higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE: MULTIDISCIPLINARY DRAWING OFFICE PRACTICE

COMPUTER-AIDED DRAUGHTING

(6010035)

29 November 2022 (X-paper)
09:00–12:00

CLOSED-BOOK EXAMINATION

REQUIREMENTS: **A4 drawing sheets**
Cover folder BOE 8/15
Hot rolled structural steel sections BOE8/2

This question paper consists of 5 pages, 5 diagram sheets and 1 answer sheet.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE: MULTIDISCIPLINARY DRAWING OFFICE PRACTICE
COMPUTER-AIDED DRAUGHTING
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Answer QUESTION 5 on the attached ANSWER SHEET.
3. All the other questions must be answered on A4 drawing sheets. DO NOT use A-3 drawing sheets.
4. Only use ONE side of the drawing sheet to plot or print the answers.
5. Each drawing must be plotted or printed on a separate DRAWING SHEET.
6. The QUESTION NUMBER must appear at the top LEFT-HAND corner of EACH sheet.
7. All candidate information must be printed or plotted in the title block.
8. Provide each drawing sheet with a border line.
9. All drawings must be drawn to the given scale.
10. Use your own discretion where dimensions are not given.
11. Candidates must plot or print their own drawings.
12. A balanced layout must be maintained. Candidates must plan well in order to earn marks.
13. Insert all the loose DRAWING SHEETS and the ANSWER SHEET in the cover folder BOE8/15. DO NOT staple the sheets.
14. Write neatly and legibly.

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QUESTION 1: BUILDING DRAUGHTING

FIGURE 1, DIAGRAM SHEET 1 (attached) shows a dimensioned plan view of the external walls for a typical house, together with the ridge lines and overhang of the roof.

FIGURE 2, DIAGRAM SHEET 2 (attached) shows a sectional view through A–A and the North view of the house.

Use an A4 drawing sheet in landscape orientation to draw the following TWO views:

1.1 The given sectional view of the dwelling to scale 1:50 on A–A.

1.2 The given North view of the dwelling to scale 1:100.
Use the window sizes given in FIGURE 1, DIAGRAM SHEET 1 (attached).

Use the following additional dimensions:

Eave overhang:	350 mm
Gable overhang:	200 mm
Finish floor level to ground level:	250 mm
Ground level to bottom of foundation:	700 mm
Finish floor level to top of window:	2 100 mm

Both views must be neatly finished off with all dimensions and labels.
The completed drawing must be fully dimensioned and labelled.

Use own discretion where dimensions are not given. **[30]**

QUESTION 2: ELECTRICAL DRAUGHTING

On A4 drawing sheet in landscape orientation, draw a large, neat and well-balanced drawing of the low voltage transformer shown in FIGURE 3 DIAGRAM SHEET 3 (attached). **[10]**

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QUESTION 3: STRUCTURAL STEEL DETAILING

FIGURE 4 shows the front view of a structural steel frame used for a large food warehouse.

FIGURE 5, DIAGRAM SHEET 4 (attached) shows the fixing detail for the connection at T. The rolled steel angles at A, B and C must be 80 × 80 × 8. The steel angle at D must be 100 × 100 × 8.

