

2010/11529



# higher education & training

Department:  
Higher Education and Training  
**REPUBLIC OF SOUTH AFRICA**

T661(E)(N17)T  
**NOVEMBER 2010**

NATIONAL CERTIFICATE

**ENGINEERING DRAWING N1**

(8090261)

**17 November (X-Paper)**  
**09:00 – 13:00**

**REQUIREMENTS: A2 Drawing paper**

**Candidates will require drawing instruments.**

**Calculators may be used.**

**This question paper consists of 9 pages.**



**DEPARTMENT OF HIGHER EDUCATION AND TRAINING**  
**REPUBLIC OF SOUTH AFRICA**  
NATIONAL CERTIFICATE  
ENGINEERING DRAWING N1  
TIME: 4 HOURS  
MARKS: 100

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**INSTRUCTIONS AND INFORMATION**

1. Answer ALL the questions.
  2. Read ALL the questions carefully.
  3. Number the answers correctly according to the numbering system used in this question paper.
  4. A balanced layout is very important.
  5. Use BOTH sides of the A2 drawing paper.
  6. A 15 mm BORDER must be drawn around the drawing paper (BOTH sides).
  7. ALL drawing work, including the candidate's information, must be completed in PENCIL.
  8. Marks are allocated for a balanced layout and neatness.
  9. Write neatly and legibly.
- 

PTO

**QUESTION 1: FIRST-ANGLE ORTHOGRAPHIC PROJECTION**

FIGURE 1 below shows an isometric view of a machine component.

DO NOT draw the given view, but draw to scale 1:1 and in first-angle orthographic projection, the following:

- 1.1 A front view as seen from arrow F
- 1.2 A top view
- 1.3 A left view

Show ALL hidden details in the THREE views.

Show the projection system symbol.

DO NOT insert any dimensions.

