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)

17 November 2022 (Y-paper)
13:00–16:00

This question paper consists of 6 pages.

453Q1N2217

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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. Start each question on a new page.
5. Use only a blue or black pen.
6. Write neatly and legibly.

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QUESTION 1: DRAWING OFFICE ORIENTATION

1.1 Draughting is sometimes called the … of industry. (1)

1.2 Name THREE purposes of technical drawings. (3)

1.3 Freehand sketches are known as the … phase of technical communication. (1)

1.4 Manufacturing drawings is a … of drawings communicating the complete product. (1)

1.5 Describe the goal of presentation communication. (3)

1.6 Name FIVE personal attributes of a draughtsperson. (5)

[14]

QUESTION 2: DRAWING OFFICE STANDARDS AND SPECIFICATIONS

2.1 Choose a term from COLUMN A that matches a description in COLUMN B. 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	Erasing shield	A	transfer distances
2.1.2	Flexi curve	B	to join a radius with a straight line
2.1.3	Radius stencil	C	construction work
2.1.4	Circle stencil	D	measure or marking off angles
2.1.5	Protractor	E	to draw holes quickly
2.1.6	Set squares	F	drawing lines at specific angles
2.1.7	Large bow compass	G	drawing circles with radii of 25 mm or less
2.1.8	Ruler and scale rule	H	drawing circles with radii of more than 25 mm
2.1.9	Dividers	I	to ease erasing
2.1.10	T-squares	J	measure lengths and scaled measurements
		K	drawing horizontal lines
		L	sharpening the lead

(10 × 1) (10)

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2.2 Dimensions of freehand drawings must be kept in good proportion and be kept within the boundaries of a pre-determined block.

Make a freehand drawing of the object shown in FIGURE 1 below in the ANSWER BOOK. Ensure that the object is drawn in good proportion and kept within the boundaries of the ANSWER BOOK.

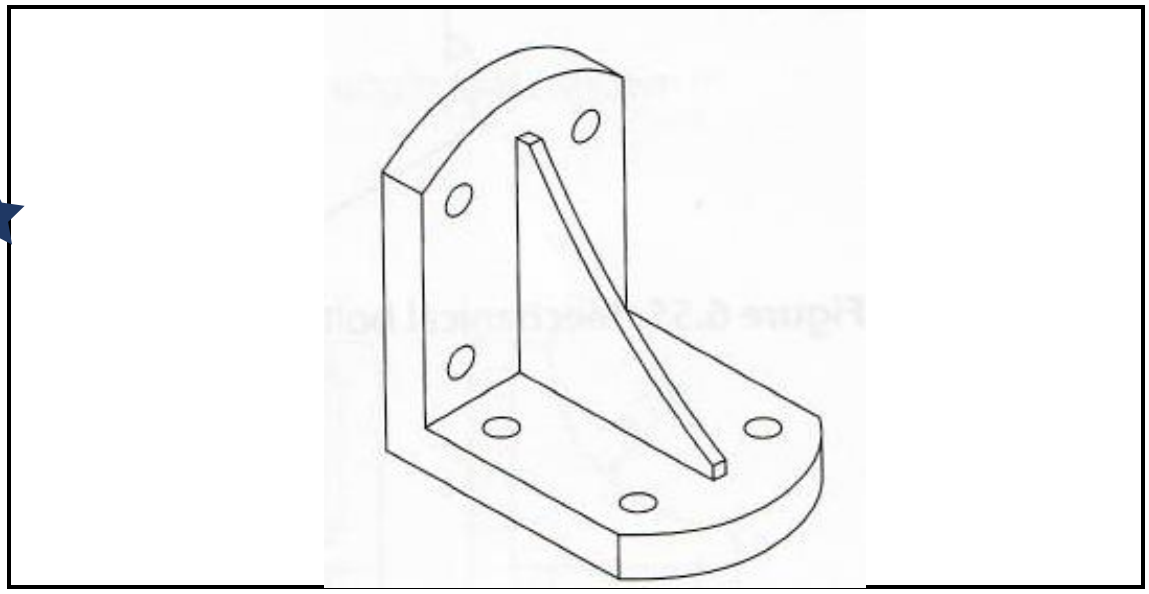


FIGURE 1 (10)
[20]

QUESTION 3: DRAWING OFFICE LAYOUT AND EQUIPMENT

3.1 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'True' or 'False' next to the question number (3.1.1–3.1.5) in the ANSWER BOOK. Give ONE reason for each answer.

3.1.1 The plotter, copier and printer in a drawing office must not be accessible to any draughts person.

3.1.2 All draughts persons in a drawing office must perform preventative maintenance of general office equipment.

3.1.3 Master drawings are developed directly on transparency paper.

3.1.4 A technical report is a summary of the process followed in designing an object.

3.1.5 Blueprinting is a very modern method used for the reproduction of drawings.

(5 × 1) (5)

3.2 Draw an organisational structure of a drawing office focusing on drawing office staff. (10)

3.3 Explain THREE main functions of a tracer. (3)

3.4 Explain THREE main functions of a draughtsperson. (3)

[21]

QUESTION 4: PRINCIPLES OF VISUALISATION AMD PERCEPTION

A client provides a written brief requiring the production of a single freehand drawing. The written brief is as stated below:

Make a freehand isometric drawing of a machine block that will be used as a milling jig. The block size is 100 mm long, 85 mm wide and 15 mm thick.

A series of holes must be positioned on the block as follows:

- A 30-mm diameter hole in the centre of the block.
- Four 15 mm holes positioned 15 mm from each corner of the block.
- The four corners of the block are rounded and a radius of 7,5 mm is used for this purpose.

Insert all the dimensions on the drawing **[20]**

QUESTION 5: SI UNITS OF MEASURE

5.1 Fill in the missing information in the SI system. Write only the word or letter next to the question number (5.1.1–5.1.7) in the ANSWER BOOK.

Unit being measured	SI unit name	SI Symbol
Length	**5.1.1**	m
5.1.2	Kilogram	Kg
Time	**5.1.3**	s
5.1.4	ampere	A
5.1.5	kelvin	K
5.1.6	candela	**5.1.7**

(7)

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

5.2.1 33° 39’ and 27° 12’

5.2.2 110° 49’ and 42° 34’

5.2.3 20° 44’ and 20° 56’

5.2.4 21° 19’ and 17° 10’

5.2.5 82° 29’ and 37° 08’

5.2.6 25° 54’ and 27° 56’

(6 × 1) (6)

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5.3 Degrees are used to denote angles in technical drawings. SUBTRACT the following angles in the ANSWER BOOK

5.3.1 50° 22’ and 12° 09’

5.3.2 115° 19’ and 43° 24’

5.3.3 45° 36’ and 34° 17’

5.3.4 35° 16’ and 35° 10’

5.3.5 42° 30’ and 39° 37’

5.3.6 145° 16’ and 144° 17’

(6 × 1) (6)

5.4 Write the numerals indicated below in a scientific notation. Complete the answers in the ANSWER BOOK.

5.4.1 0,000123

5.4.2 0,00000432

5.4.3 0,000000899

5.4.4 0,100000000

5.4.5 0,0099

5.4.6 0,000000000543

(6 × 1) (6)

[25]

TOTAL: 100

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