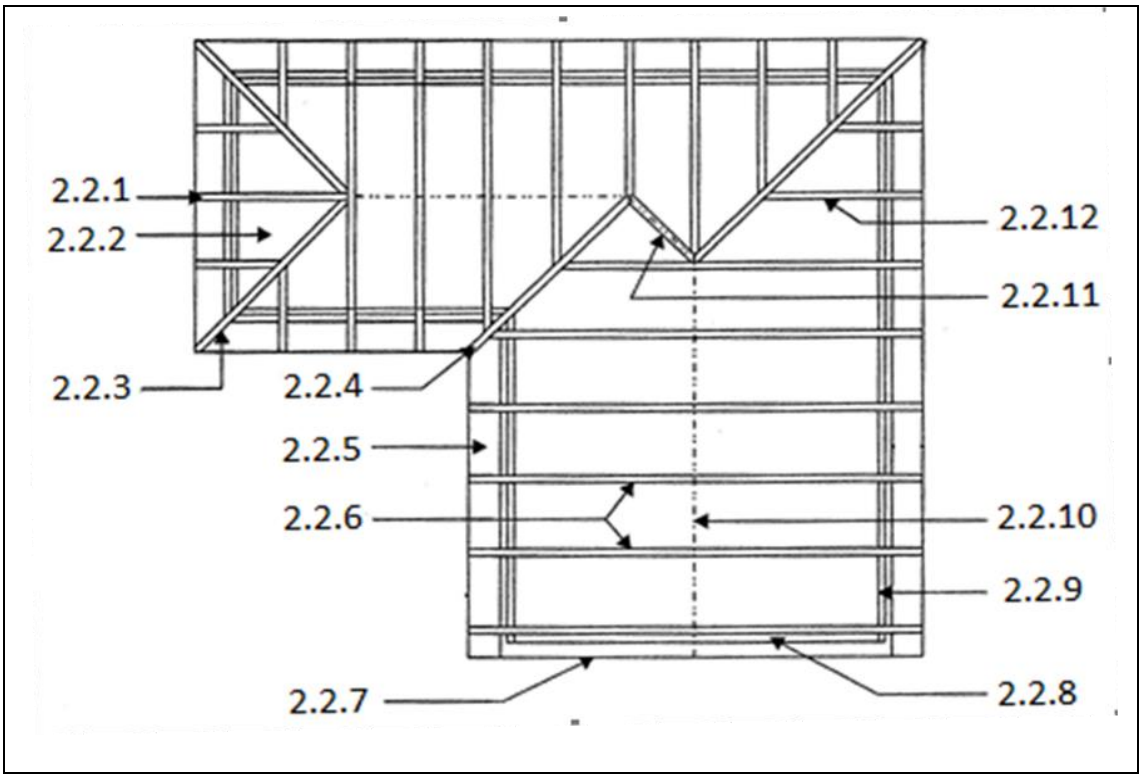
2.1.3 The queen post is the main support member in a Howe roof truss construction.

2.1.4 Tilting battens are smaller than the other battens in order to support the first row of tiles.

2.1.5 The apex is at the top of the trusses where TWO rafters meet. (8)

2.2 The drawing in FIGURE 2 below shows the plan view of a L-shape roof.

Identify the parts of the roof as numbered by writing the answers next to the applicable question numbers (2.2.1–2.2.12) in the ANSWER BOOK.



(12)

FIGURE 2

[20]

QUESTION 3

The application of waterproofing materials is essential to prevent any form of rainwater leakage through the roof.

Give TWO characteristics and ONE application/use of the following waterproofing material:

3.1 Mastic

3.2 Acrylic

3.3 Plastic

3.4 Asphalt

3.5 Coatings

(5 × 3) **[15]**

QUESTION 4

Each ceiling system has a particular method of fixing.

Describe the procedures in sequence that you will follow when constructing and fixing gypsum ceiling boards. **[8]**

QUESTION 5

5.1 Illustrate with the aid of neat drawings the plan views of the following types of bay window constructions:

5.1.1 Square bay

5.1.2 Circular bay

5.1.3 Splay/Cant bay

NOTE: Print the names of the features below the drawings. (3 × 3) (9)

5.2 Explain the general purpose of a dormer windows (4)

5.3 Briefly explain the term bay window (2)

[15]

QUESTION 6

FIGURE 3 below shows a vertical cross-sectional view through a typical timber roof light, fitted into a roof.

Study the drawing and make a cross-sectional sketch through section A–A as shown in the drawing. The sketch must be fully labelled.