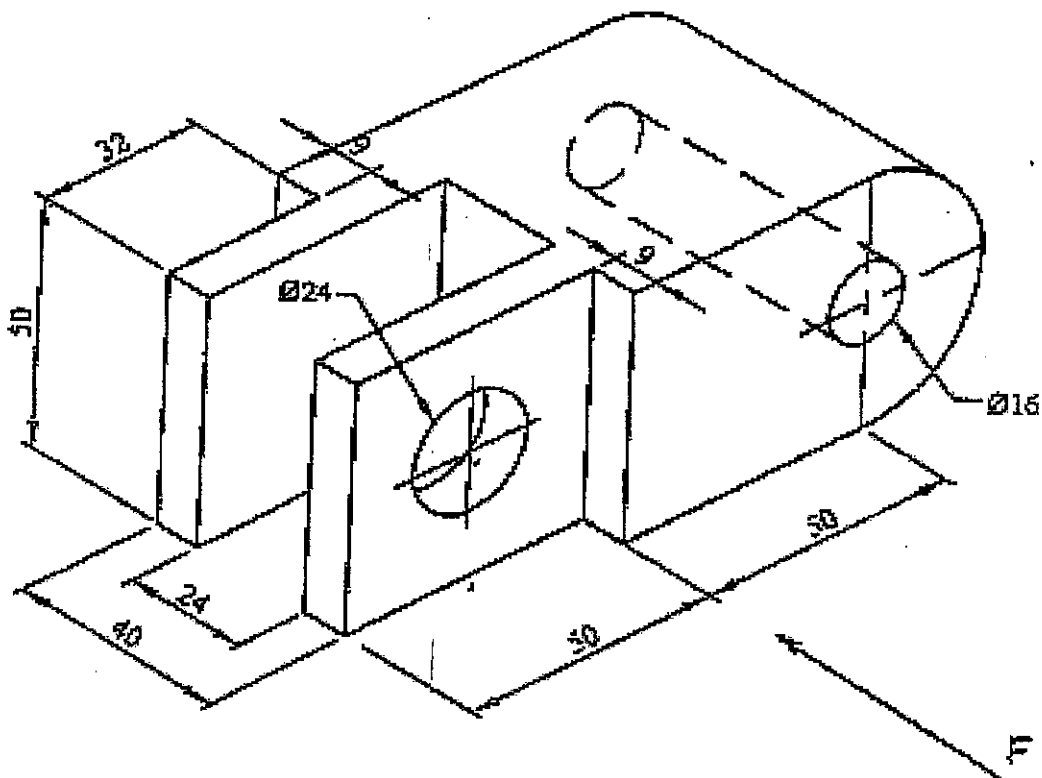


FIGURE 1

[18]

PTO

**QUESTION 2: COMPUTER EQUIPMENT AND ABBREVIATIONS**

- 2.1 Draw the answer block as shown in FIGURE 2 below, full size on the drawing sheet.
- 2.2 Print the abbreviations of the following in the answer block on the drawing sheet:
- 2.2.1 Disc Operating Systems
  - 2.2.2 Computer-Aided Draughting
  - 2.2.3 Read Only Memory
  - 2.2.4 Random Access Memory
  - 2.2.5 Microsoft
  - 2.2.6 Central Processing Unit

2.2.1	
2.2.2	
2.2.3	
2.2.4	
2.2.5	
2.2.6	

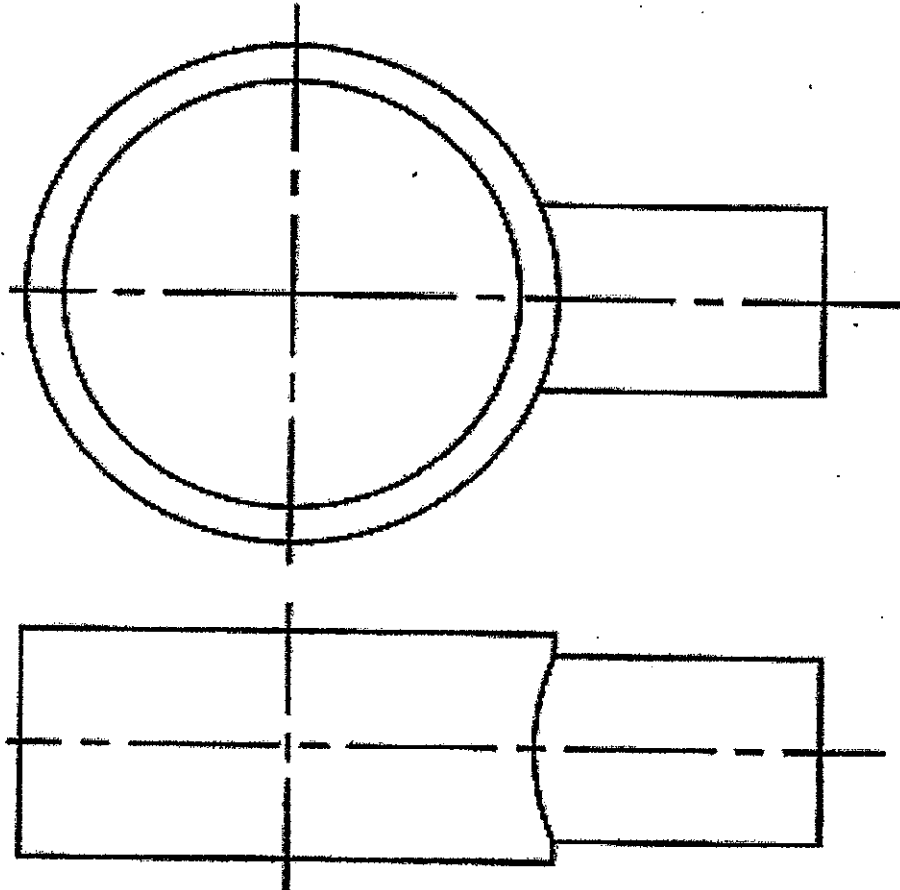
**FIGURE 2****[6]**

PTO

**QUESTION 3: FREEHAND DRAWINGS**

FIGURE 3 below shows two views of a pipe connection.

