higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE:
MULTIDISCIPLINARY DRAWING OFFICE PRACTICE

TECHNICAL ILLUSTRATION

(8090235)

26 July 2021 (X-paper)
09:00–13:00

REQUIREMENTS: **TWO A3 drawing sheets**
ONE sheet of A4 tracing paper
ONE sheet of prepared three-point perspective grid-line paper

Drawing instruments and nonprogrammable calculators may be used.

This question paper consists of 7 pages and 1 answer sheet.

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NATIONAL CERTIFICATE:
MULTIDISCIPLINARY DRAWING OFFICE PRACTICE
TECHNICAL ILLUSTRATION
TIME: 4 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. Answer QUESTION 1 on the attached ANSWER SHEET.
   Answer QUESTION 2 and 3 on separate A3-DRAWING SHEETS.
   Answer QUESTION 4 on the A4 TRACING PAPER.
5. Use only ONE side of the DRAWING SHEET and TRACING PAPER.
6. Complete all drawing work, including candidate information, in pencil.
7. The drawings must be neatly finished with all labels and annotations.
8. Construction lines must be clearly defined and legible
9. Marks will be allocated for neatness and accuracy.
10. A balanced layout is very important. Candidates will be penalised for poor planning.
11. Work neatly.

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QUESTION 1: THEORY

NOTE: Answer QUESTION 1 on the ANSWER SHEET (attached).

1.1 Briefly explain the following terms used in technical illustrations:

1.1.1 Station point

1.1.2 Picture plane

1.1.3 Centre of vision

(3 × 1) (3)

1.2 Abbreviations are used as a means to shorten long descriptions and words.

Write down the full form of the following abbreviations used in technical illustrations:

1.2.1 MP45ºRT

1.2.2 VP 50º DN

1.2.3 NGL

(3 × 1) (3)

[6]

QUESTION 2: TWO-POINT PERSPECTIVE

FIGURE 1 below shows the first-angle orthographic view of two models, Model P and Model Q. Do not copy these drawings but use the following specifications to construct a 2-point perspective drawing of each model.

Use A-3 drawing paper, landscape orientated, and full-size scale for both models. Draw both models on the same drawing sheet.

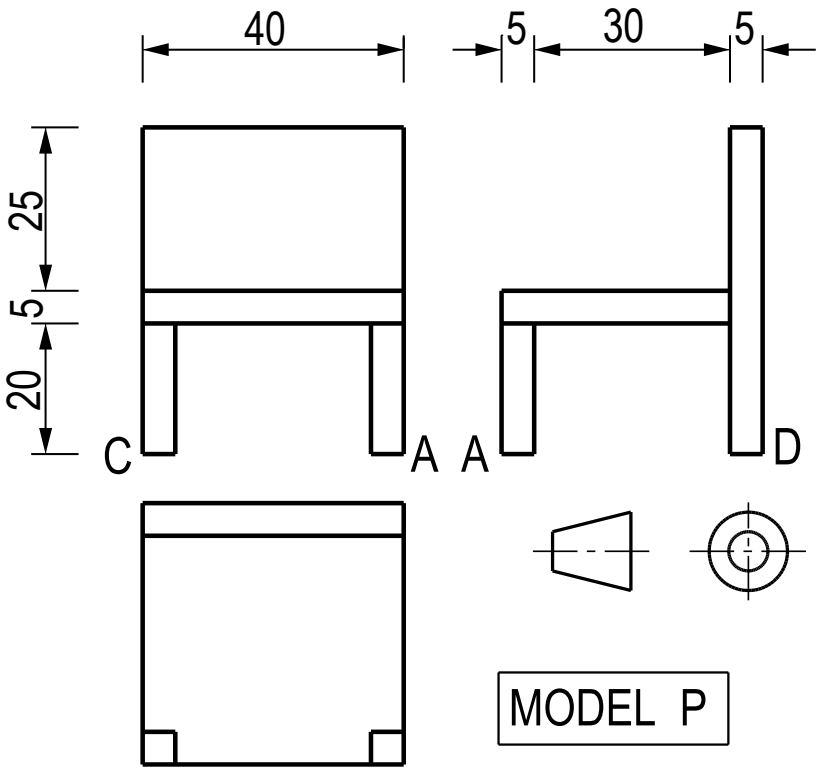
- The height of the eye above the Ground Line (GL) = 105 mm
- The distance of the eye in front of the Picture Plane (PP) = 130 mm

MODEL 'P': Situated on the ground line with its leading edge 'A' 45 mm to the left of CV and 15 mm behind the PP. Line AD vanishes to the right at 45º.

