higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T420**(E)**(A11)T

NATIONAL CERTIFICATE

COMPUTER-AIDED DRAUGHTING

(6010035)

11 April 2019 (X-Paper)
09:00–12:00

CLOSED-BOOK EXAMINATION

REQUIREMENTS: **A4 drawing sheets**
Cover folder BOE 8/15

This question paper consists of 4 pages, 3 diagram sheets and 1 answer sheet.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
COMPUTER-AIDED DRAUGHTING
TIME: 3 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 only QUESTION 1 on the attached ANSWER SHEET.
5. Answer ALL other questions on A4 DRAWING SHEETS. Do NOT use A3 DRAWING SHEETS.
6. Use only ONE side of the DRAWING SHEETS to plot or print the answers.
7. Plot or print each drawing on a separate DRAWING SHEET.
8. The QUESTION NUMBER must appear at the top left corner of each DRAWING SHEET.
9. Plot ALL candidate information in the title block.
10. Provide each DRAWING SHEET with a border line.
11. Draw ALL drawings to the given scale.
12. Use your discretion where dimensions are NOT given.
13. Candidates must plot or print their own drawings.
14. Maintain a balanced layout. Candidates must plan well to earn marks.
15. Insert ALL loose DRAWING SHEETS and the ANSWER SHEET in the cover folder BOE 8/15. Do NOT staple the pages.
16. Work neatly.

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QUESTION 1: COMPUTER ORIENTATION

1.1 Answer the following questions on the ANSWER SHEET (attached). Write your EXAMINATION NUMBER in the space provided at the top of the ANSWER SHEET.

1.1.1 Name TWO peripherals that can be used to control a cursor. (2)

1.1.2 Which high-speed, good-quality printer uses a beam of light to produce a print? (1)

1.1.3 Which memory in the central processing unit is preprogrammed by the manufacturer? Write the answer in full – do NOT abbreviate. (1)

1.1.4 Explain the purpose of the *root directory*. (1)

1.2 Give ONE term for each of the following descriptions by choosing a term from the list below. Write only the term next to the question number (1.2.1–1.2.5) in the ANSWER BOOK.

Ethernet; server; malware; landscape; CMOS

1.2.1 Protocol for fast communication and file transfer across a network

1.2.2 General term for any malicious software such as a virus or Trojan

1.2.3 Type of computer chip which is able to operate with a very small amount of electricity from a battery

1.2.4 Printing sideways on a page

1.2.5 A central computer dedicated to sending and receiving data from other computers on a network

(5 × 1) (5)

[10]

QUESTION 2: BUILDING DRAUGHTING

FIGURE 1, DIAGRAM SHEET 1 (attached), shows an existing double garage that was renovated to be a flatlet to accommodate a single person.

Draw, to scale 1:50, the following TWO views on TWO A4 DRAWING SHEETS:

2.1 The given floor plan – insert windows using the window schedule on DIAGRAM SHEET 3 (attached)

2.2 The given sectional view at A-A

The completed drawing must include ALL dimensions, labels, descriptive notes and titles. **[30]**

QUESTION 3: ELECTRICAL DRAUGHTING

FIGURE 2, DIAGRAM SHEET 2, shows a schematic diagram of a touch-sensitive switch.

Draw, in good proportion, a large, neat, labelled schematic diagram of the touch-sensitive switch. Place ALL symbols in the correct positions. Insert ALL labels. **[10]**

QUESTION 4: GENERAL AND MECHANICAL DRAUGHTING

FIGURE 3, DIAGRAM SHEET 2 (attached), shows the side view of a piston and crank typically used in most types of engines. The bottom part of the crank is in the form of a half-ellipse tilted at an angle. The piston is tilted at an angle of 30° to the left.