Use only a pencil and an eraser and draw the TWO views of the pipe connection, freehand, in good proportion, approximately 1,5 times the given size.



**FIGURE 3**

**[10]**

PTO

**QUESTION 4: SECTIONAL DRAWING**

FIGURE 4 below shows TWO views in first-angle orthographic projection of a work piece.

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

- 4.1 A full-sectional front view on cutting plane F-F
- 4.2 A full-sectional top view on cutting plane P-P
- 4.3 An outside left view

NO dimensions or hidden details are required.

PRINT the title and scale CENTRALLY BELOW the layout.

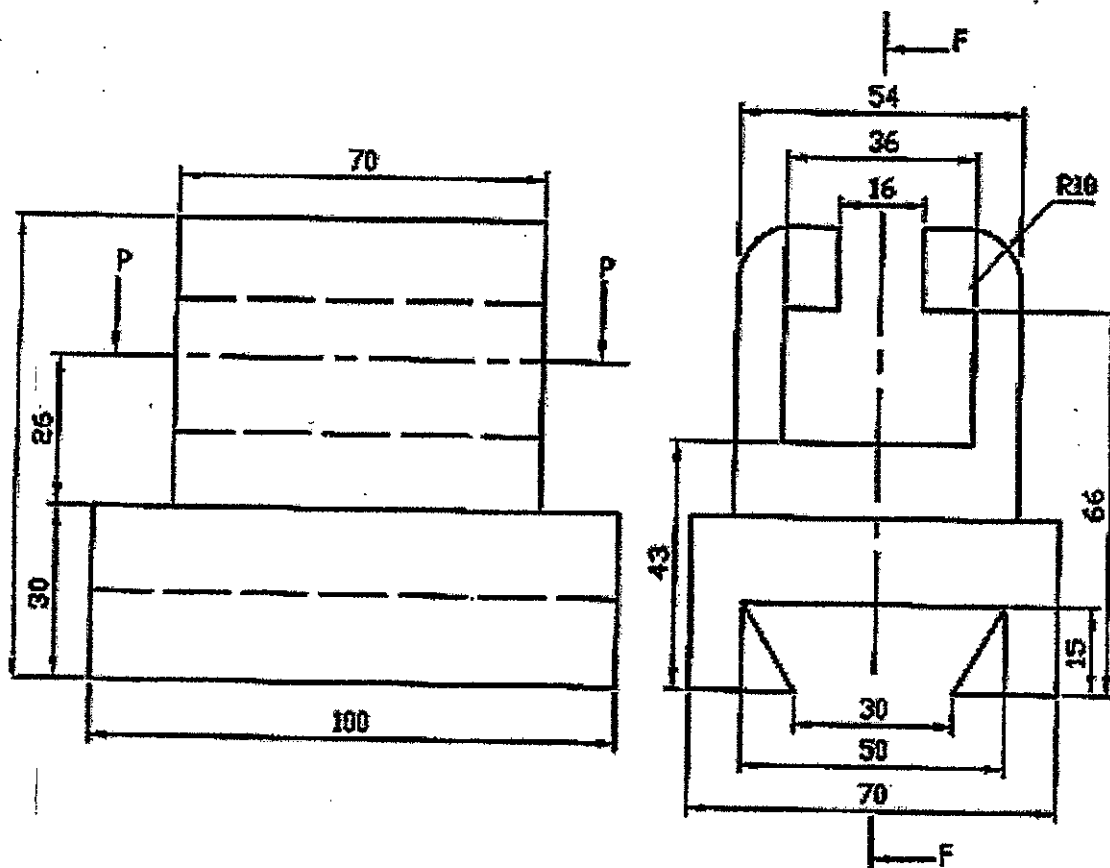


FIGURE 4

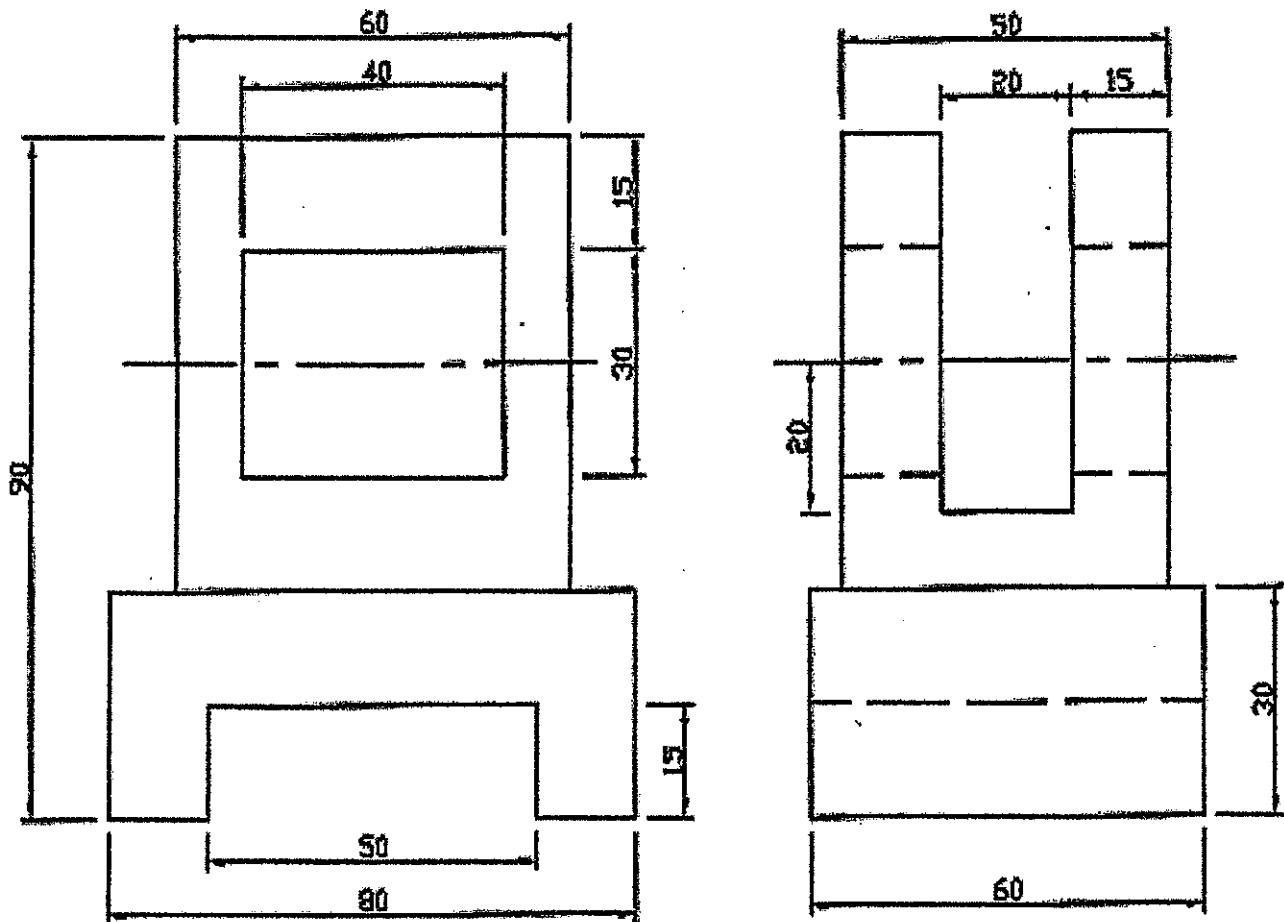
[18]

PTO

**QUESTION 5: ISOMETRIC DRAWING**

FIGURE 5 below shows two views of a work piece in first-angle orthographic projection.

