higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T210(E)(J22)T

AUGUST EXAMINATION

NATIONAL CERTIFICATE

CARPENTRY AND ROOFING THEORY N2

(11022192)

22 July 2014 (Y-Paper)
13:00–16:00

This question paper consists of 6 pages and 1 diagram sheet.

ENGINEERING

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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 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 QUESTION 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.

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QUESTION 1: SETTING OUT OF BUILDINGS

1.1 During the setting-out process of a building various equipment is used to assist the artisan to do the job.

Briefly explain the use or function of each setting-out equipment listed below:

1.1.1 Tape measure

1.1.2 Measuring rod

1.1.3 Spirit level

1.1.4 Water level

1.1.5 Straight edge

1.1.6 Plumb bob

1.1.7 Dumpy level

(7 × 1) (7)

1.2 Name THREE methods to set out 90° corners of buildings squarely. (3)

[10]

QUESTION 2: ROOF CONSTRUCTION

Before you can start constructing roof trusses you need to know and understand the different types of roof trusses and the terms and members of trusses used in roof work.

2.1 Draw a neat, single-line sketch of the front view of an attic roof truss. Identify and label all the members of the truss. (11)

2.2 Overhangs of roofs can be finished off in various ways.

Briefly describe the difference between the following:

2.2.1 An open eave

2.2.2 A closed eave

(2 × 2) (4)

NOTE: No sketches are required.

2.3 The roofing square is an essential tool with regard to roof work.

Name FIVE parts of the roofing square. (5)

[20]

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QUESTION 3: ROOF COVERING

In roof work there are various sections such as an apex/ridge, valley, eaves, etc. Depending on the roof covering chosen for cladding, each section has a specific way of finishing.

3.1 Draw the apex of a Howe roof truss to show on site manufactured nailed roof trusses covered with fibre cement tiles. Label the drawing. (10)

3.2 It is vital that the roofing people should know how to care for and store roof covering materials.

Describe FIVE specific criteria to adhere to when caring for and storing roof covering material. (5)

[15]

QUESTION 4: CEILINGS

4.1 After the construction of the roof is completed, the ceilings can be installed.

Make a neat cross-sectional drawing through a suspended ceiling and part of the roof to show the following clearly:

Rafter, tie beam, timber hangers, ceiling joist, rhino board, cornice **[8]**

QUESTION 5: DORMER ROOF CONSTRUCTION

5.1 The function of dormers is to provide day lighting and ventilation within a roof space which is transformed into an attic. It also provides an architectural feature which presents elegance to a well-designed building or dwelling.

Distinguish, with the aid of pictorial/isometric drawings, between the following dormer windows:

5.1.1 Flat roof

5.1.2 Pitch roof

5.1.3 Segmental roof

(3 × 5) **[15]**

QUESTION 6: ROOF LIGHT CONSTRUCTION

6.1 The attached DIAGRAM SHEET shows two sectional views of a typical roof light construction.

Identify all the numbered parts by writing down the answers next to the question number (6.1-6.12) in the ANSWER BOOK. **[12]**

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QUESTION 7: THIS QUESTION IS FOR CARPENTRY CANDIDATES ONLY

7.1 Wall panelling serves as a decorative internal surface, in most cases a wood finish in places such as lounges, offices, theatres, etc.

Draw a horizontal cross-sectional view through the muntin of a dado wall panelling finished off with raised and fielded panels.

Clearly indicate the rough ground, the muntin and the raised and fielded panels both sides of the muntin. (6)

7.2 Doors are an important feature of a house or building to close openings between walls. Their main function is to protect the inhabitants and to give access and a way of exiting to people using the building.

Draw a neat front view of a half-glass panelled front door of a house. The lower part of the door consists of a muntin and raised and fielded panels. Label all the members of the door. (12)

7.3 Briefly explain the concept *shoring*. (2)
[20]

QUESTION 8: THIS QUESTION IS FOR ROOFING CANDIDATES ONLY

8.1 It is important for roofers to know and understand the various metal materials applicable to roofing and gutters and their applications.

