higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T200**(E)**(N22)T
NOVEMBER EXAMINATION

NATIONAL CERTIFICATE

CARPENTRY AND ROOFING THEORY N2

(11022192)

22 November 2016 (X-Paper)
09:00–12:00

This question paper consists of 6 pages and 3 diagram sheets.

Copyright reserved

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 of questions will be marked. All work you do not want to be marked must be clearly crossed out.

INSTRUCTIONS AND INFORMATION

1. This question paper must be answered as follows:
   - 1.1 ALL the candidates must answer QUESTIONS 1 TO 6.
   - 1.2 Only CARPENTRY CANDIDATES must answer QUESTION 7.
   - 1.3 Only 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. Keep subsections of questions together.
5. Sketches must be neat and clear and done in PENCIL.
6. ALL drawings must be labelled.
7. Rule off across the page on completion of each subsection.
8. Start each question on a NEW page.
9. Write neatly and legibly.

Copyright reserved

QUESTION 1: SETTING OUT OF BUILDINGS

Complete the following sentences by using the words in the list below. Write only the word(s) next to the question number (1.1–1.10) in the ANSWER BOOK.

trench lines; spirit level; trenches; building line; boundary pegs; level; 3:4:5 method; timber profiles; builder's line; foundation and walls

First locate the 1.1 ... Clear the site of all debris, bushes, obstructions, et cetera and 1.2 ... the site accordingly. Measure from each end of the front boundary line the required distance to obtain the 1.3 … Set up the 1.4 … one metre (1 m) away from the builder's lines and use the 1.5 … to set all the corners of the building square. Mark off the positions for the 1.1.6… on the builder's profiles and tie the 1.7 … around the nails on the profile boards for the markings of the foundation and the brickwork. Use a 1.8 … to plumb the line that represents the foundation width down to the ground. Use building lime powder to mark 1.9 … for the 1.10 ... to the depth as specified on the plan.

(10 × 1) **[10]**

QUESTION 2: ROOF CONSTRUCTION

2.1 Briefly describe the following terms in roof construction:

2.1.1 Overhang

2.1.2 Wall plate

2.1.3 Fascia board

2.1.4 Purlin

2.1.5 Galvanised connector plate

(5 × 2) (10)

2.2 FIGURE 1 on DIAGRAM SHEET 1 (attached) shows the geometry of a hipped end roof.

Identify the various cuts, true lengths, angles, et cetera as numbered by writing down only the answer next to the question number (2.2.1–2.2.10) in the ANSWER BOOK. (10)

[20]

Copyright reserved

QUESTION 3: ROOF COVERING

3.1 The National Building Regulations (NBR) specifies three classes of roof coverings.

Name the THREE classes of roof coverings and give ONE example of each. (6)

3.2 The client and the architect have the responsibility to choose the correct or the most suitable roof covering according to the design for a specific building.

List THREE important criteria to be considered by an architect when choosing roof covering material for a specific house or building. (3)

3.3 Discuss, in point form, some of the important properties of the following roof covering materials:

3.3.1 Clay tiles

3.3.2 Wood shingles

(2 × 3) (6)
[15]

QUESTION 4: CEILINGS

4.1 The steps below outline the procedure to install a new timber ceiling with tongued and grooved V-jointed boards. The steps are not in the correct sequence. Rearrange the steps in the correct order by writing down only the letter (A–F) next to the question number (4.1.1–4.1.6) in the ANSWER BOOK.

A Continue to fit the rest of the boards.

B Finish off the ceiling with an appropriate cornice.

C Position the first board with the grooved side against the wall and fix.

D While fixing the boards check for levelness and apply wedges where necessary.

E Cut all the boards to the required length.

F Fix the boards with panel pins to tie the beams by means of secret nailing.

(6 × 1) (6)

4.2 Briefly describe the term *brandering* used in the construction of ceilings. (2)
[8]

Copyright reserved

QUESTION 5: DORMER ROOF CONSTRUCTION

5.1 FIGURE 2 on DIAGRAM SHEET 2 (attached) shows a pictorial view to illustrate the construction of a dormer in a flat roof.