DO NOT draw the given views, but make, to scale 1:1, an isometric drawing of the work piece. The given views must be visible in the answer. NO hidden detail is required.

**FIGURE 5****[15]**

PTO



**QUESTION 6: PYRAMID INCLINED TO THE HORIZONTAL PLANE**

FIGURE 6 below shows a front and an auxiliary view of a square pyramid.

Draw, to scale 1:1 and in first-angle orthographic projection, the following:

- 6.1 The given views of the pyramid
- 6.2 The top view as seen in the direction of arrow T
- 6.3 A left view as seen in the direction of arrow S

Show ALL hidden detail.

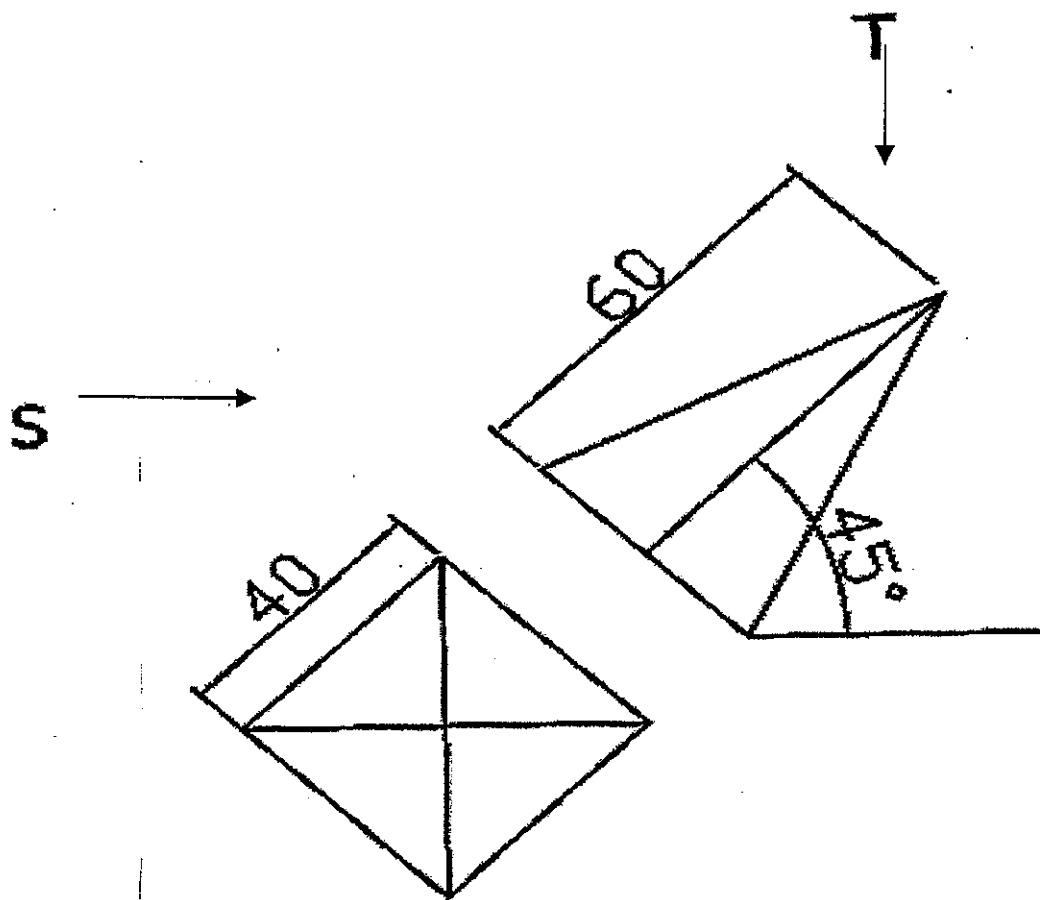


FIGURE 6

[13]