MODEL 'Q': Situated on the GL with its leading edge 'A', 60 mm right of CV. Line AC vanishes at 45º to the left.

Neatly finish off the completed drawings with bold 0,5 or 0,7-mm outlines. All construction lines must be clearly visible. Insert ALL the annotations and labels. **[20]**

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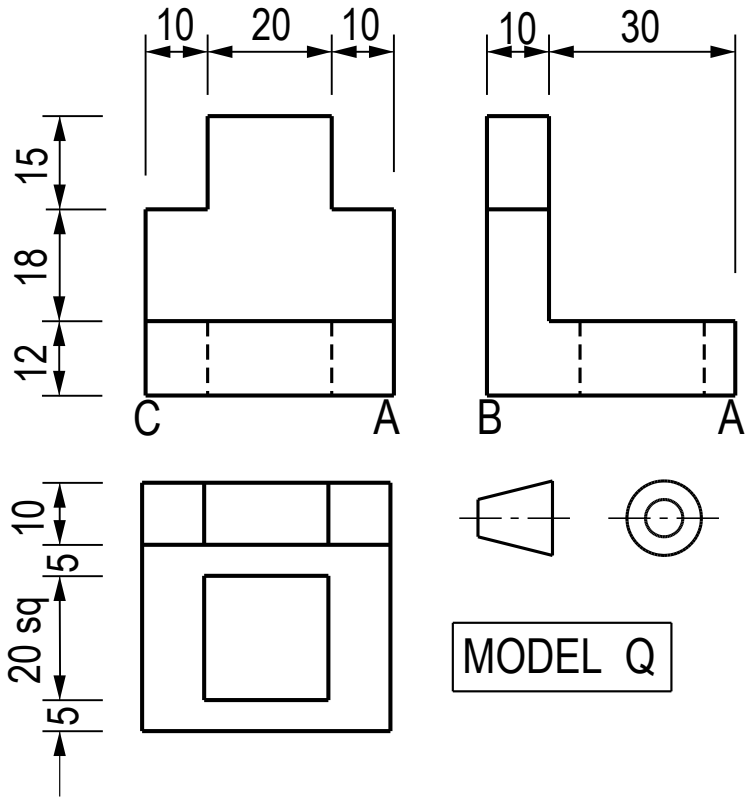


FIGURE 1: TWO-POINT PERSPECTIVE

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QUESTION 3: OBLIQUE PERSPECTIVE

FIGURE 2 below shows the orthographic views of a shaped model with two chamfers. Use the following information to construct a 3-point perspective drawing of the shaped model.