Draw, to scale 1:1, a neat, well-balanced drawing of the given view on an A4 DRAWING SHEET. Add any SIX types of dimensions. ALL centre lines and the hatching (sectioning) must be inserted on the drawing. **[30]**

QUESTION 5: STRUCTURAL STEEL DETAILING

FIGURE 4, DIAGRAM SHEET 3 (attached), shows a line diagram of an inverted cantilever steel roof truss as well as an enlarged view of the joint at P.

5.1 Draw, to scale 1:100, the given line diagram on a landscape-oriented A4 DRAWING SHEET. (3)

5.2 Draw, to scale 1:5, a complete detail at P using the following specifications:

- Parts A and B: 125 × 75 × 10 unequal-leg angles
- Parts C and D: 80 × 80 × 10 equal-leg angles
- Part A has FOUR equally spaced holes
- Part B has THREE equally spaced holes.
- Parts C and D have TWO equally spaced holes.
- The diameters of the holes must be 22 mm for M20 bolts.
- The edge distances must be 35 mm.
- The pitch distances of ALL the holes are 100 mm.
- ALL angles are held together by a 10 mm-thick gusset plate.

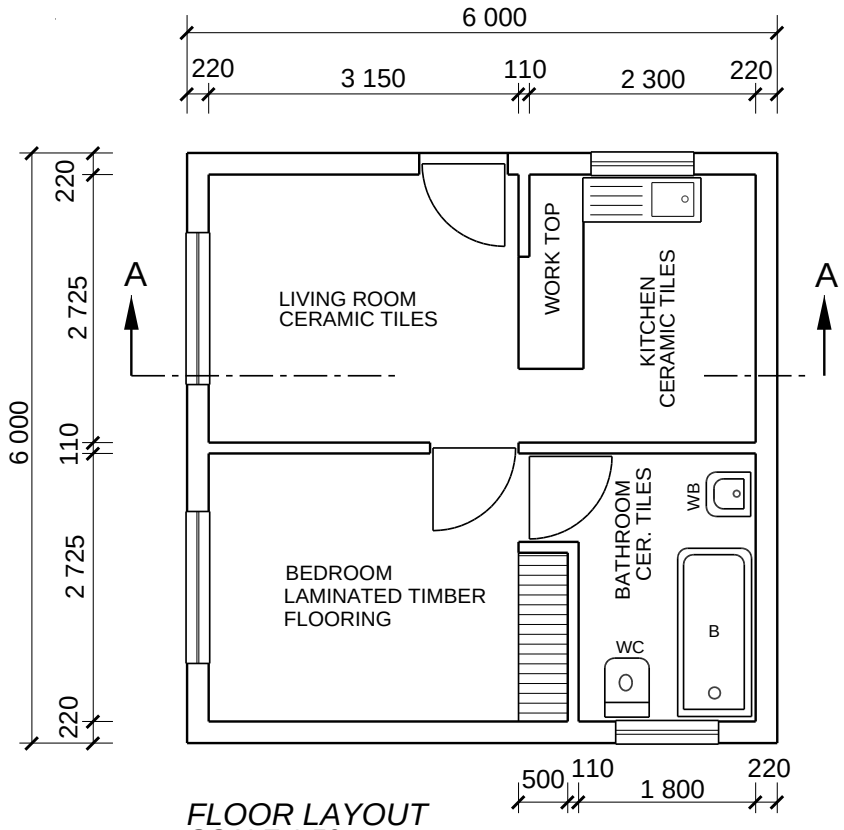
The completed detail must clearly indicate the positions of the angles and the holes. Do NOT show any bolts. The finished drawing must include ALL labels and centre lines. Indicate the gusset plate by means of sectioning lines.

