higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE:
MULTIDISCIPLINARY DRAWING OFFICE PRACTICE

GENERAL DRAUGHTING

(8090194)

22 April 2021 (X-paper)
09:00–13:00

REQUIREMENTS: ONE A2 drawing sheet

Nonprogrammable calculators may be used.

This question paper consists of 4 pages and 5 diagram sheets.

295Q1A2122

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
GENERAL DRAUGHTING
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. Use both sides of the drawing sheet.
5. All drawing work must comply with the SABS 0111-1990 Code of Practice.
6. Drawings, including candidate information, must be completed in pencil on the A2 drawing paper.
7. A 15 mm border must be drawn around both sides of the drawing sheet.
8. Use a 3 mm fillet radius for all radii not given.
9. Use discretion where dimensions are not given.
10. A balanced layout is important and candidates will be penalised for poor planning.
11. On completion fold the A2 sheet to A3 size with the examination number visible on the front.
12. Work neatly.

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QUESTION 1: LOCI

DIAGRAM SHEET 1 (attached) shows a circle with a diameter of 30 mm resting on a 94 mm plane.
Draw, to scale 2:1, only one rotation of point P. Show all construction lines. **[15]**

QUESTION 2: ORTHOGRAPHIC PROJECTION

DIAGRAM SHEET 2 (attached) shows the front view and an auxiliary view of a truncated right regular square prism. A hole with a 22 mm diameter penetrates both the truncated cylinder and the truncated square prism.

Draw, to scale 1:1 and according to first-angle orthographic projection, each of the following views:

- Given front view (9)
- Left view (8)
- Top view (8)

Show hidden details. **[25]**

QUESTION 3: GEOMETRIC CONSTRUCTION

DIAGRAM SHEET 3 (attached) shows a front view of a cover plate.

Draw the cover plate to scale 1:1 and insert any 5 dimensions.

Print the following title and scale centrally beneath the view:

COVER PLATE
SCALE 1:1 **[25]**

QUESTION 4: DEVELOPMENT

DIAGRAM SHEET 4 (attached) shows a truncated right pyramid which is cut at the opposite ends.

Draw the given views to scale 1:1, and develop the surface of the pyramid starting from XX. **[20]**

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QUESTION 5: INTERPENETRATION

DIAGRAM SHEET 5 (attached) shows two views of a circular pipe and an equilateral triangular pipe without interpenetration lines drawn in first-angle orthographic projection.

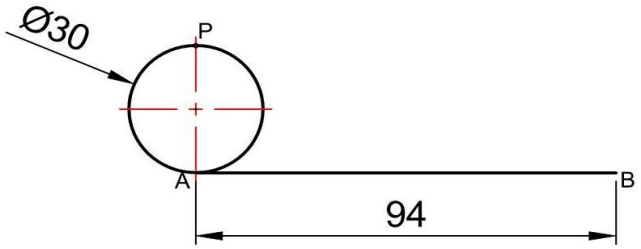
Redraw the given views in first-angle orthographic projection using scale 1:1 and show the following:

- Interpenetration curve on front view
- All construction lines projecting the required curve **[15]**

TOTAL: 100

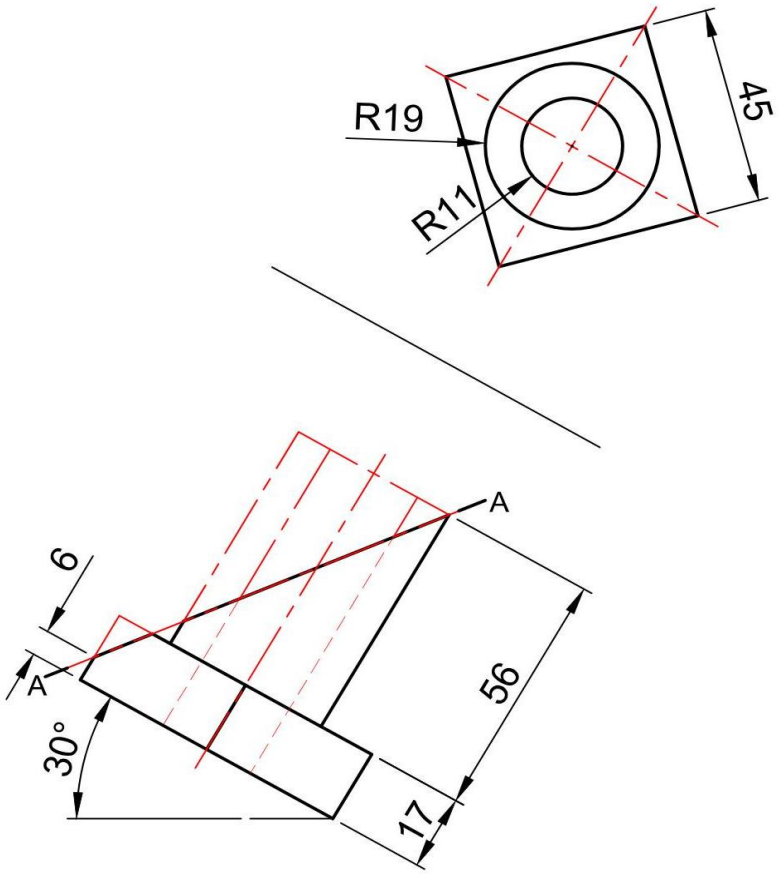
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DIAGRAM SHEET 1