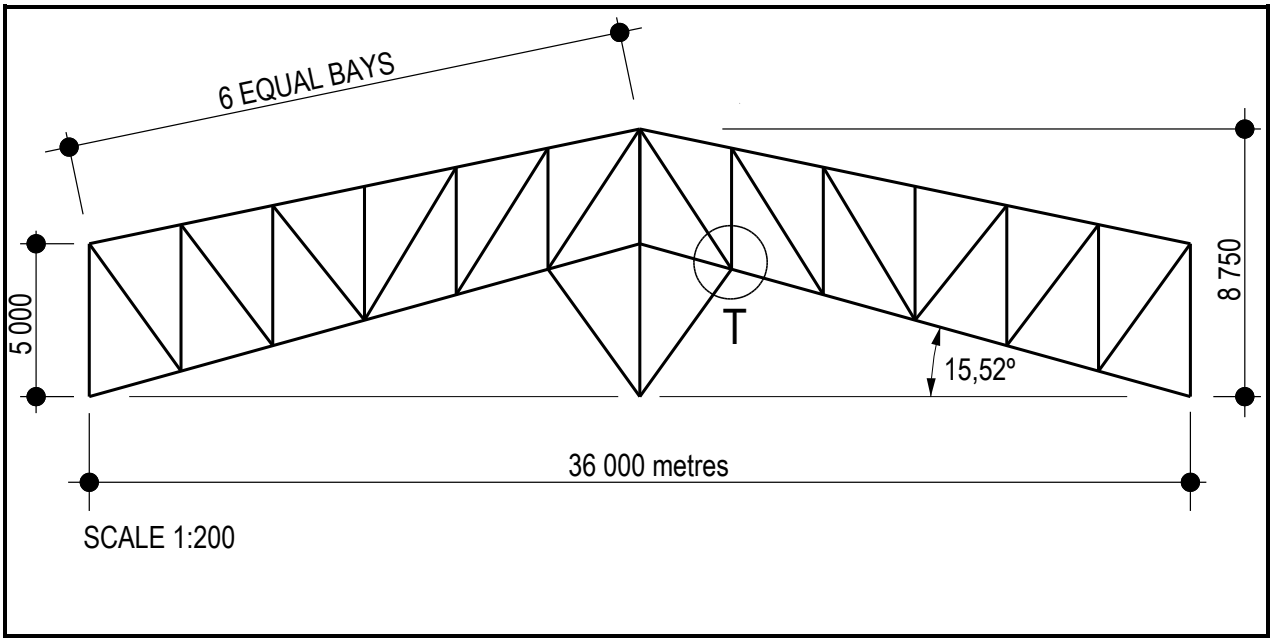


FIGURE 4

Draw the following:

3.1 Use scale 1:200 to draw the given front view of the frame. DO NOT include any dimensions or labels. (3)

3.2 Use scale 1:5 to draw the given detail for the joint at **T** as shown in FIGURE 5 DIAGRAM SHEET 4 (attached).
The edge distances of the bolt holes must be 35 mm. All the holes must be equally spaced. The completed detail must include all dimensions, labels, sectioning and positions of the bolt holes. (17)

Print each drawing on a separate A4 drawing sheet in portrait orientation.

HINT: Use the angles obtained from the front view to draw the detail at T.
It is important to maintain accuracy.

[20]

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QUESTION 4: MECHANICAL DRAUGHTING

FIGURE 6, DIAGRAM SHEET 5 (attached) shows the TWO main parts of a mechanical vice that consists of the following:

4.1 The base, made of cast iron and drawn in third-angle orthographic projection.

4.2 The front view of the screw with a cut-away to show the 5 mm square pitch.

Draw the given views in full size and print the completed drawings on ONE A4 drawing sheet in portrait orientation.

Add FIVE different types of dimensions.

NOTE: Before printing, re-size the drawing to fit on the A4 drawing sheet. **[30]**

QUESTION 5: COMPUTER ORIENTATION

Answers the following questions on the ANSWER SHEET (attached). Write your examination number in the space provided at the top of the sheet.

5.1 Briefly explain the following terms with regard to computer information technology:

5.1.1 Data

5.1.2 Fibre optics

5.1.3 Bug

(3 × 1) (3)

5.2 Write the following acronyms in full:

5.2.1 LED

5.2.2 PDF

5.2.3 SMART

(3 × 1) (3)

5.3 A message on your computer monitor indicates that the computer will be running in safe mode. Explain the meaning of this message. (2)

5.4 Explain what it means to work via *remote access control*. (2)

[10]

