higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T300**(E)**(A6)T

NATIONAL CERTIFICATE

CARPENTRY AND ROOFING THEORY N2

(11022192)

6 April 2018 (X-Paper)
09:00–12:00

This question paper consists of 7 pages.

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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

NOTE: If you answer more than the required number of questions, only the required number will be marked. All work you do not want to be marked must be clearly crossed out.

INSTRUCTIONS AND INFORMATION

1. 1.1 ALL candidates must answer QUESTION 1 to QUESTION 6.

   1.2 CARPENTRY CANDIDATES must answer QUESTION 7 only.

   1.3 ROOFING CANDIDATES must answer QUESTION 8 only.

2. Read ALL the questions carefully.

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

4. Keep subsections of questions together.

5. Start each question on a NEW page.

6. Sketches must be neat and clear and must be done in pencil.

7. ALL sketches must be labelled.

8. Rule off across the page on completion of each subsection.

9. Write neatly and legibly.

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QUESTION 1: SETTING-OUT OF BUILDINGS

Define each of the following terms used in setting-out operations of a building:

1.1 Building line

1.2 Benchmark

1.3 Datum peg

1.4 Builder's profiles

1.5 Design drawings

(5 × 2) **[10]**

QUESTION 2: ROOF CONSTRUCTION

2.1 Different types of purpose-made roof trusses are manufactured to fit specific designs and pitches of roofs.

Design and draw a neat front view of an on-site manufactured Howe roof truss. Show ALL the parts and label them. (12)

2.2 Distinguish between the following terms used in the construction of a roof:

2.2.1 Wall plate

2.2.2 Overhang

2.2.3 Purlin

2.2.4 Gang-nail connector plate

(4 × 2) (8)
[20]

QUESTION 3: ROOF COVERING

3.1 Copy the table below in the ANSWER BOOK and complete it by stating the minimum roof slopes/pitches and fixing methods for each of the following roof covering materials:

	Roof covering	**Minimum slope**	**Fixing method**
3.1.1	Natural slate		
3.1.2	Fibre cement slate		
3.1.3	Clay tiles		
3.1.4	Metal tiles		
3.1.5	Secret fixed sheets		

(5 × 2) (10)

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3.2 Choose a description from COLUMN B that matches an item in COLUMN A. Write only the letter (A–E) next to the question number (3.2.1–3.2.5) in the ANSWER BOOK.

COLUMN A		COLUMN B	
3.2.1	Mastic	A	waterproofing for material and tanking in underground buildings
3.2.2	Acrylic	B	underlay in roof construction work
3.2.3	Plastic	C	protecting metal against rust, especially irregular shapes
3.2.4	Asphalt	D	waterproofing sealant which must be applied with a cloth or a brush
3.2.5	Coatings	E	flashing around a chimney and parapet gutter

(5 × 1) (5)
[15]

QUESTION 4: CEILINGS

Make a neat and detailed vertical cross-sectional sketch of a suspended ceiling with aluminium T–bar sections and adjustable galvanised mild-steel hangers with ceiling boards in place. Show all the parts and label them. **[8]**

QUESTION 5: DORMER ROOF CONSTRUCTION

Draw a neat, vertical cross-sectional view through a typical dormer with a flat roof, showing the construction clearly. Show all the details and label the drawing. **[15]**

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QUESTION 6: ROOF LIGHT CONSTRUCTION

FIGURE 1 shows a vertical cross-sectional view through the construction of a typical roof light.