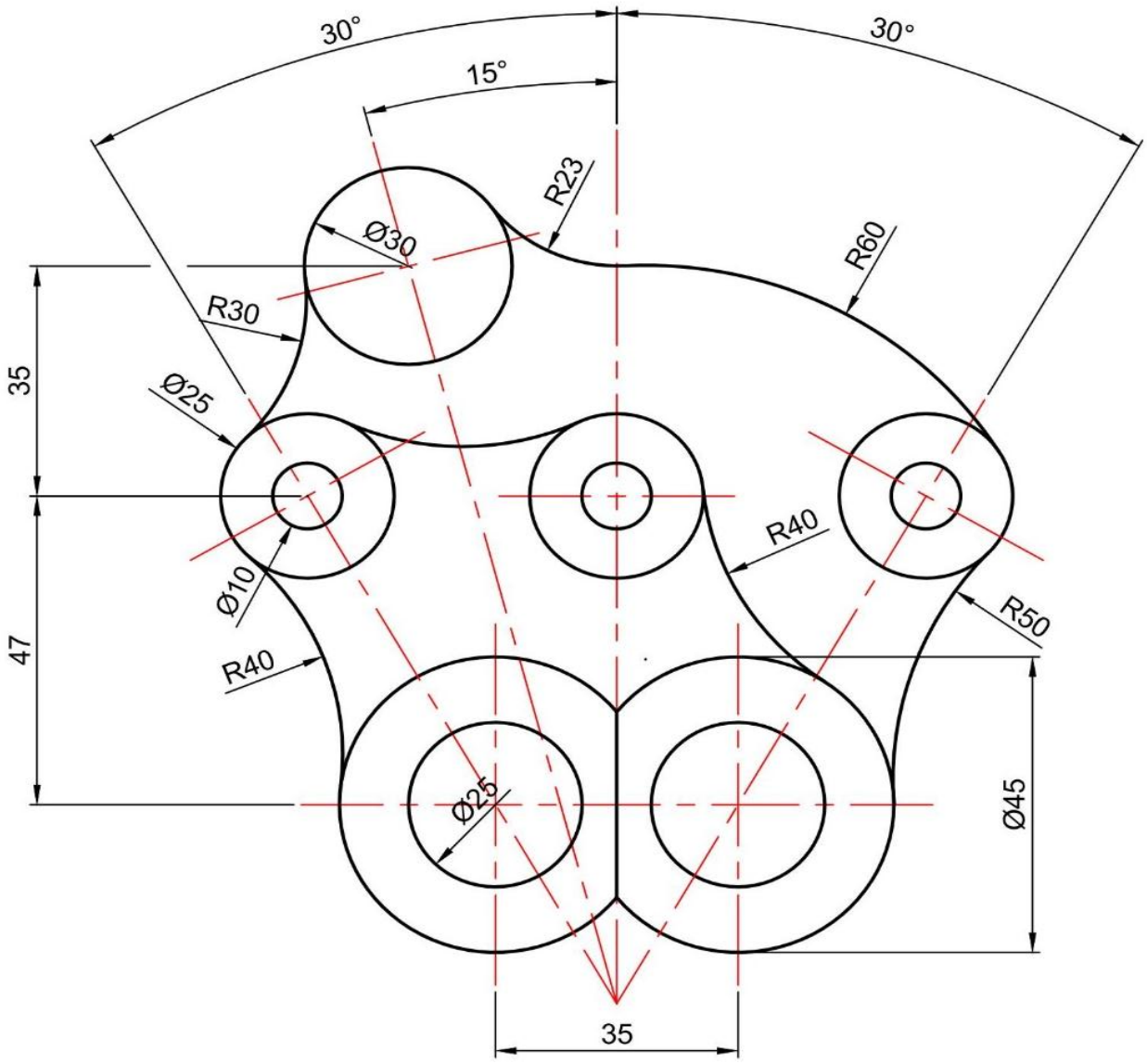
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DIAGRAM SHEET 2