TOTAL: 100

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DIAGRAM SHEET 1

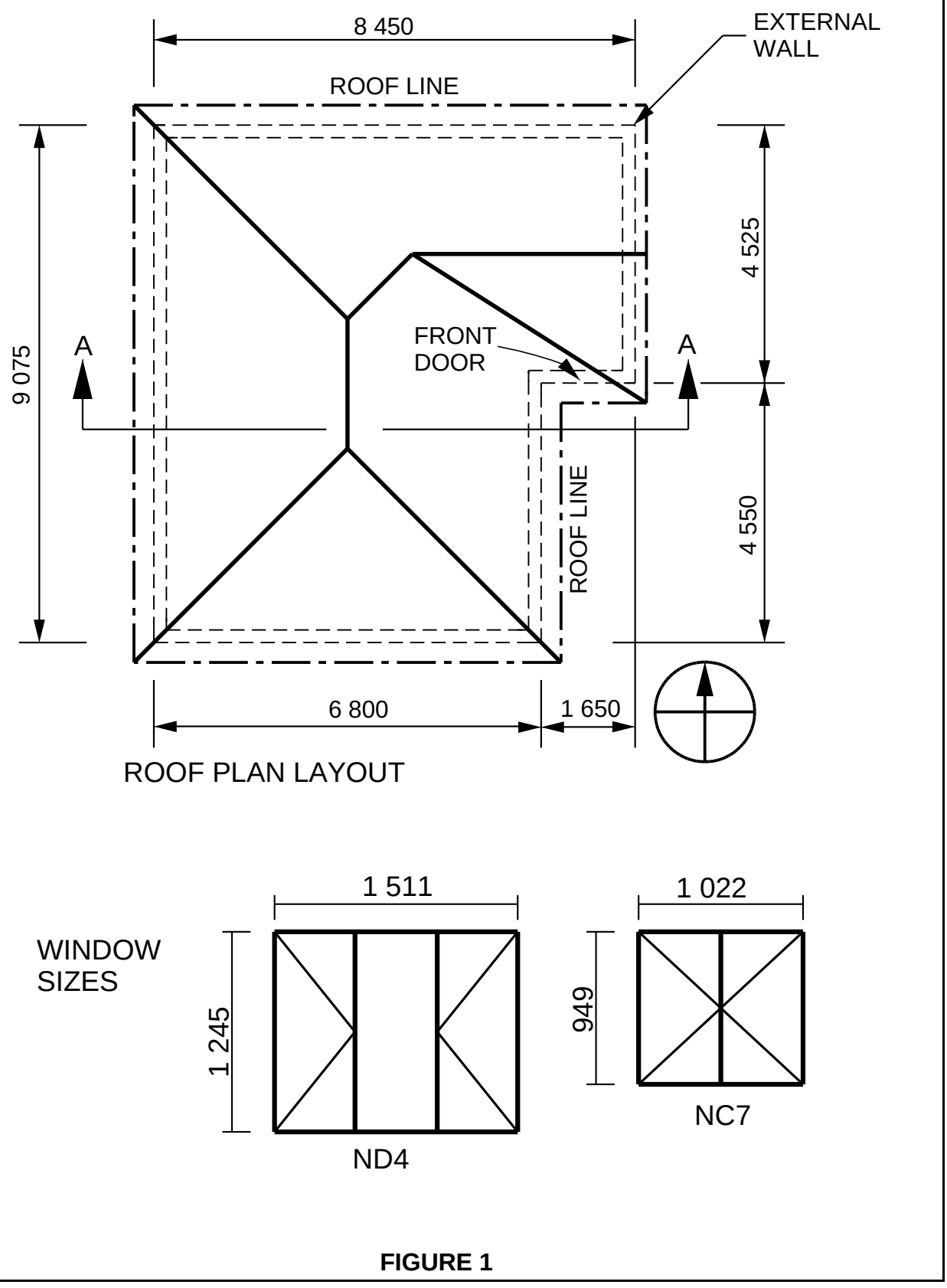
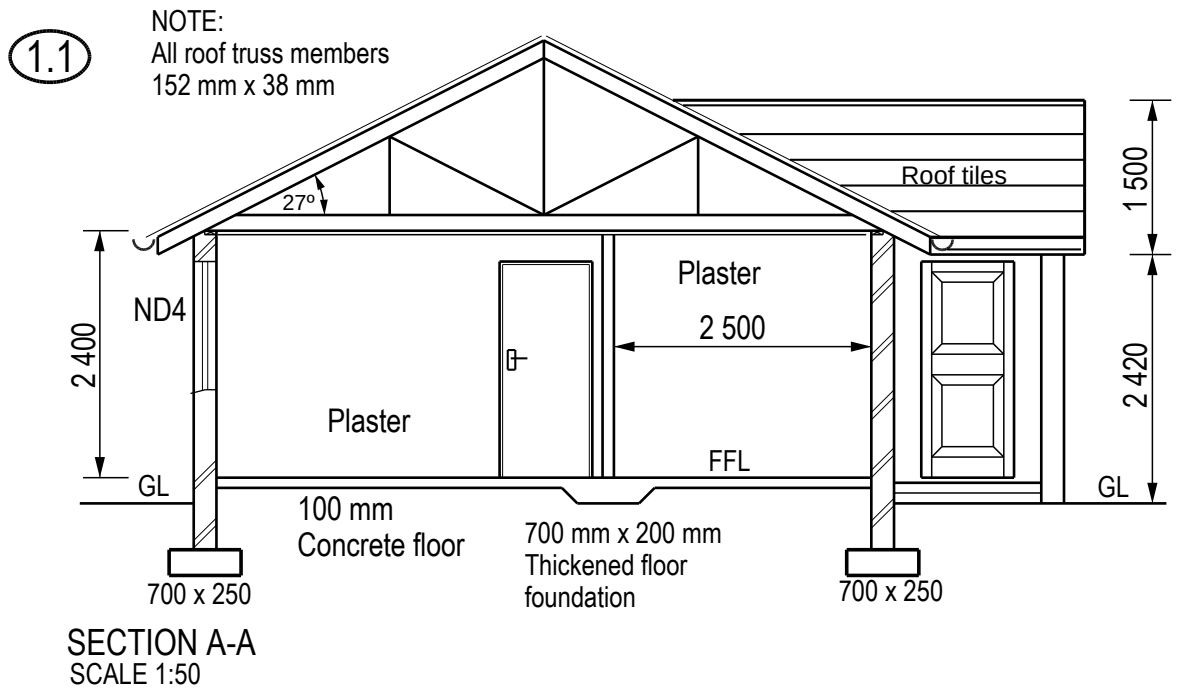