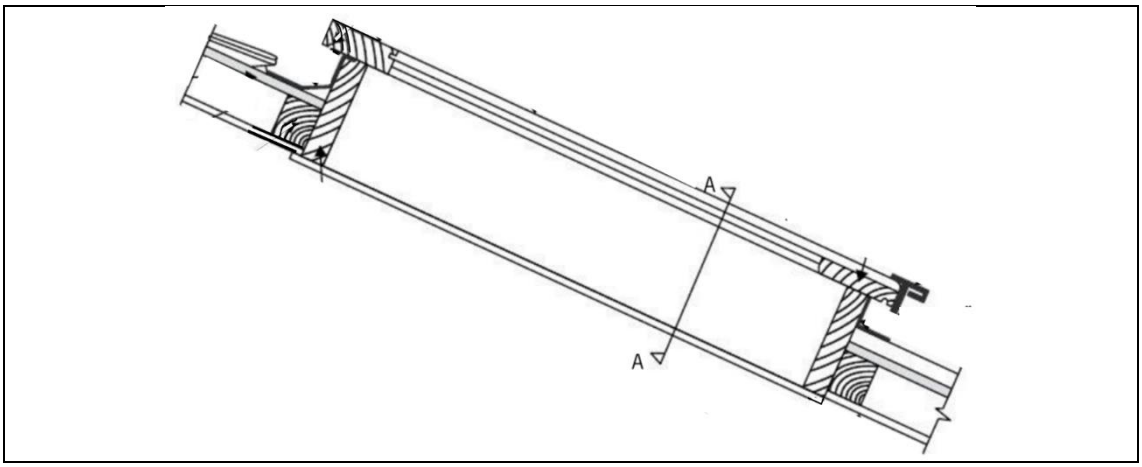


FIGURE 3 **[12]**

QUESTION 7: CARPENTRY CANDIDATES ONLY

7.1 Discuss the basic requirements for formwork regarding:

7.1.1 Containment

7.1.2 Strength

7.1.3 Leakage

7.1.4 Accuracy

7.1.5 Handling

(5 × 2) (10)

7.2 List FOUR basic members of a timber frame for a drywall partition. (4)

7.3 Define the term *shoring.* (2)

7.4 Give FOUR uses of shoring in the building industry (4)

[20]

QUESTION 8: ROOFING CANDIDATES ONLY

8.1 Different methods are used to join metal material together, that is applicable to roof constructions.

Give ONE method for each of the following materials:

8.1.1 Brass

8.1.2 Copper

8.1.3 Aluminium

8.1.4 Galvanised iron

8.1.5 Zinc

8.1.6 Lead

(6 × 1) (6)

8.2 Briefly describe what *vent pipe flashing* is. (2)

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8.3 FIGURE 4 below shows a vertical cross-sectional view of a typical gutter system fixed in position.

Name the accessories as numbered by writing down the correct answers next to the applicable question number (8.3.1–8.3.6) in the ANSWER BOOK.

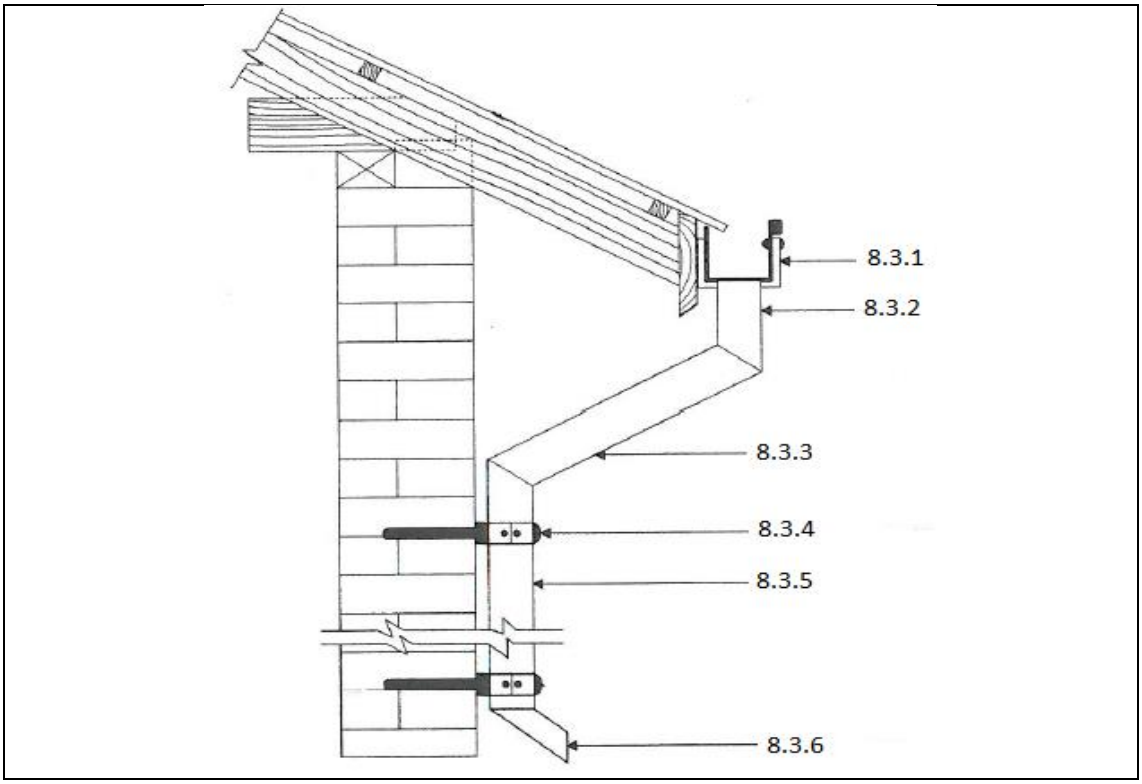


FIGURE 4 (6)

8.4 Explain the concept *waterproofing.* (2)

8.5 Choose a term from COLUMN B that matches a description in COLUMN A. Write only the letter (A–D) next to the question number (8.5.1–8.5.4) in the ANSWER BOOK.

COLUMN A		COLUMN B	
8.5.1	Used to cut curves on slates or tiles	A	Bentley slate cutter
8.5.2	Used for nailing tiles or slates to battens	B	Drill and drill bits
8.5.3	Used to cut off smaller pieces of slates or tiles	C	Jigsaw
8.5.4	Used for drilling holes in slates and tiles	D	Slater's hammer

(4)
[20]

TOTAL: 100

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