higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

CARPENTRY AND ROOFING THEORY N2

(11022192)

5 August 2021 (X-paper)
09:00–12:00

Drawing instruments may be used.

This question paper consists of 7 pages.

193Q1G2105

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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

1.1 Identify and explain the use of each of the setting-out equipment illustrated in FIGURE 1 – 4. Write only the answer next to the question number (1.1.1–1.1.4) in the ANSWER BOOK.

1.1.1

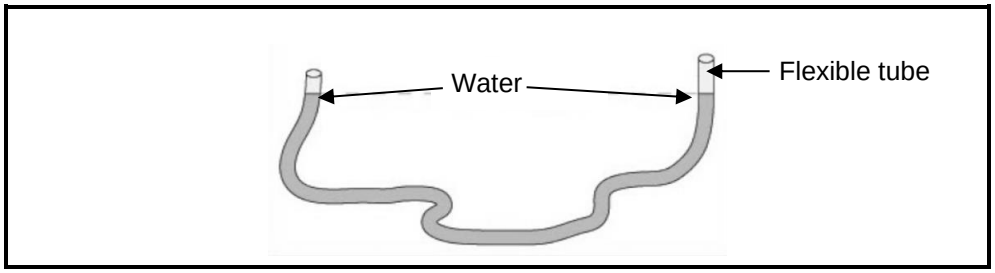


FIGURE 1 (3)

1.1.2

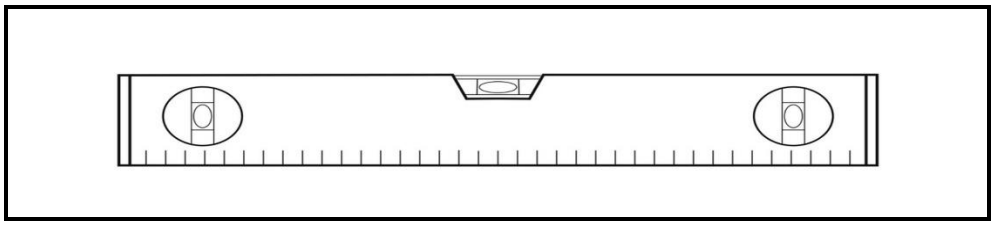


FIGURE 2 (3)

1.1.3

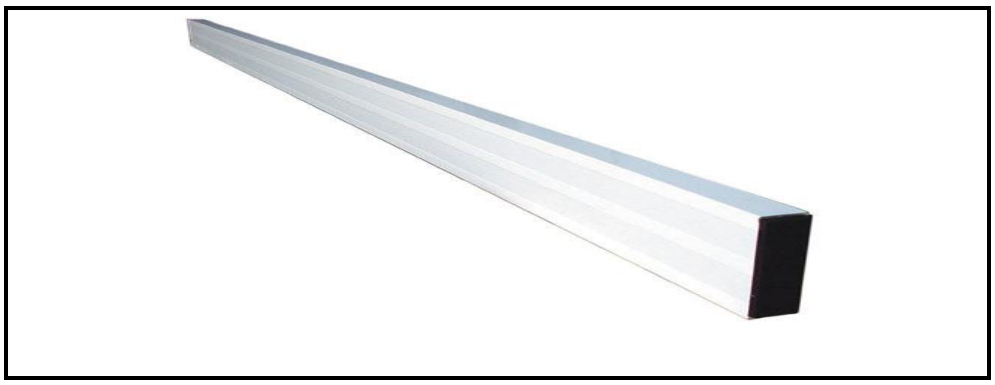
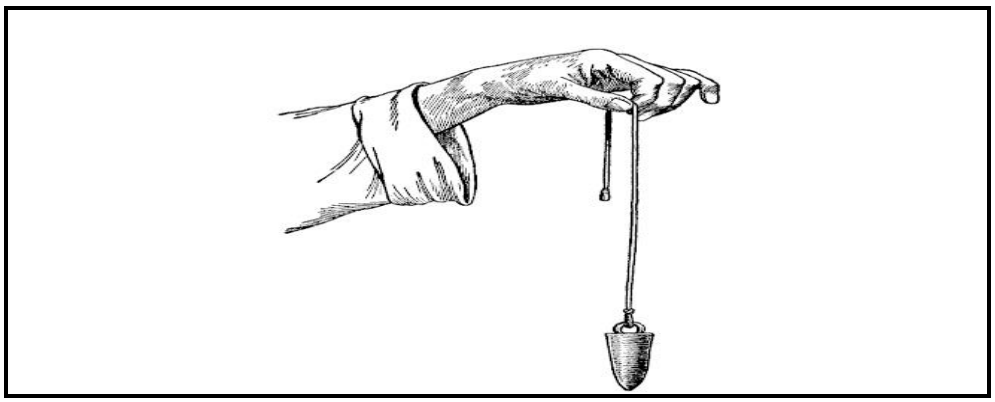