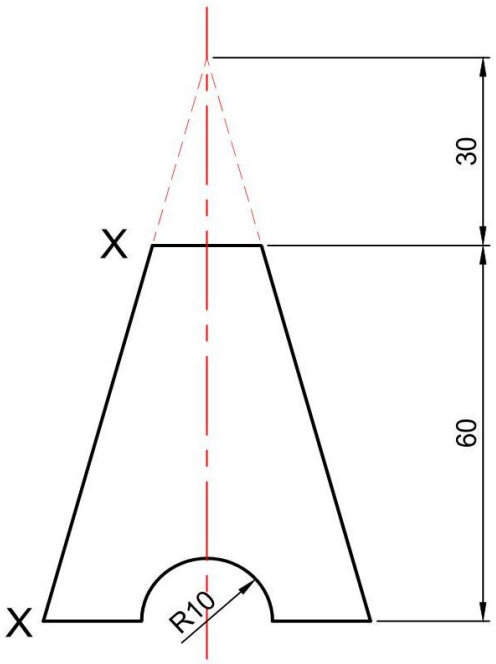
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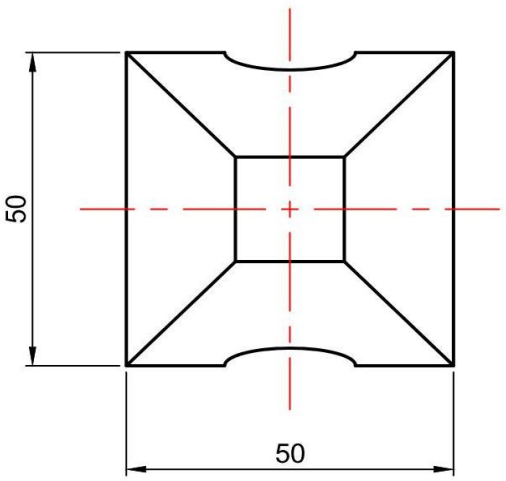
DIAGRAM SHEET 3



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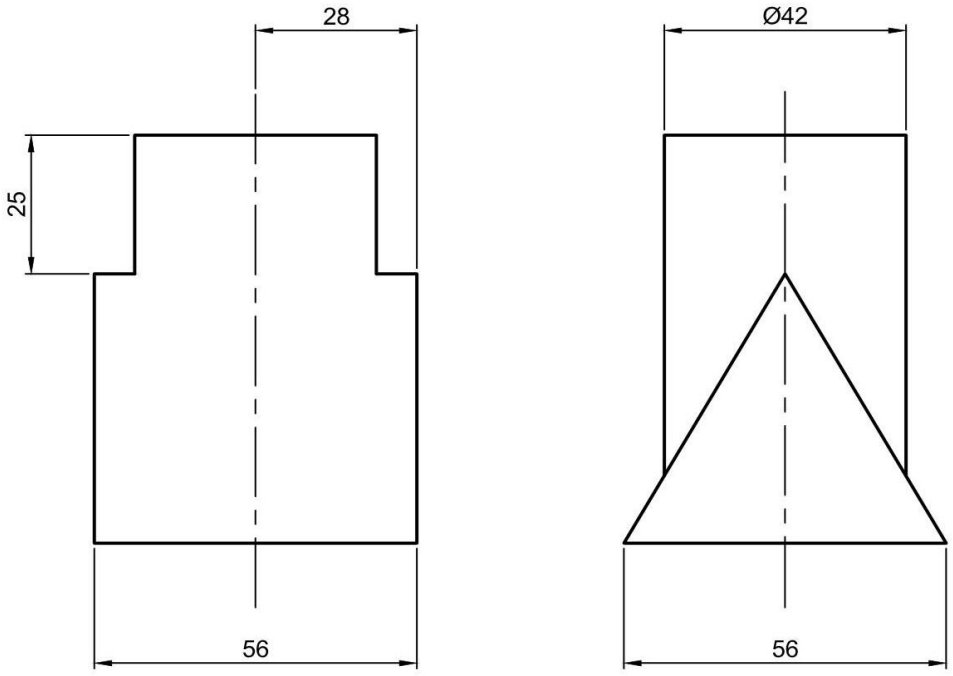
DIAGRAM SHEET 4





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DIAGRAM SHEET 5



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