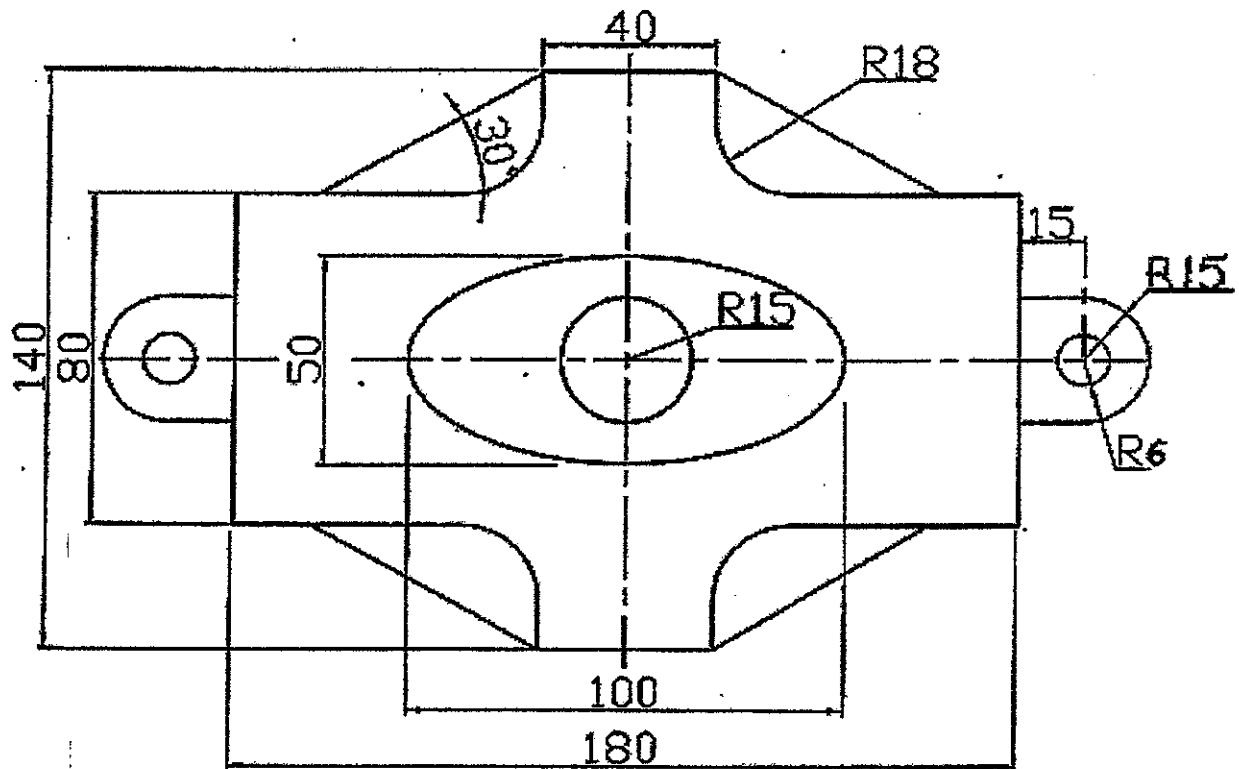
PTO

**QUESTION 7: REPRODUCTION DRAWINGS AND GEOMETRICAL CONSTRUCTION**

- 7.1 Use scale 1:1 to draw the view of the pump cover shown in FIGURE 7 below.
- 7.2 Print the following title and scale CENTRALLY BELOW the view:

PUMP COVER  
SCALE 1:1

- 7.3 Insert any FOUR dimensions.
- 7.4 Show ALL the construction lines for the construction of the ellipse.

**FIGURE 7****[10]**

Balanced layout and neatness of the completed ANSWER SHEET.

**[10]****TOTAL: 100**