FIGURE 1

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DIAGRAM SHEET 2

QUESTION 1



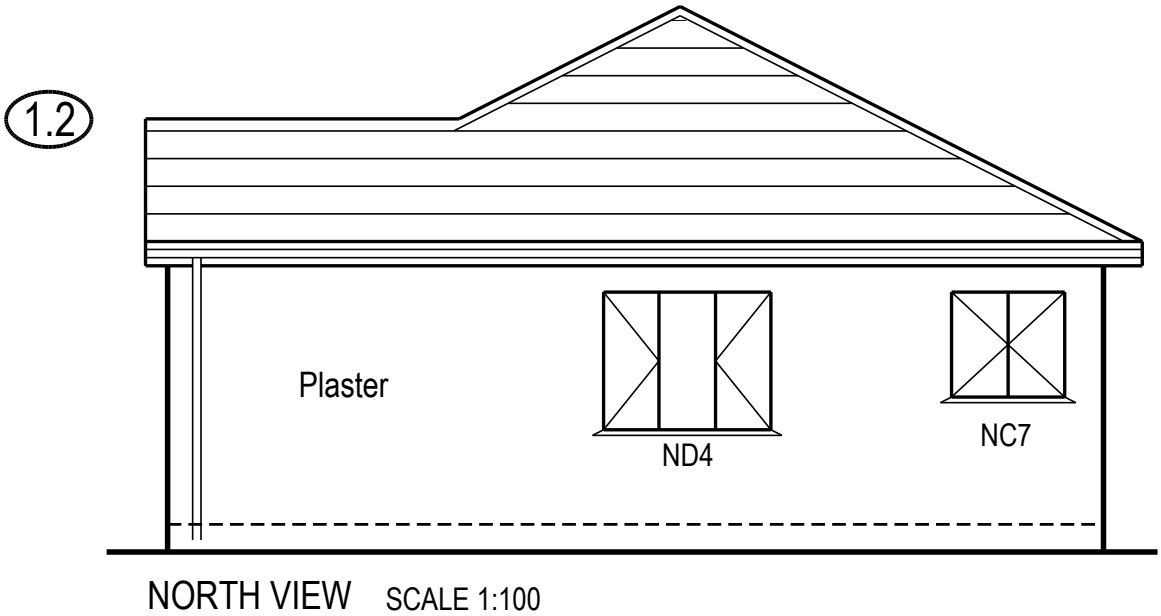


FIGURE 2

