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)

12 March 2018 (X-Paper)
09:00–12:00

This question paper consists of 6 pages.

NCV

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. The drawings, sketches and diagrams must be done in pencil.
5. Freehand drawings, sketches and/or diagrams must be neat, reasonably large, in proportion and fully labelled.
6. Rule off across the page after each completed question.
7. ALL abbreviations and symbols must comply with the latest National Building Regulations and ALL relevant SANS (SABS) codes.
8. Write neatly and legibly.

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QUESTION 1: DRAWING OFFICE ORIENTATION

1.1 Give the full meaning of each of the following acronyms:

1.1.1 LIASA

1.1.2 SAACE

1.1.3 SAGID

1.1.4 ILASA

(4 × 2½) (10)

1.2 Give the FOUR levels of graphic communication regarding the competency of the draughtsperson.

(4 × 2) (8)

[18]

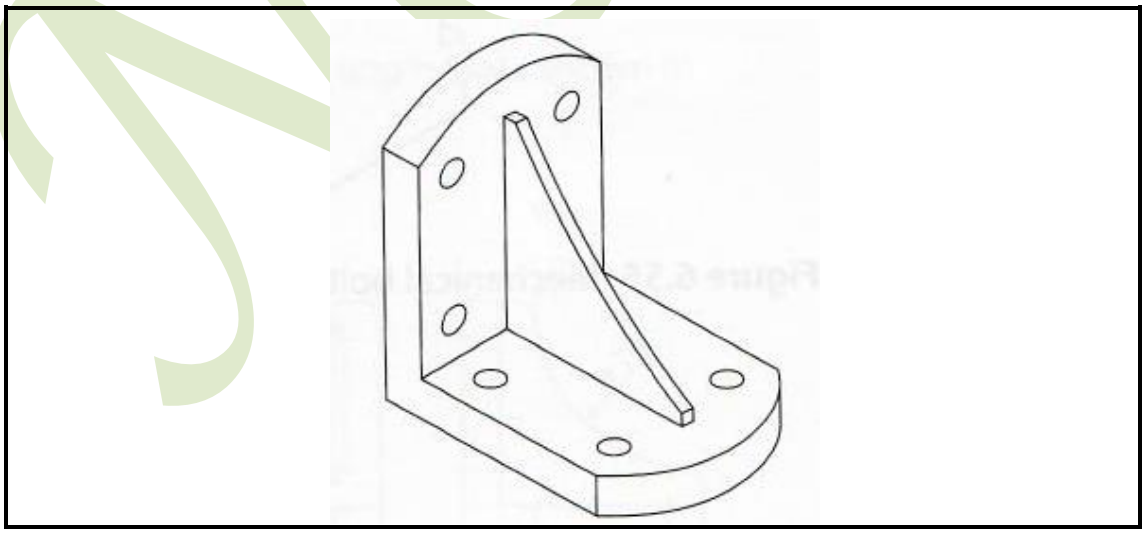
QUESTION 2: DRAWING OFFICE STANDARDS AND SPECIFICATIONS

2.1 Set squares are used in conjunction with a T-square to draw lines at specific angles.

Give SIX possible angles one could draw with a combination of set squares and a T-square. (6)

2.2 Name TWO orthographic projections. (2 × 2) (4)

2.3 Draw a freehand sketch of the object below to be twice the given size.



(9)

[19]

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QUESTION 3: DRAWING OFFICE LAYOUT AND EQUIPMENT

3.1 Make a sketch of a manual time sheet for THREE clients, indicating the following headings:

- Date
- Client
- Project
- Task
- Description
- Hours (9)

3.2 Give THREE advantages of using preprinted grid paper. (3 × 2) (6)

3.3 List THREE diazo-type reproduction processes. (3)

[18]

QUESTION 4: PRINCIPLES OF VISUALISATION AND PERCEPTION

4.1 Make ONE freehand drawing on the attached ANSWER SHEET from the written brief of a client. The brief requires you to create a freehand drawing of an object to be used as a milling jig.

The block size is 145 mm in length, 125 mm in width and 4 mm thick. A series of holes must be positioned on the face of the block as follows:

- A 60 mm diameter hole must be marked off in the centre of the block.
- Four 22 mm holes, set 18 mm in from each corner must be marked off on the right-hand side of the block.

Insert ALL dimensions on the drawing. (6)

4.2 Make ONE freehand drawing on the attached ANSWER SHEET from the written brief of a client. The brief requires a freehand drawing of the floor plan of a laundry room.

The building contractor, who is responsible for building the laundry room that you drew, has requested you to come on site and make changes to the drawing.

The changes are as follows:

- Increase the size of the window. A 500 × 500 mm window is rather small for a laundry room, particularly when the wall in which it goes, is only 2 500 mm long. This leaves 1 000 mm of wall either side of the window.
- Based on the current drawing, the washing trough will be installed at the back door. Most people would prefer the washing trough to be installed below the window. Look at a way to move the washing trough from its current location to a place where it can be installed below the window.

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The changes you have been asked to make to the freehand drawing are as follows:

- Increase the window size so it fits into the wall.
- Move the washing trough to a place below the window.

Make the necessary changes to the floor plan. (2 × 8) (16)

4.3 Supervisors usually check the drawings of draughtspersons and indicate corrections in different colours. The design check assesses the design feasibility.

Name TWO of the six elements of the design check. (2)
[24]

QUESTION 5: UNITS OF MEASUREMENT

5.1 Give the SI unit symbols of each of the following by writing only the symbol next to the question number (5.1.1–5.1.7) in the ANSWER BOOK:

UNIT BEING MEASURED		DERIVED SI SYMBOL
5.1.1	Volume	
5.1.2	Force	
5.1.3	Weight	
5.1.4	Pressure	
5.1.5	Stress	
5.1.6	Torque	
5.1.7	Energy	

(7 × 1) (7)

5.2 Degrees are used to denote angles in technical drawings.

Add the following angles and show only an answer:

5.2.1 53° 31' and 27° 12'

5.2.2 120° 49' and 60° 34'

5.2.3 105° 56' and 37° 57'

Subtract the following angles and show only an answer:

5.2.4 51° 29' and 22° 10'

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5.2.5 125° 19' and 63° 24'

5.2.6 115° 36' and 35° 27'

(6 × 1) (6)

5.3 Write each of the following in an exponential form.

5.3.1 0,00033

5.3.2 0,0000098

5.3.3 0,000000111

5.3.4 0,00000000000009

(4 × 2) (8)
[21]

TOTAL: 100

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