higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

DRAWING OFFICE PROCEDURES AND TECHNIQUES

(Second paper)
NQF LEVEL 4

(12050724)

27 November 2024 (X-paper)
09:00–13:00

REQUIREMENTS: A4 drawing sheets

Calculators and CAD software may be used.

This question paper consists of 4 pages and 3 diagram sheets.

535Q2S2427

Copyright reserved

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)
DRAWING OFFICE PROCEDURES AND TECHNIQUES
(Second paper)
NQF LEVEL 4
TIME: 4 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. A balanced layout must be maintained. Candidates will be penalised for poor planning.
4. Number the answers according to the numbering system used in this question paper.
5. Answer QUESTION 1 on the attached ANSWER SHEET.
6. All other questions must be plotted on a separate A4/A3 drawing sheet. Plot the answer on ONE side of the drawing paper only.
7. Draw a border line around each sheet of the drawing paper.
8. All candidate information must be plotted in the title block.
9. Candidates will be responsible, with suitable supervision, for the printing/plotting of their own drawings.
10. Use only black or blue pen.
11. Write neatly and legibly.

Copyright reserved

QUESTION 1: 3D MODELING WORKSPACE

Write your answers in the ANSWER BOOK provided.

1.1 Explain the 3D modelling workspace. (4)

List SIX examples where used. (6)

1.2 List FIVE of the User Interface components or UI elements in a 3D workspace. (5)
[15]

QUESTION 2: 3D FUNCTIONS AND TOOLS

FIGURE 1, DIAGRAM SHEET 1, shows TWO primary views in first angle orthographic projection of a SLIDING BLOCK.

2.1 Draw the THREE views of the SLIDING BLOCK in third angle orthographic projection, using a CAD software program, to scale 1:1 on an A3 drawing sheet. (9)

2.2 Include all dimensions on the THREE views. (6)

2.3 Produce a 3D drawing view using a CAD software program. (9)

2.4 Plot the drawing and candidate information on an A3 sheet. (1)
[25]

QUESTION 3: SECTION A MODEL AND CREATE RENDERED DRAWINGS

FIGURE 2, DIAGRAM SHEET 2, shows the TWO primary views of a CLUTCH COMPONENT in third angle orthographic projection.

Draw to scale 1:1, using a CAD software program, the following views of a CLUTCH COMPONENT on an A3 sheet in a portrait format:

3.1 Draw the front and top views in first angle orthographic projection. (10)

3.2 Create a section rendered drawing on cutting plane C-C. Insert on the right-hand side of the orthographic views. (12)

3.3 Include all dimensions on the front and top views. Do not insert dimensions on the rendered sectional view. (6)

3.4 Plot the drawing and candidate information on an A4 sheet. (1)

3.5 Insert the correct orthographic projection symbol. (1)
[30]

Copyright reserved

QUESTION 4: APPLY VISUALISATION TOOLS TO ENHANCE 3D DRAWINGS

FIGURE 3, DIAGRAM SHEET 3, shows an isometric view of a MACHINE WEDGE BLOCK.

Draw, to scale 1:1 in first angle orthographic projection using a CAD software program, the following THREE views of the MACHINE WEDGE BLOCK on an A4 sheet in a landscape format:

4.1	Front view;	(4)
4.2	Left view; and	(4)
4.3	Top view.	(4)
4.4	Draw a 3D model using the THREE orthographic views. Position the 3D model below the THREE views in the layout.	(8)
4.5	Add lighting from a fixed point above together with rendering and create the model as shown as an isometric view.	(8)
4.6	Plot the drawing and candidate information on an A4 sheet.	(2)
		[30]