Identify all the parts as numbered by writing down only the answer next to the applicable question number (5.1.1–5.1.10) in the ANSWER BOOK. (10)

5.2 Explain the term *cheeks* in the construction of dormers. (2)

5.3 Name THREE types of designs in which bay windows can be constructed. (3)
[15]

QUESTION 6: ROOF LIGHT CONSTRUCTION

FIGURE 3 on DIAGRAM SHEET 2 (attached) shows a longitudinal sectional view of a typical rectangular roof light.

Draw a vertical cross sectional view through A-A to clearly indicate the following parts:

- Style
- Glazing bars
- Trimmer
- Flashing
- Lining
- Cover mould
- Weather fillet **[12]**

QUESTION 7: THIS QUESTION IS FOR CARPENTRY CANDIDATES ONLY

7.1 Wall panelling serves as a decorative finish to the internal wall surfaces of a room area.

Make a neat drawing of the front elevation of a dado-framed panelling. The panelling consist of raised panels which must show on both sides of a single rebated jamb lining (doorframe) with a fully panelled door in a closed position. The doorframe is finished off with an architrave and the wall panelling with a dado rail and skirting. (9)

7.2 Name THREE types of batten doors. (3)

7.3 Briefly explain what is meant by the term *in-situ partition*. (2)

7.4 FIGURE 4 on DIAGRAM SHEET 3 (attached) shows a vertical cross section through the formwork for a concrete wall.

Identify the parts as numbered by writing down only the answer next to the applicable question number (7.4.1–7.4.6) in the ANSWER BOOK. (6)
[20]

Copyright reserved

QUESTION 8: THIS QUESTION IS FOR ROOFING CANDIDATES ONLY

8.1 It is important that roofers have the required knowledge about the advantages and disadvantages of the metal materials as applicable to the roofing trade in order to apply it correctly.

Give TWO advantages of each of the following metals as applicable to roofing: (3)

8.1.1 Copper

8.1.2 Lead

8.1.3 Galvanised steel

8.1.4 Aluminium

(4 × 2) (8)

8.2 FIGURE 5 on DIAGRAM SHEET 3 (attached) shows a pictorial view of a chimney. The drawing illustrates a waterproofing system fitted and fixed around the chimney to prevent rainwater from entering into the building.

Identify the waterproofing parts as numbered by writing down only the answer next to the question number (8.2.1–8.2.8) in the ANSWER BOOK. (8)

8.3 Make a neat, large sketch of a slate ripper. (4)

[20]