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DIAGRAM SHEET 3

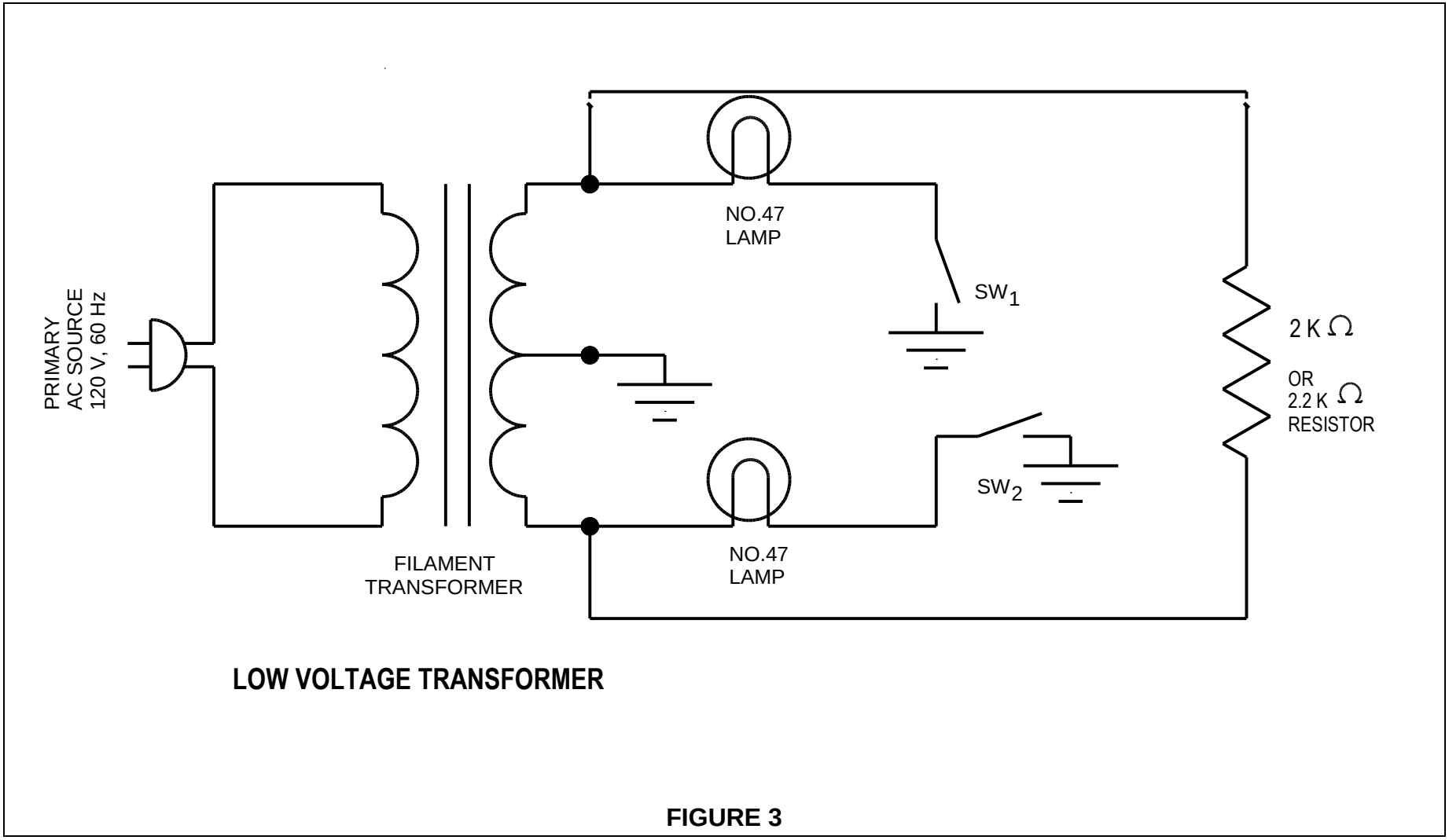
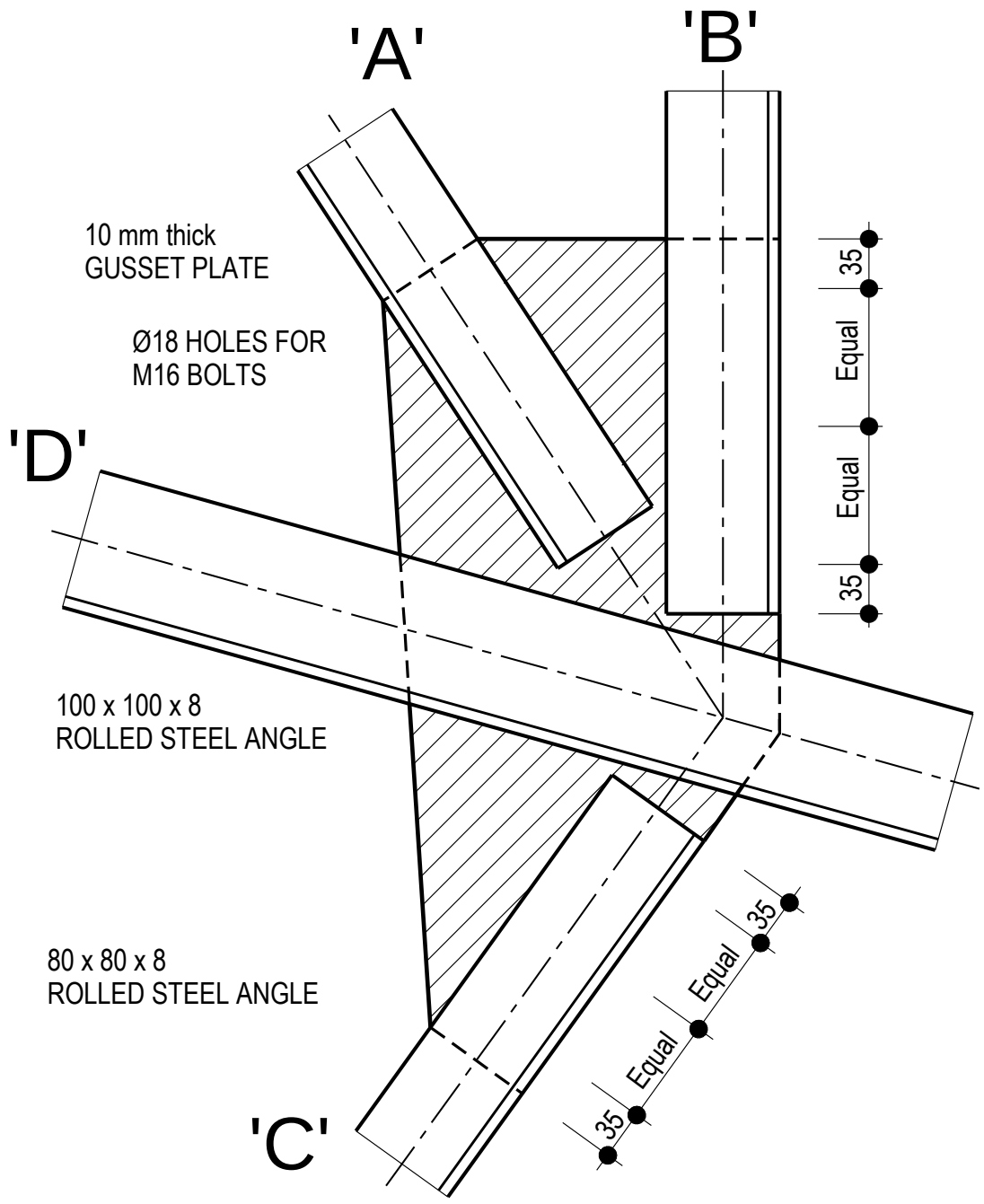