TOTAL: 100

Copyright reserved

DIAGRAM SHEET 1

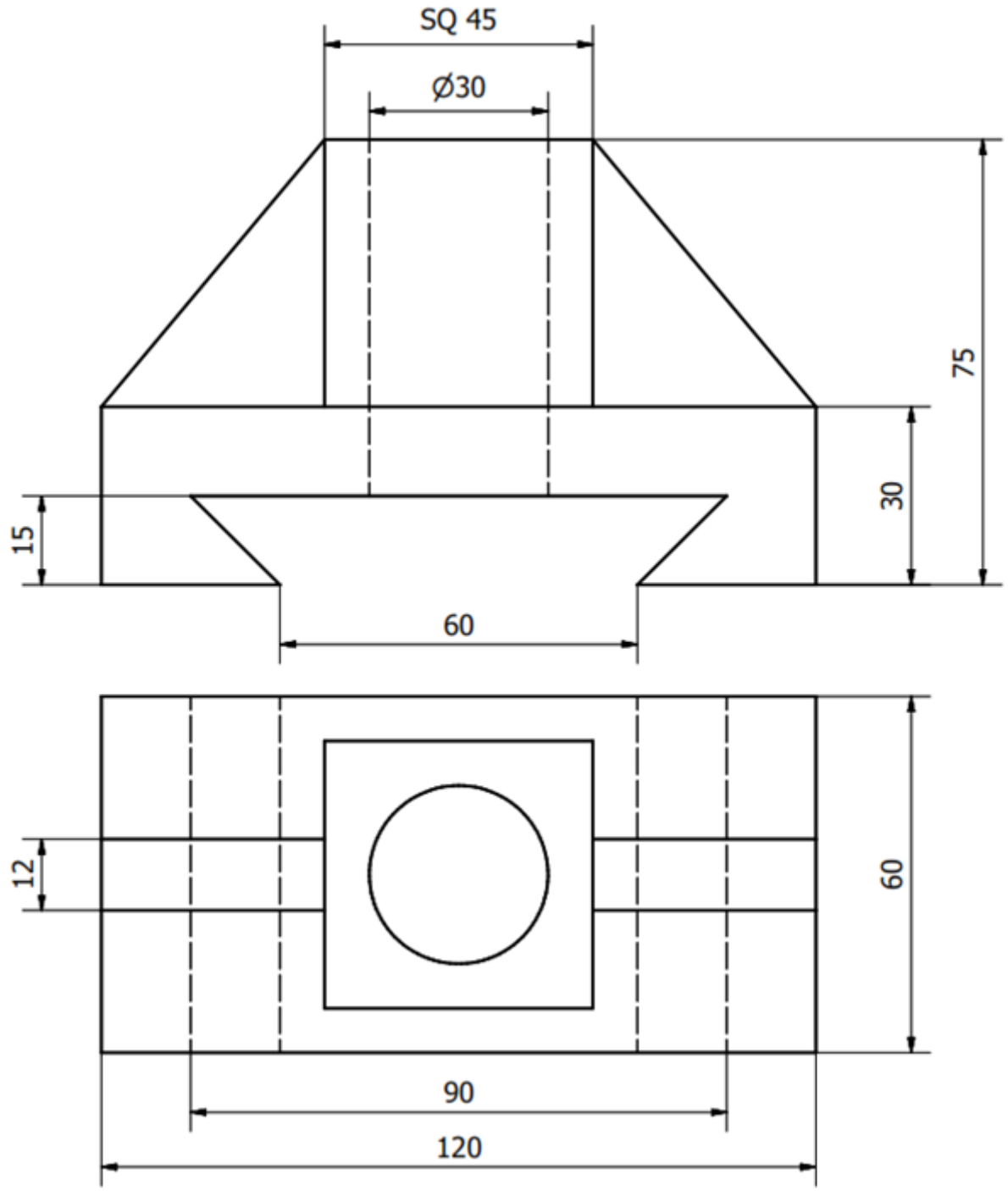


FIGURE 1

Copyright reserved

DIAGRAM SHEET 2