HINT: Copy the lines from the front view to complete the detail. (17)
[20]

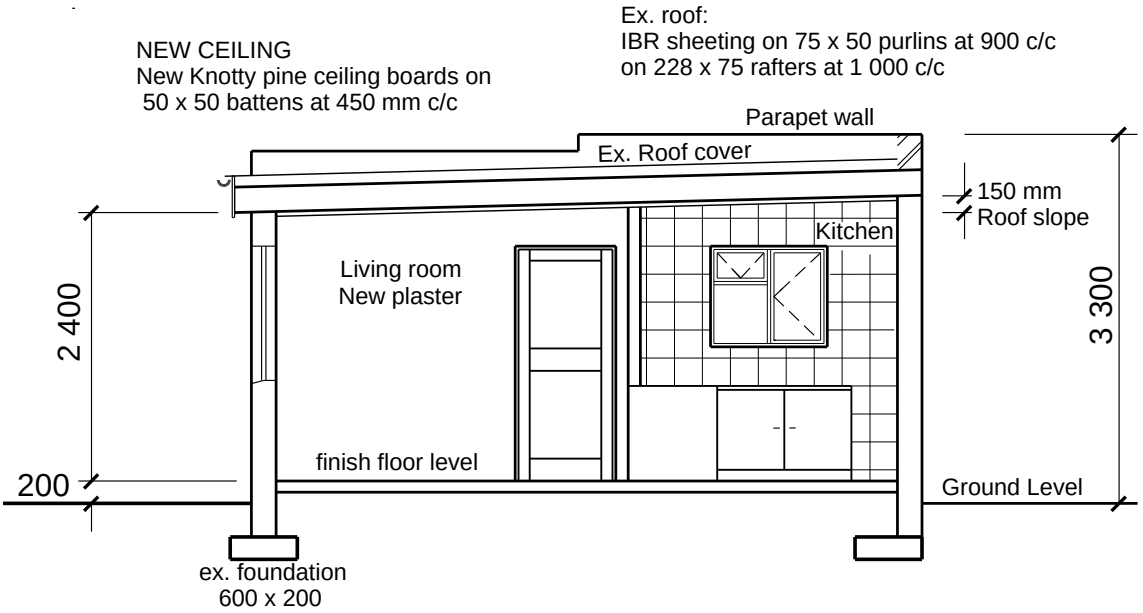
TOTAL: 100

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DIAGRAM SHEET 1



FLOOR LAYOUT
SCALE 1:50

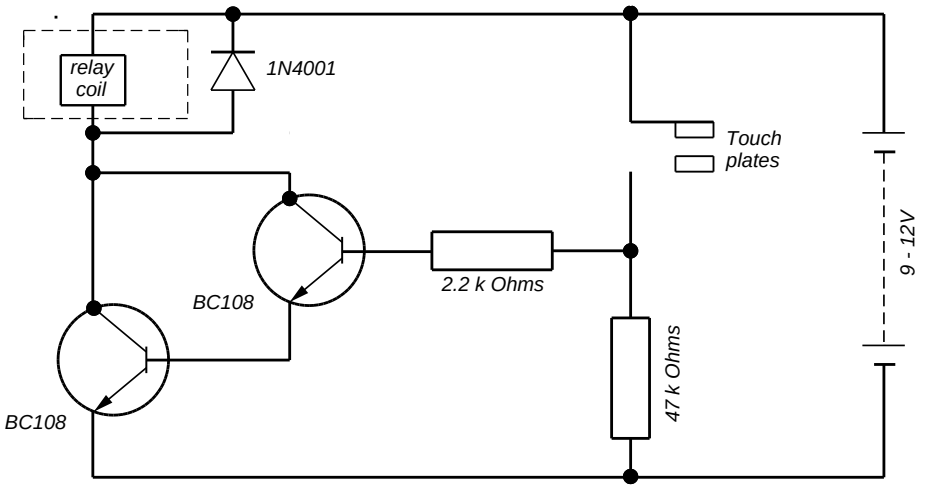


SECTION A - A
SCALE 1:50

FIGURE 1