TOTAL: 100

Copyright reserved

DIAGRAM SHEET 1

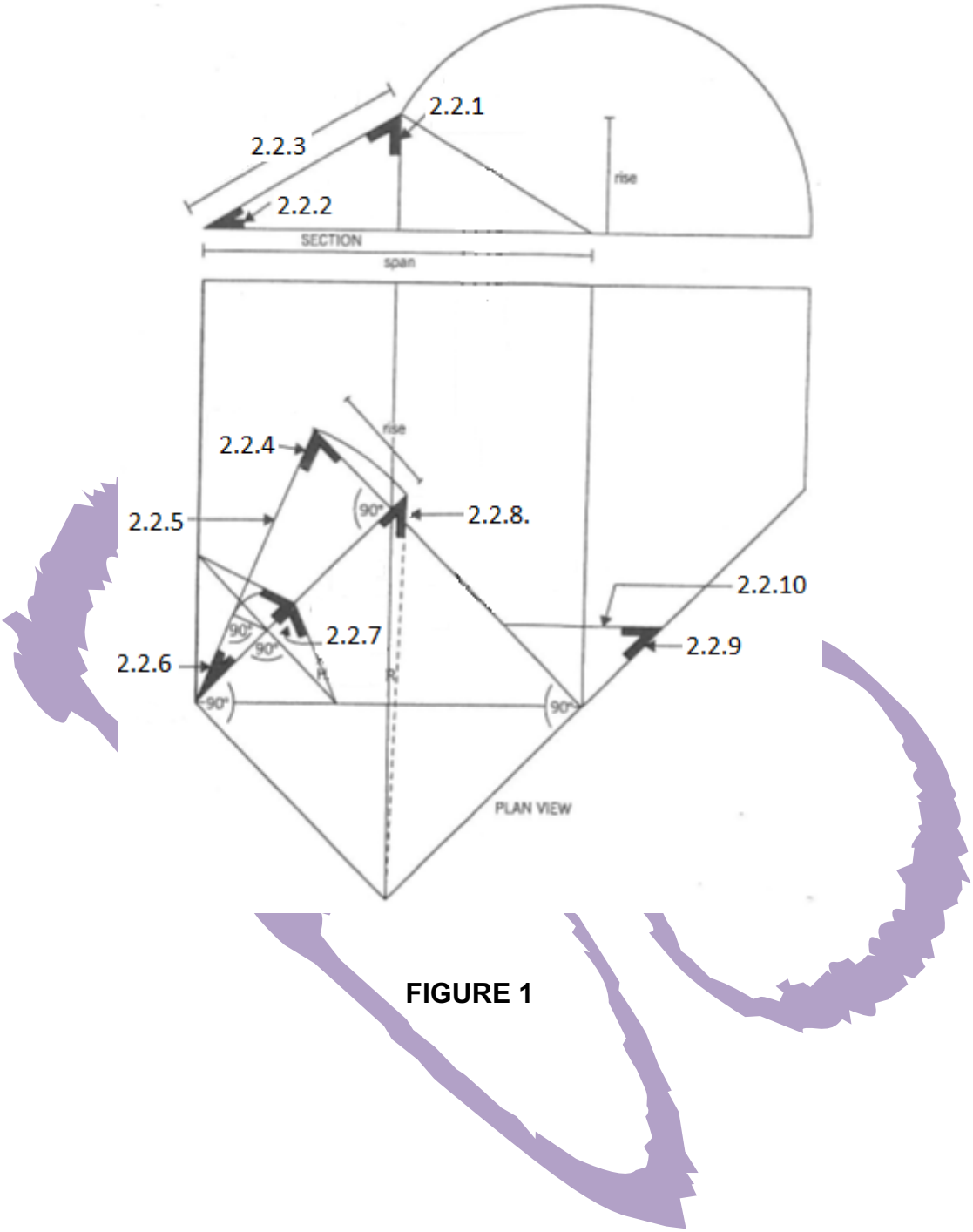


FIGURE 1

DIAGRAM SHEET 2

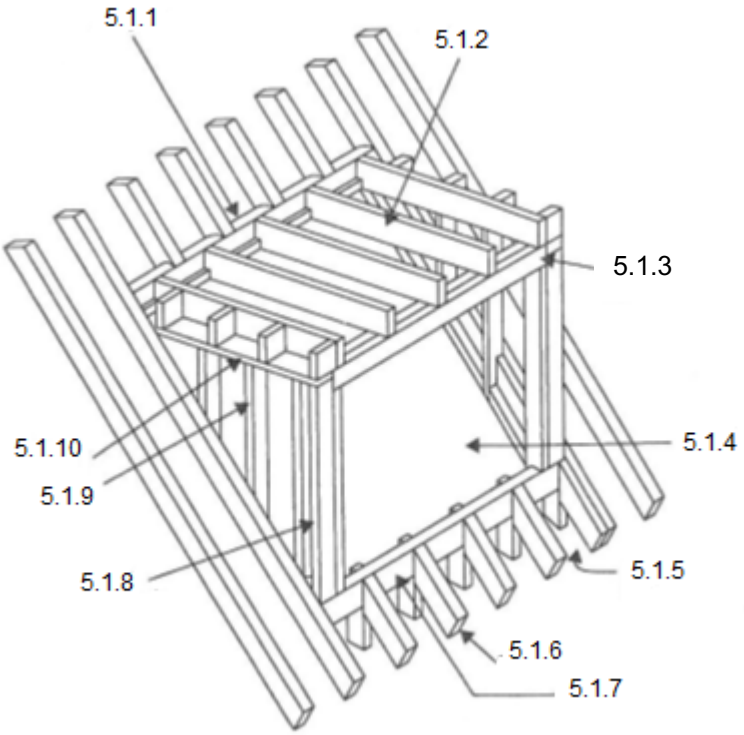


FIGURE 2