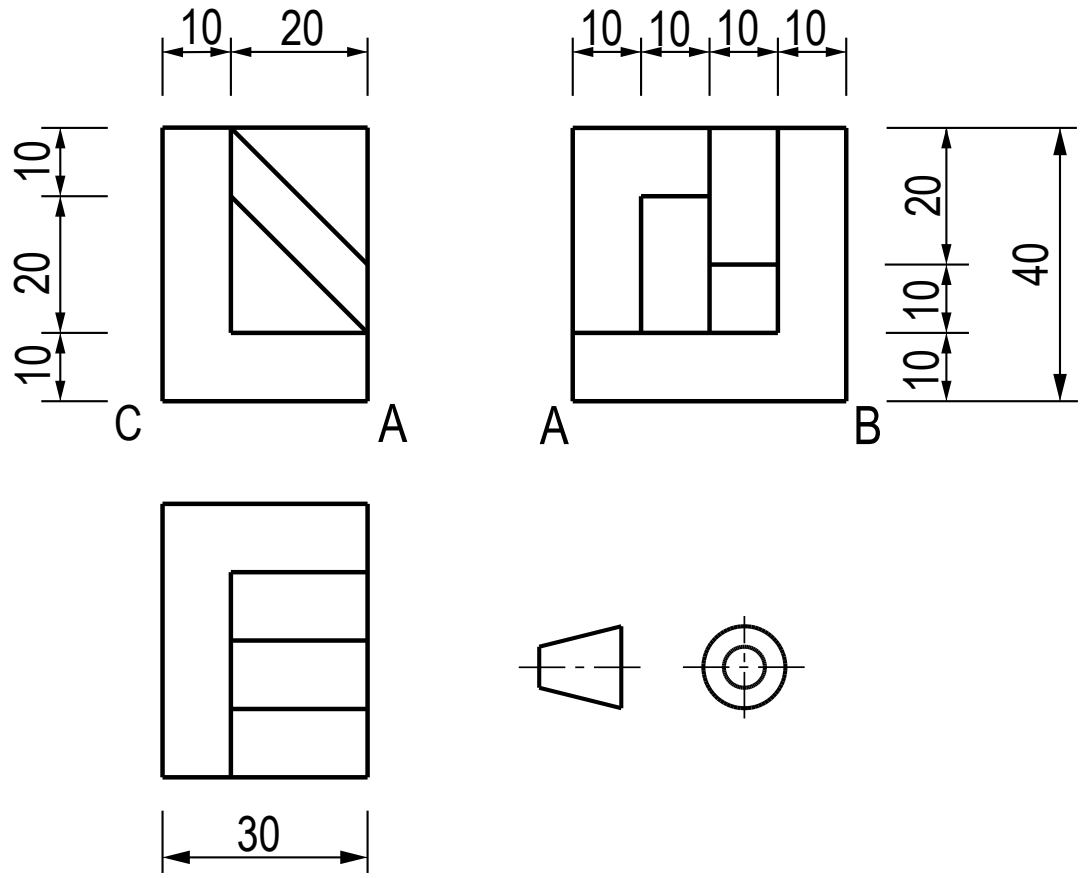


FIGURE 2

Use the raised vanishing points method to construct the model in 2-point perspective. The chamfered planes ascend at 45º on the left-hand side.

Use the following specifications:

- A-3 drawing paper, portrait orientated, and full-size scale.
- Distance of the eye in front of the picture plane (PP) is 100 mm.
- Height of the eye above the ground line (GL) is 130 mm.
- The leading edge is situated 40 mm to the right of the centre of vision (A).
- Line AC vanishes at 45º to the left.

The completed drawing must include all the abbreviated labels at each of the intersections as well as the annotation numbering.

Neatly finish off the drawing with bold 0,5 or 0,7-mm outlines. All projection lines must be 0,3 mm dark lines. Do not use thin construction lines. **[18]**

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QUESTION 4: PREPARED THREE-POINT PERSPECTIVE GRID

FIGURE 3 below shows the dimensioned orthographic and pictorial views of a stacking of blocks.

Use the supplied tracing paper on the prepared grid and draw a 3-point perspective view of the stacked blocks.

Draw to scale 2 grid units:10 mm (two grid units equal 10 mm).

Finish off the drawing with bold 0,5 or 0,7 mm outlines and 0,35 mm hidden detail lines. The construction lay-out lines (grid cross-outs) must be visible. Complete the hidden detail with dark 0,5 mm lines.