FIGURE 3 (2)

1.1.4



Source: *http://clipart-library.com*

FIGURE 4 (2)

[10]

QUESTION 2

2.1 Choose a term from COLUMN B that matches a description in COLUMN A. Write only the letter (A–L) next to the question number (2.1.1–2.1.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
2.1.1	Top of truss where two rafters meet	A	king post
2.1.2	Providing support for first row of tiles	B	rafter
2.1.3	Bottom chord joining heels of two rafters	C	batten
2.1.4	Main support member in Howe roof truss	D	apex
2.1.5	Used to assemble roof trusses	E	purlin
2.1.6	Top chord forming angle or slope of roof	F	queen post
2.1.7	Secondary support member helping to spread load on truss	G	tie beam
2.1.8	Nailed across top of rafters to support roof sheets	H	strut
2.1.9	Web acting as brace for roof truss	I	nail plate connector
2.1.10	Nailed across top of rafters to support slates	J	tilting batten
		K	brandering
		L	fascia board

(10 × 1) (10)

2.2 Make TWO neat drawings of TWO complete roof trusses to illustrate the difference between the following:

2.2.1 Fink roof truss manufactured off site at a factory

2.2.2 Howe roof truss manufactured on site

NOTE: Only draw the roof trusses that will illustrate the fixing method and write only the name of each roof truss below the drawing. (2 × 5) (10)

[20]

QUESTION 3

3.1 State FOUR criteria's to follow when storing roof covering material. (4)

3.2 Name FIVE different types of waterproofing material that can be used to prevent any form of water leakage through the roof. (5)

3.3 Illustrate by means of a neat labelled drawing the construction detail of a valley covered with interlocking clay tiles (6)

[15]

QUESTION 4

Make neat, cross-sectional sketches through the joints of ceiling systems to differentiate between the following:

4.1 Boarded ceiling finished off with a cover strip

4.2 Tongue and grove V-joint timber ceiling

(2 × 4) **[8]**

QUESTION 5

5.1 Give the general purpose of *dormer roof* constructions (4)

5.2 Name THREE types of dormer roof constructions (3)

5.3 Explain the term *bay windows* (5)

5.4 Name THREE types of bay windows (3)

[15]

QUESTION 6

6.1 Explain the sequence of steps taken when fitting a timber roof light to a roof. (5)

6.2 Make a neat labelled vertical cross sectional sketch that will illustrate the construction detail of a timber roof light as explained in QUESTION 6.1. (7)