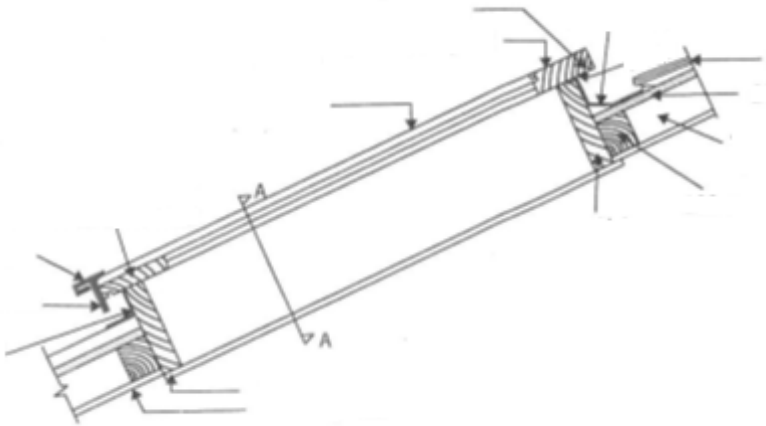


FIGURE 3

DIAGRAM SHEET 3

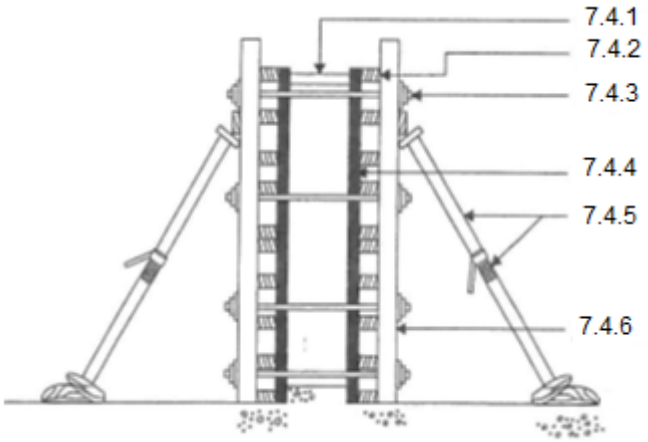


FIGURE 4

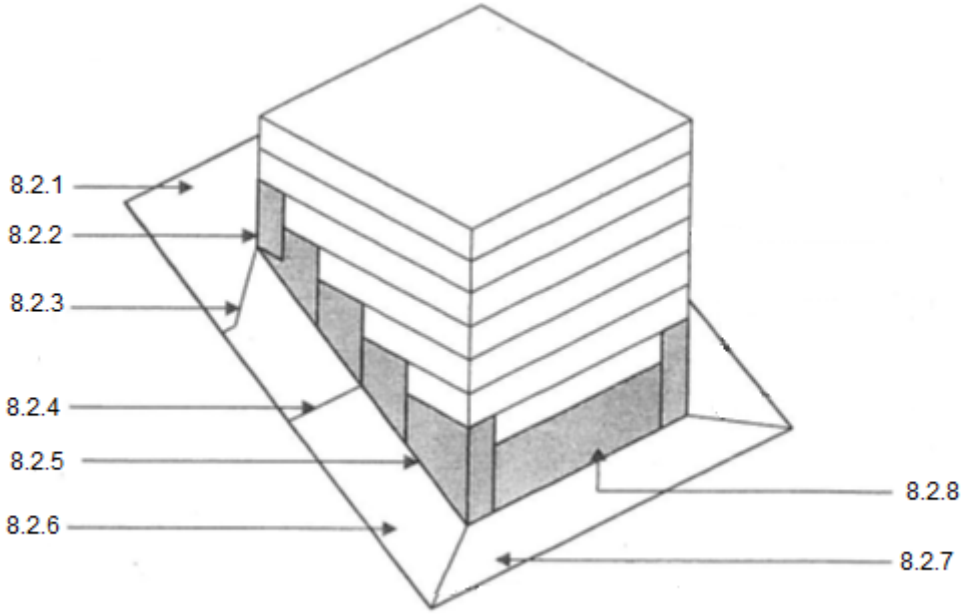


FIGURE 5

Copyright reserved