higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

BUILDING DRAWING N1

(8090001)

6 April 2020 (X-paper)
09:00–13:00

REQUIREMENTS: ONE A2 drawing sheet

This question paper consists of 6 pages and 2 diagram sheets.

096Q1A2006

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
BUILDING DRAWING N1
TIME: 4 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Make all drawings to the required scale.
5. Make all drawings, as well as candidate information, in pencil.
6. Drawings must be neat, reasonably large, in proportion and fully labelled in capital letters.
7. Use your discretion where dimensions are not given.
8. All drawings must comply with the relevant SANS (SABS) recommended codes.
9. A balanced layout is very important and candidates will be penalised for poor planning.
10. Write neatly and legibly.

QUESTION 1

Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (1.1–1.10) on the ANSWER SHEET.

1.1 A straight line, shorter than the diameter, joining two points on the circumference:

A Arc
B Chord
C Sector
D Radius

1.2 Any portion of the circumference:

A Arc
B Chord
C Sector
D Radius

1.3 Outline of a circle:

A Diameter
B Circumference
C Quadrant
D Radius

1.4 Straight line across the centre of the circle ending at the circumference:

A Diameter
B Circumference
C Quadrant
D Radius

1.5 Part enclosed by two radii at right angles and an arc:

A Diameter
B Circumference
C Quadrant
D Radius

1.6 Straight line from the centre to the circumference:

A Segment
B Sector
C Tangent
D Radius

1.7 Part enclosed by two radii and an arc and covers less than 180°:

A Segment
B Sector
C Tangent
D Radius

1.8 Part of a circle enclosed by a chord and its arc:

A Segment
B Sector
C Tangent
D Radius

1.9 One of the halves into which a diameter divides a circle:

A Segment
B Chord
C Tangent
D Semicircle

1.10 Straight line touching the circumference but not entering the circle:

A Segment
B Chord
C Tangent
D Semicircle

(10 × 1) **[10]**

QUESTION 2

DIAGRAM SHEET 1 (attached) shows the outline of a one-brick external corner.

Use the same dimensions, and draw, to scale 1:10, TWO alternate plan courses in stretcher bond. Include the stopped ends and dimensions in each view. Make sure the views are drawn directly below each other. **[20]**

QUESTION 3

Construct, to scale 1:2, an ellipse using the four-centre method and the following dimensions:

Horizontal major axis: 240 mm
Vertical minor axis: 160 mm **[15]**

QUESTION 4

Draw, to scale 1:10, a vertical section through an open valley gutter.

Show the following specifications:

Roof pitch:	30°
Jack rafters:	114 mm × 38 mm
Valley rafter:	150 mm × 50 mm
Purlin:	75 mm × 50 mm
Valley gutter:	1 mm galvanised
Roof cover:	Corrugated fibre-cement sheet

[15]

QUESTION 5

A double-casement wooden window with a fanlight is built in a kitchen for circulation of air and light. A wooden transome and mullion are built at the centre of the window opening.

5.1 Draw, to scale 1:2, a vertical section through the transome to show the following details:

Transome:	80 mm × 70 mm
Fanlight bottom rail:	60 mm × 35 mm
Casement top rail:	50 mm × 35 mm
Glass:	4 mm (on both sides)

(10)

5.2 Draw, to scale 1:2, a horizontal section through the mullion to show the following details:

Mullion:	80 mm × 60 mm
Stiles:	50 mm × 35 mm (on both sides)
Glass:	4 mm (on both sides)

(10)
[20]

QUESTION 6

A sitting room consists of a suspended wooden floor as shown on DIAGRAM SHEET 2 (attached). The floor joist rests on a wall plate and a bearer. The wall plate is supported by means of a sleeper wall and the bearer by the pier. The walls and pier are supported by oversite concrete. The external wall is 220 mm thick and plastered on both sides. The exterior plaster is two courses above the ground level.

Draw, to scale 1:10, a vertical section through the foundation, foundation wall, external wall, sleeper wall and the pier.

Show the following specifications:

Concrete foundation:	650 mm × 250 mm
Foundation wall:	220 mm
External wall:	220 mm
Natural ground level:	250 mm above the top of the concrete foundation
Oversite concrete:	100 mm cast on top of the concrete foundation
Sleeper wall:	110 mm (263 mm high)
Wall plate:	114 mm × 38 mm
Pier:	220 mm (375 mm high)
Bearer:	150 mm × 50 mm
Floor joist:	114 mm × 38 mm
Floorboards:	100 mm × 20 mm tongue and groove
Skirting:	76 mm × 20 mm
Plaster:	19 mm
Damp-proof course:	375 micron
Ant-proofing:	Two courses below every timber

[20]

TOTAL: 100

DIAGRAM SHEET 1

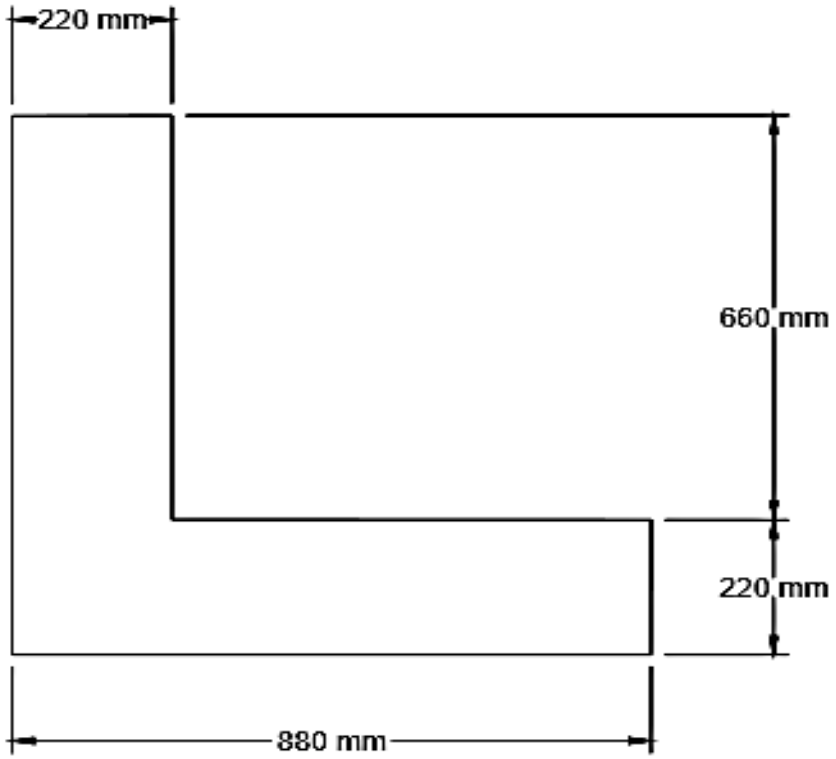

DIAGRAM SHEET 2