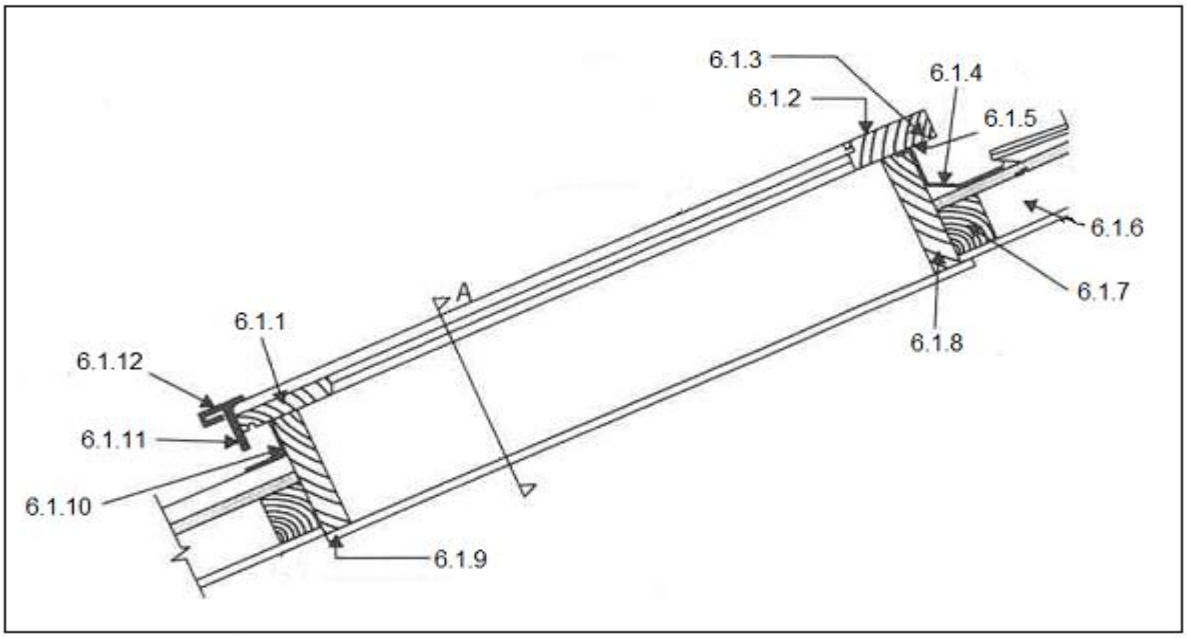


FIGURE 1

Identify all the numbered parts by writing only the answer next to the question number (6.1.1–6.1.12) in the ANSWER BOOK. **[12]**

QUESTION 7 (CARPENTRY CANDIDATES ONLY)

7.1 FIGURE 2 shows a vertical cross-sectional view through the construction of a three-quarter (door height) framed wall panelling.

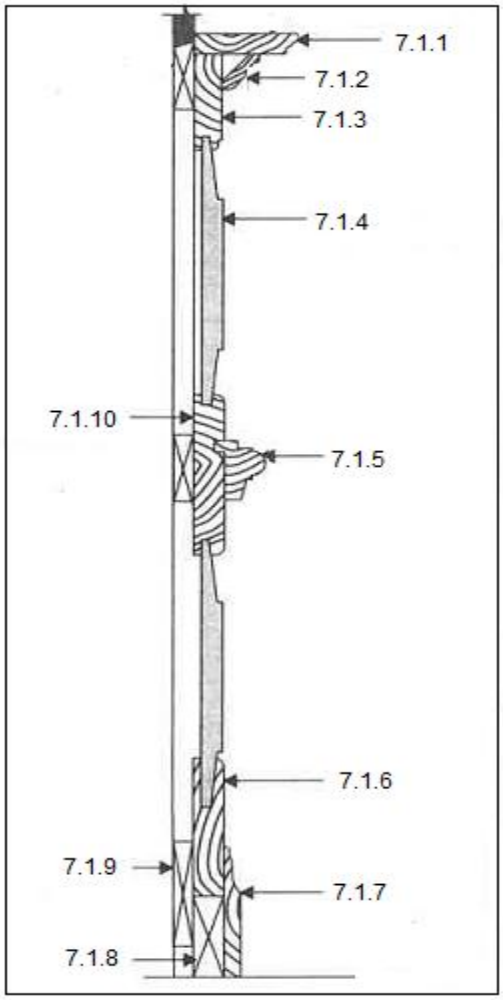


FIGURE 2

Name ALL the numbered parts by writing only the answer next to the question number (7.1.1–7.1.10) in the ANSWER BOOK. (10)

7.2 Define *in-situ partitioning.* (2)

7.3 State TWO main functions of doors in a building. (2)

7.4 When formwork is used in the construction of reinforced concrete work such as beams, columns and walls, it produces the desired shape of the structure and it provides predetermined strength until the concrete has cured and set sufficiently.

Make a neat drawing of a horizontal cross-sectional view through timber formwork for a square column. Show all parts and label them. (6)
[20]

QUESTION 8 (ROOFING CANDIDATES ONLY)

8.1 Metal materials applicable to roofing, may be joined together whenever necessary using special equipment and techniques.

State TWO methods of joining each of the following metals:

8.1.1 Aluminium

8.1.2 Galvanised iron

8.1.3 Lead

8.1.4 Copper

(4 × 2) (8)

8.2 Distinguish between each of the following concepts:

8.2.1 Waterproofing

8.2.2 Weatherproofing

(2 + 2) (4)

8.3 Briefly explain how self-adhesive waterproofing membrane is applied. (4)

8.4 Various options concerning specific tools and equipment used by roofers are given as possible answers to the following questions. Choose the correct answer and write only the letter (A–C) next to the question number (8.4.1–8.4.4) in the ANSWER BOOK.

8.4.1 A … is used to cut thick tiles and to trim the edges of eaves.

A Guillotine
B Disc cutter
C Slate ripper

8.4.2 A … is used to cut off smaller quantities of tiles.

A bentley slate cutter
B hand-guided band saw
C parallel sheers

8.4.3 … is used to mark dimensions on tiles.

A Drill bits
B A slater's hammer
C A scriber

8.4.4 A … is used to cut curves on tiles or slates for vent pipes.

A faint jigsaw
B hand saw
C disc cutter

(4 × 1) (4)

[20]

TOTAL: 100

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