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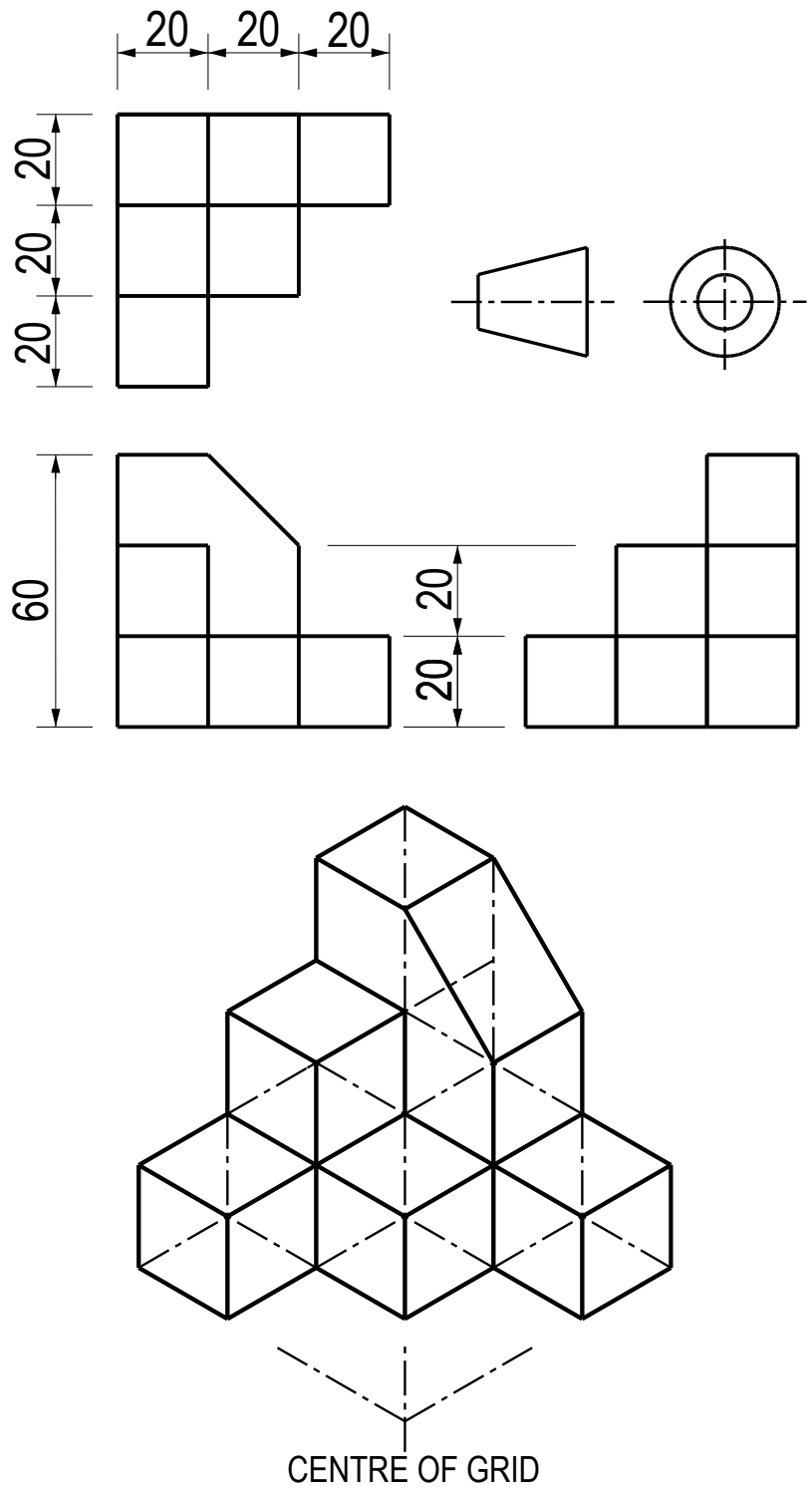


FIGURE 3: PREPARED THREE-POINT PERSPECTIVE GRID **[56]**

TOTAL: 100

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ANSWER SHEET

EXAMINATION NUMBER: | | | | | | | | | | | | | | |

Candidates may use a pencil or pen.

QUESTION 1

1.1 1.1.1

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1.1.2

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1.1.3

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(3 × 1) (3)

1.2 1.2.1

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1.2.2

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1.2.3

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(3 × 1) (3)

[6]

REMOVE THIS PAGE AND HAND IT IN WITH THE DRAWING PAPERS.

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