State TWO methods of joining each of the following metals:

8.1.1 Copper

8.1.2 Lead

8.1.3 Galvanised iron

8.1.4 Aluminium

8.1.5 Brass

(5 × 2) (10)

8.2 State TWO advantages of each of the following materials used to manufacture gutters:

8.2.1 Fibre cement

8.2.2 PVC

8.2.3 Galvanised iron

8.2.4 Aluminium

(4 × 2) (8)

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8.3 Briefly explain where the following gutters will be used in the construction of roofs:

8.3.1 Valley gutter

8.3.2 Parapet or box gutter

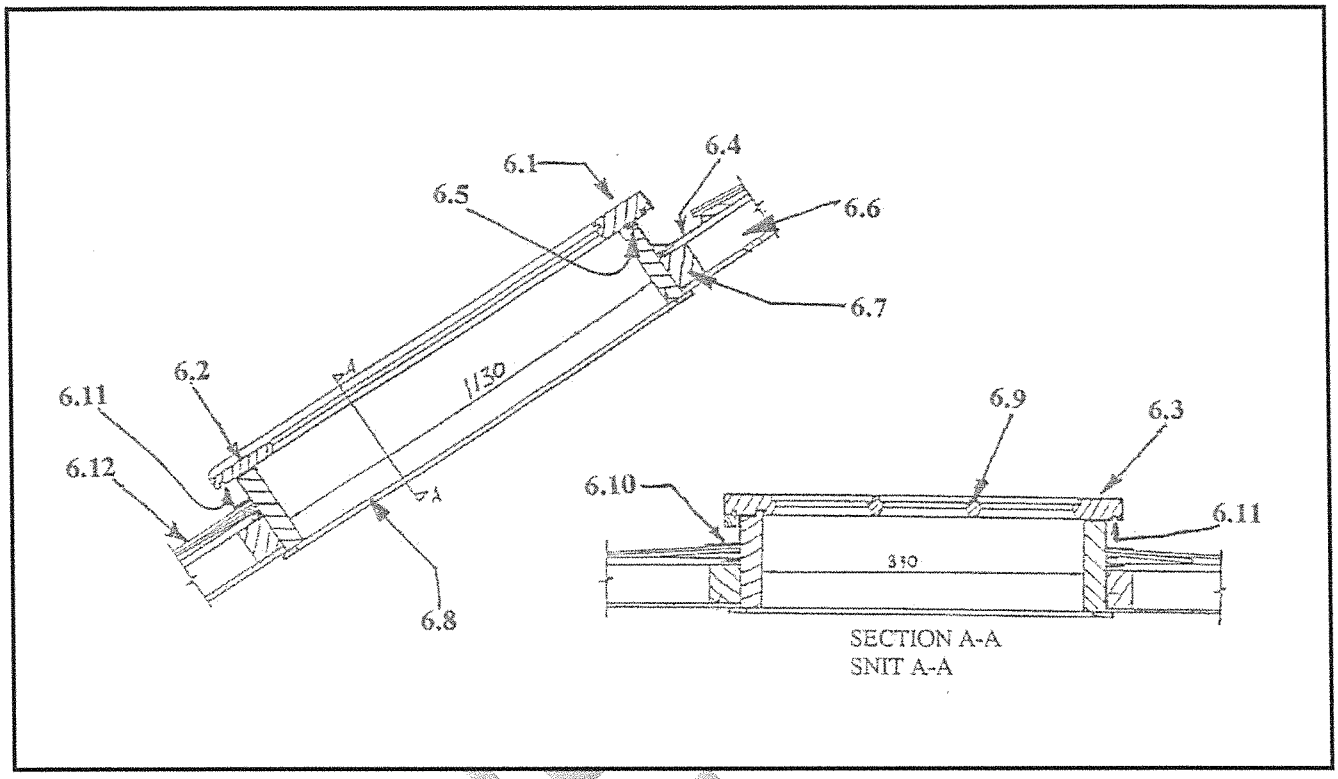
(2 ×1) (2)
[20]

TOTAL: 100

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DIAGRAM SHEET



ROOF LIGHT CONSTRUCTION

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