higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

DRAWING OFFICE PROCEDURES AND TECHNIQUES

(First paper)

NQF LEVEL 2

(12050702)

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13:00–16:00

This question paper consists of 7 pages.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)
DRAWING OFFICE PROCEDURES AND TECHNIQUES
NQF LEVEL 2
PAPER 1
TIME: 3 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. Use only a black or blue pen.
5. Write neatly and legibly.

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QUESTION 1: DRAWING OFFICE ORIENTATION

1.1 One form of a technical drawing is … sketches. (1)

1.2 Draughtspersons with skills and experience may advance to higher positions.

Name THREE higher-level positions in a drawing office. (3)

1.3 Name THREE different technical drawings that are used in drawing office practice. (3)

1.4 There are three professional bodies for the architectural profession.

Name TWO professional bodies established for the architectural profession. (2)

1.5 Name THREE engineering specialisation fields. (3)

1.6 Name THREE functions of freehand sketches. (3)

[15]

QUESTION 2: DRAWING OFFICE STANDARDS AND SPECIFICATIONS

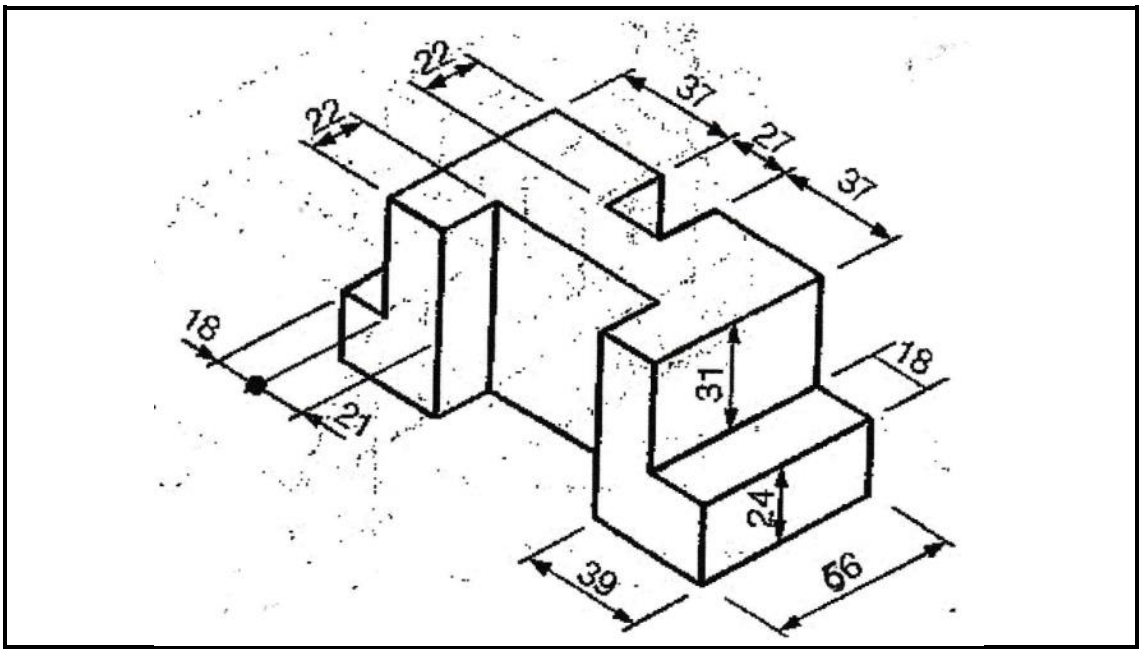
2.1 Choose an item from COLUMN B that matches an item in COLUMN A. Write only the letter (A–L) next to the question number (2.1.1–2.1.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
2.1.1	Draughting tape is used to …	A	sharpen pencils to obtain a chisel-edged point
2.1.2	An emery block is used to …	B	fastening drawing paper to a drawing board
2.1.3	A pencil sharpener is used to …	C	841 mm × 1 189 mm
2.1.4	A small bow compass is used for …	D	594 × 841 mm
2.1.5	The dimensions of A0-size paper	E	an emery block
2.1.6	The dimensions of A1-size paper	F	drawing lines at specific angles
2.1.7	Vertical lines are drawn …	G	drawing circles with radii of 25 mm or less
2.1.8	Horizontal lines are drawn …	H	sharpen pencils to obtain a conical point
2.1.9	A sharp pencil point is maintained by …	I	rolling the pencil between your thumb and fingers while drawing
2.1.10	A compass lead is sharpened with …	J	toward the top of the board
		K	from left to right
		L	sharpening the lead

