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)

2 December 2020 (X-paper)
09:00–12:00

This question paper consists of 5 pages.

189Q1N2002

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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. Drawings, sketches and/or diagrams must be neat, reasonably large, in good proportion, done in pencil and fully labelled.
5. All the abbreviations and symbols must comply with the latest National Building Regulations and all relevant SANS (SABS) codes.
6. Write neatly and legibly.

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QUESTION 1: DRAWING OFFICE ORIENTATION

1.1 Name FOUR examples of specialised drawings used in technical drawing. (4)

1.2 Explain the term *draughting.* (4)

1.3 Explain why a technical illustrator should have both technical and artistic skills. (4)

1.4 Name SEVEN professional bodies for draughting disciplines. (7)

1.5 Name SIX typical positions found in a drawing office. (6)
[25]

QUESTION 2: DRAWING OFFICE STANDARDS AND SPECIFICATIONS

2.1 A draughtsperson uses various drawing instruments to produce a drawing. Two different types of set squares are used in conjunction with a T-square.

Name FOUR different angles that a draughts person could create by using a combination of set squares and a T-square. (4)

2.2 Name THREE types of grid paper commonly used in a drawing office. (3)

2.3 Name FIVE drawing instruments, other than a T-square and set squares, used in a drawing office. (5)

2.4 Name TWO instruments used in a freehand drawing. (2)

2.5 A good draughts person will check the drawing instruments regularly.

Explain the process to check whether a T-square is true. (5)

2.6 State THREE methods in which to take care of an eraser and eraser shield. (3)
[22]

QUESTION 3: DRAWING OFFICE LAYOUT AND EQUIPMENT

3.1 Name and discuss THREE factors to be considered when planning a drawing office layout. (6)

3.2 Regular planned and preventative maintenance should be regularly performed on office machines and equipment.

State FOUR preventative maintenance actions. (4)

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3.3 A technical report is used to communicate technical information to more than one person. The format of the report and order of presentation is very important.

Name FOUR standard sections to be considered when compiling a technical report. (4)

3.4 Explain what is meant by the term *sequential revision numbering*. (2)

3.5 State the main functions of a tracer. (3)

3.6 State the main functions of a designer. (3)

[22]

QUESTION 4: PRINCIPLES OF VISUALISATION AND PERCEPTION

A client provides a written brief that requires the production of a freehand drawing as described below.

Make ONE freehand drawing of an aluminium cover plate that will be used as an engine protector on a BMW motorcycle.

The size of the cover plate is 215 mm long, 125 mm wide and 3 mm thick.
Certain holes must be positioned on the plate as follows:

- A 25 mm diameter hole must be positioned in the centre of the plate.
- Four 10 mm holes need to be positioned 25 mm in from each corner.

Insert all the dimensions on the drawing. **[16]**

QUESTION 5: SI UNITS OF MEASUREMENT

5.1 Complete the following table by writing only the missing answer next to the question number in the ANSWER BOOK.

UNIT BEING MEASURED	SI UNIT NAME	SI SYMBOL
5.1.1	metre	m
5.1.2	kilogram	kg
Time	5.1.3	5.1.4
5.1.5	ampere	A
Temperature	5.1.6	K

(6 × 1) (6)

5.2 Add up each pair of angles and give the answer in degrees and minutes:

5.2.1 34°59' and 19°32'

5.2.2 18°12' and 12°50'

5.2.3 5°11' and 7°11'

(3 × 1) (3)

5.3 Convert the following:

5.3.1 25 mm^3 to m^3

5.3.2 10 MPa to pascals

5.3.3 500 N/m^2 to pascals

5.3.4 93 bar to pascals

5.3.5 20 Nm to Joules

5.3.6 1 400 seconds to hours, minutes and seconds

(6 × 1) (6)

[15]

TOTAL: 100

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