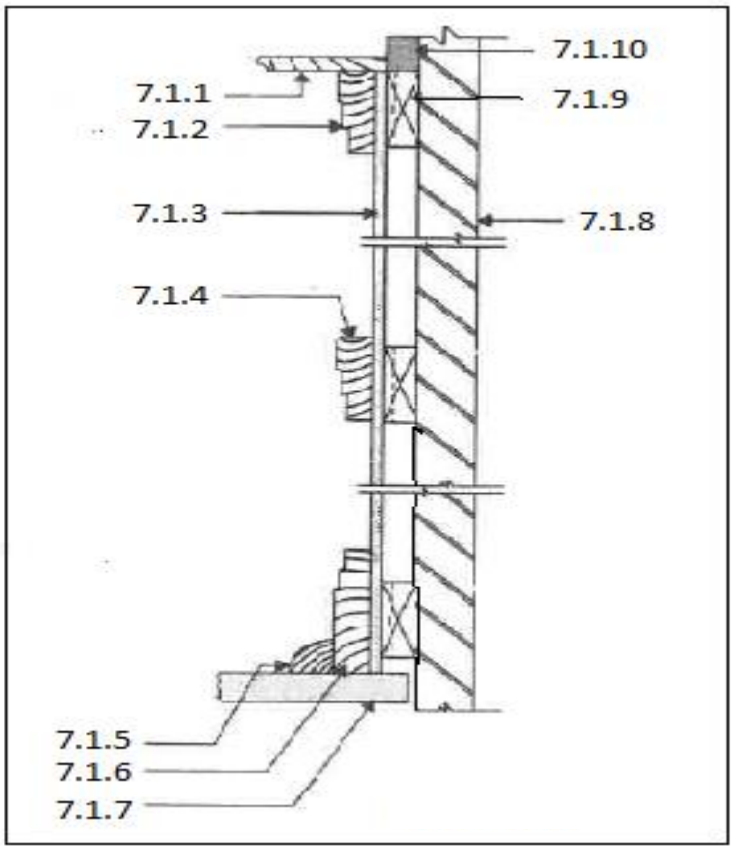
[12]

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QUESTION 7 (THIS QUESTION MUST BE DONE BY CARPENTRY CANDIDATES ONLY)

7.1 Below is a vertical cross-sectional view of a three-quarter height processed board panelling.

Name the indicated parts by writing the answer next to the question number (7.1.1–7.1.10) in the ANSWER BOOK.



CROSS-SECTIONAL VIEW (10 × 1) (10)

7.2 Explain the term *Rebate* in a door frame (2)

7.3 Name FOUR types of doors commonly used in residential homes (4 × ½) (2)

7.4 Laggings are used for centering, that forms the profile or the shape of an arch.

Distinguish between the following types of laggings with the aid of drawings:

7.4.1 Open laggings

7.4.2 Closed laggings

(2 × 3) (6)

[20]

QUESTION 8 (THIS QUESTION MUST BE DONE BY ROOFING CANDIDATES ONLY)

8.1 Indicate whether the following statements are TRUE or FALSE by writing 'True' or 'False' next to the question number (8.1.1–8.1.5) in the ANSWER BOOK. Correct the statement if it is FALSE.

8.1.1 Aluminium is not corrosion resistant and will not withstand coastal environments.

8.1.2 Copper is a ductile and malleable material which hardens when stretched.

8.1.3 Zinc is a nonferrous metal with a low melting point and can bent easily.

8.1.4 Brass is mainly used internally because it cannot withstand severe weather conditions.

8.1.5 Galvanised iron is coated with a thin film of zinc so that a scratched surface or drilled hole cannot rust or corrode. (11)

8.2 Develop a sheet-metal pattern for a stepped flashing to cover the joint between the roof surface and the chimney wall. Indicate the folding lines on the development. (3)

8.3 Name FOUR materials commonly used in the manufacturing of gutters. (4 × ½) (2)

8.4 Complete the table below by writing only the answer next to the question number (8.4.1–8.4.4) in the ANSWER BOOK.

ROOFER'S TOOL		FUNCTION
8.4.1	……..	Used to mark dimensions on tiles
8.4.2	Hand-guided band saw	……
8.4.3	Disc cutter	……..
8.4.4	……	Used to cut off smaller quantities of tiles

(4 × 1) (4)

[20]

TOTAL: 100

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