(10 × 1) (10)

2.2 Dimensions of freehand drawings must be in good proportion and within the boundaries of the predetermined block.

Make a freehand drawing of the object shown in FIGURE 1 below using the DRAWING SHEET attached to the ANSWER SHEET. Refer to the dimensions given to ensure that the object is drawn in good proportion and kept within the boundaries of the DRAWING SHEET.



(10)
[20]

FIGURE 1

QUESTION 3: DRAWING OFFICE LAYOUT AND EQUIPMENT

3.1 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (3.1.1–3.1.5) in the ANSWER BOOK. Give a reason for the answer.

3.1.1 The print room in a drawing office is used to manually draw technical drawings on drawing boards.

3.1.2 There are several reproduction methods, and the diazo copying process replaced the blueprint process.

3.1.3 The date-stamping method is one of five ways to number or assign letters to drawings.

3.1.4 A technical report is a summary on one page and does not have attachments, graphs, maps or analysis reports.

3.1.5 A checker in the drawing office ensures that safety aspects are taken into consideration when checking finished drawings.

(5 × 2) (10)

3.2 Name TWO functions of the designer in a drawing office. (2)

3.3 List THREE areas to be considered in the scope of a technical report. (3)

[15]

QUESTION 4: PRINCIPLES OF VISUALISATION AND PERCEPTION

A client provided a written brief requiring the drawing of the floor layout of a bathroom. Make a freehand floor plan of a bathroom according to the brief below:

- The inside measurements of the bathroom are 3 000 mm in length and 2 000 mm in width.
- The external wall thickness is 220 mm and the remaining three internal walls have a thickness of 110 mm.
- Two windows must be positioned in the external 3 000-mm wall. One window is located 250 mm from the right-hand inside of the bathroom and the other window 250 mm from the left-hand inside of the bathroom.
- The window sizes are 1 000 mm in width and 500 mm in height.
- Position a door, opening inside the bathroom, in the centre of the 3 000-mm internal wall, which is parallel to the external wall.
- The door size is 900 mm in width and 2 100 mm in height.
- A shower, measuring 1 000 mm × 1 000 mm, must be positioned inside the bathroom and must be located on the left-hand side of the bathroom and door.
- A 300 mm × 500 mm handbasin must be fastened to the inside of the inner wall, positioned 250 mm from the shower and 250 mm from the outer wall.
- A water closet (toilet) must be positioned centrally underneath the right-hand side window.
- The toilet measurements are 500 mm in width and 700 mm in length.

Insert all the dimensions on the drawing. **[25]**

QUESTION 5: SI UNITS OF MEASUREMENT

5.1 Redraw the table below in the ANSWER BOOK and fill in the missing information on the SI system.

Unit being measured	SI unit name	SI symbol
	Metre	m
Mass		Kg
	Second	
Electric current		A
Temperature		K
	Mole	mol

(7)

5.2 Degrees are used to denote angles in technical drawings.
ADD the following angles:

5.2.1 22° 39’ and 15° 12’

5.2.2 90° 49’ and 62° 22’

5.2.3 15° 41’ and 11° 26’

5.2.4 33° 21’ and 9° 19’

5.2.5 71° 28’ and 25° 16’

5.2.6 26° 34’ and 27° 46’

(6 × 1) (6)

5.3 SUBTRACT the second from the first angles:

5.3.1 37° 11’ and 10° 06’

5.3.2 119° 22’ and 32° 13’

5.3.3 66° 47’ and 21° 07’

5.3.4 124° 20’ and 61° 12’

5.3.5 124° 30’ and 58° 47

5.3.6 121° 06’ and 119° 07’

(6 × 1) (6)

5.4 Write the numerals indicated below in scientific notation.

5.4.1 0,000456

5.4.2 0,00000564

5.4.3 0,000000981

5.4.4 0,300000000

5.4.5 0,0011

5.4.6 0,000000000123

(6 × 1) (6)
[25]

TOTAL: 100

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