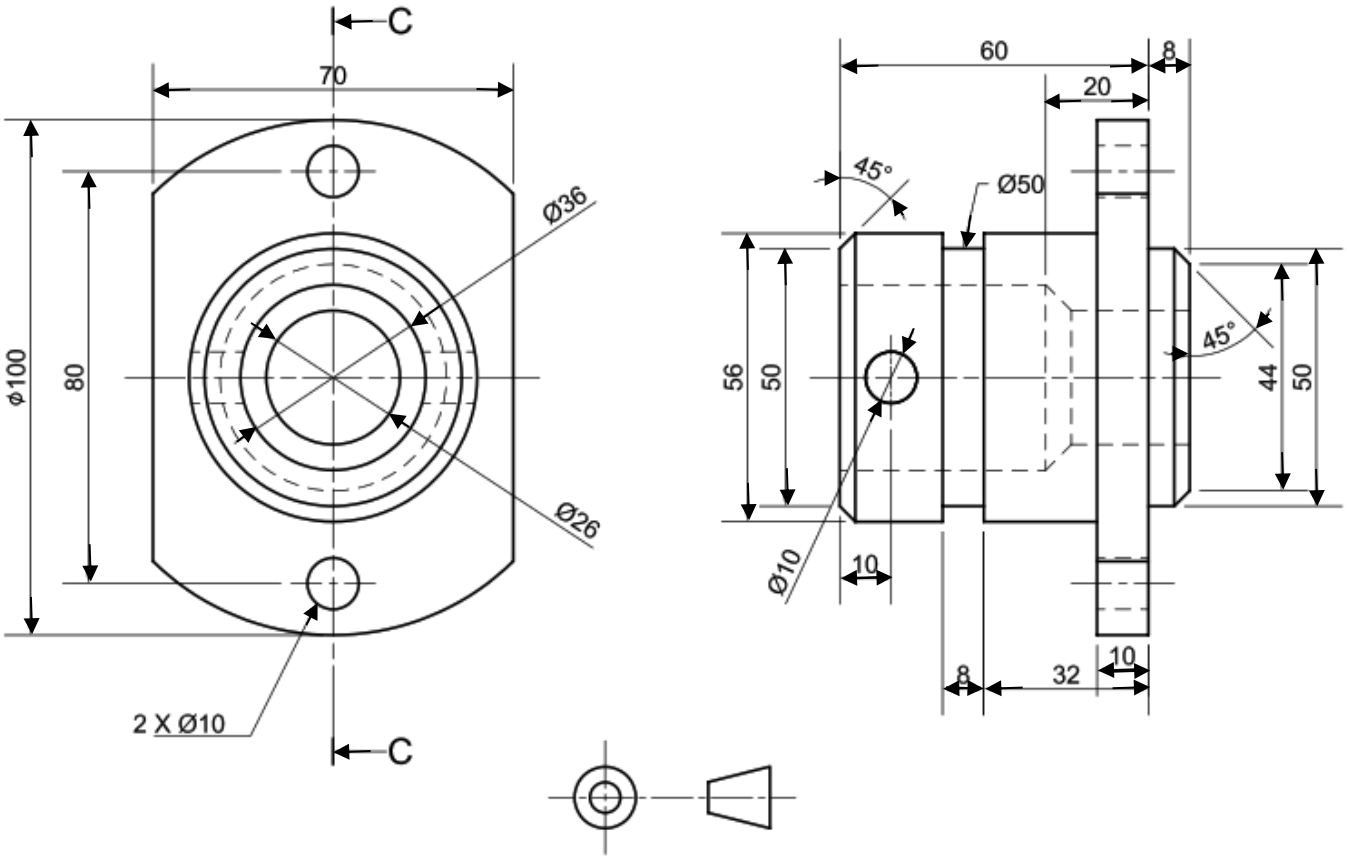


FIGURE 2

Copyright reserved

DIAGRAM SHEET 3

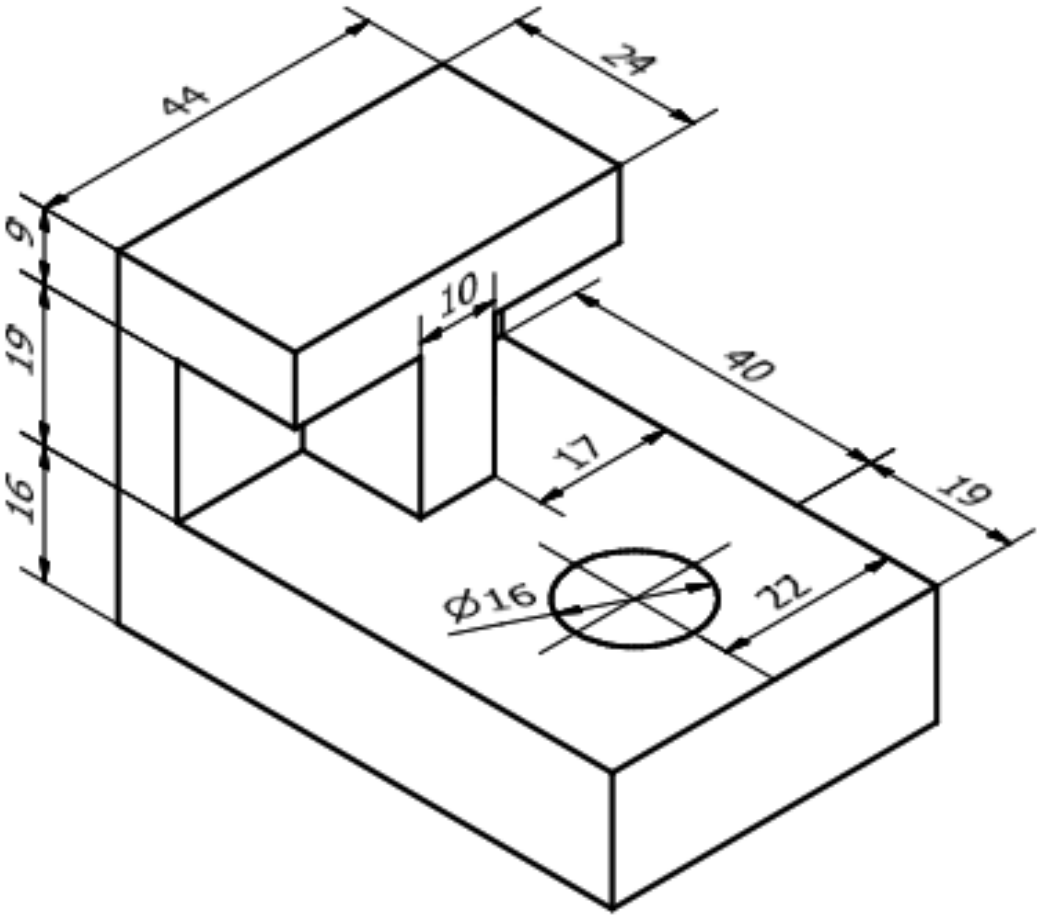


FIGURE 3

Copyright reserved