FIGURE 3

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DIAGRAM SHEET 4

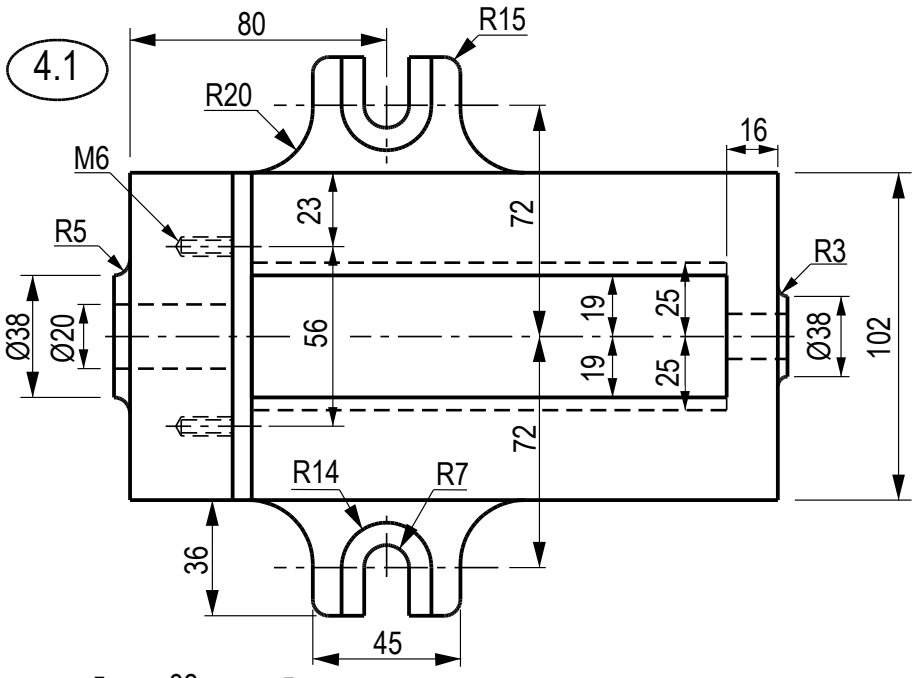


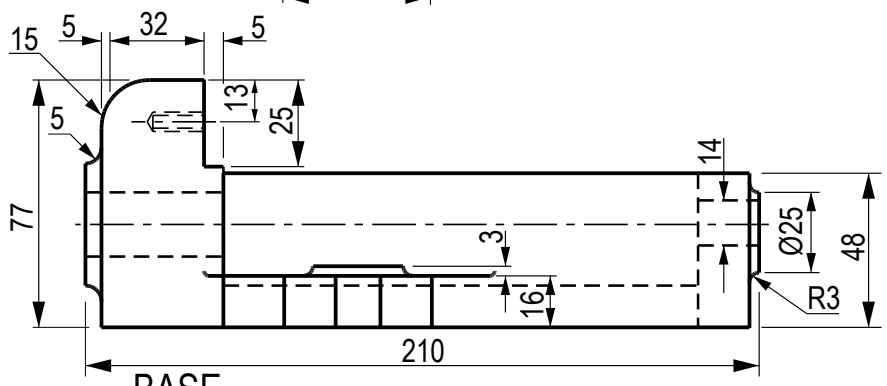
DETAIL OF JOINT AT 'T'
SCALE 1:5

FIGURE 5

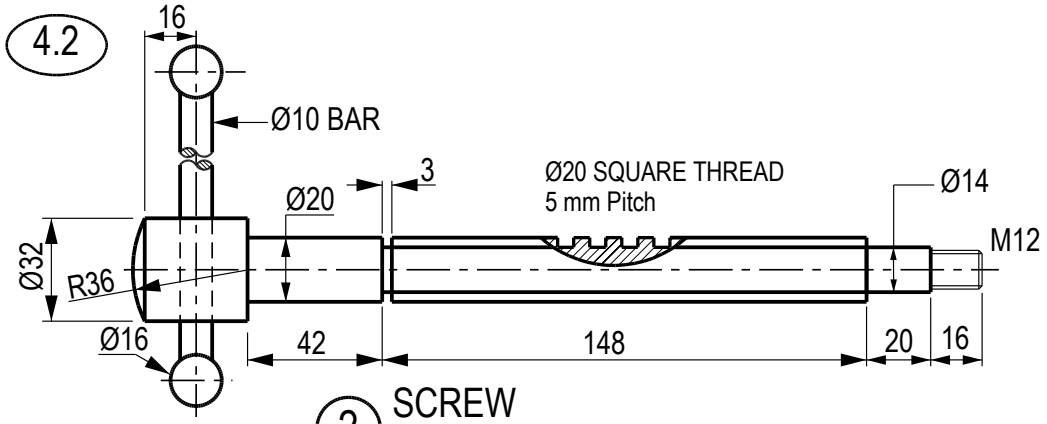
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DIAGRAM SHEET 5





1 BASE
(CAST STEEL - 1 REQUIRED)



2 SCREW
(MS - 1 REQUIRED)

FIGURE 6

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QUESTION 5: COMPUTER ORIENTATION

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

Candidates may use a pencil or pen.

QUESTION 5

5.1 5.1.1 _____

_____

5.1.2 _____

_____

5.1.3 _____

_____

(3 × 1) (3)

5.2 5.2.1 _____

5.2 5.2.1 _____

5.2 5.2.1 _____

(3 × 1) (3)

5.3 _____

_____ (2)

5.4 _____

_____ (2)

[10]

TOTAL: 100

Question 1 … /30

Question 2 … /10

Question 3 … /20

Question 4 … /30

Question 5 … /10

TOTAL … /100 … %

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