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DIAGRAM SHEET 2



Circuit for a touch sensitive switch

FIGURE 2

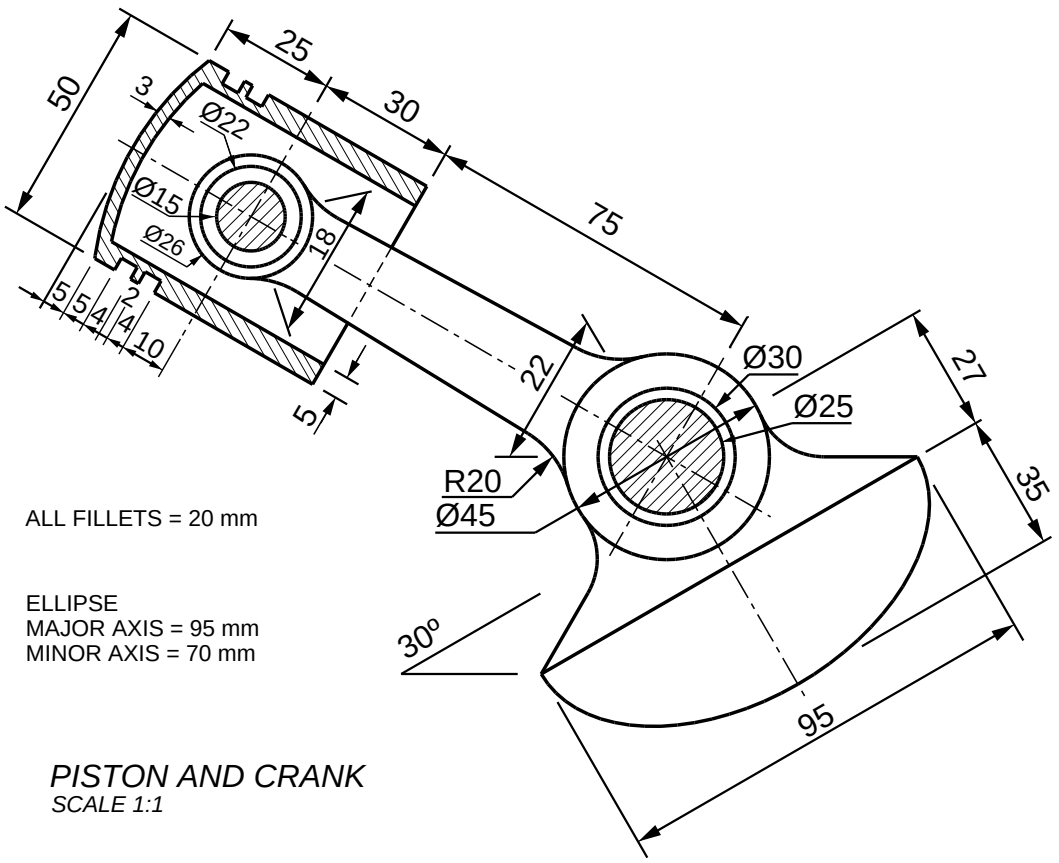
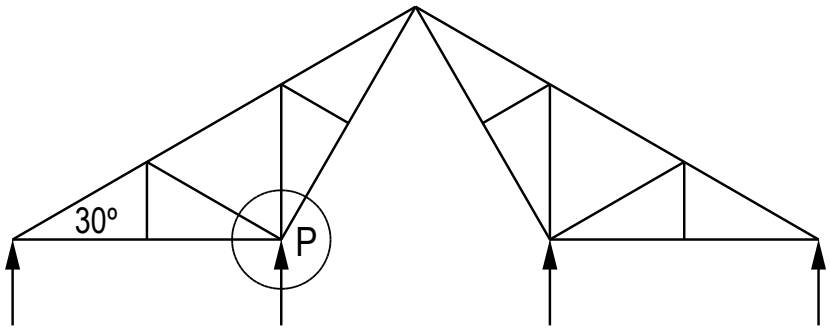


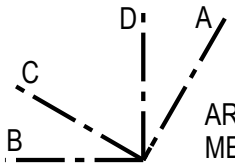
FIGURE 3

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DIAGRAM SHEET 3



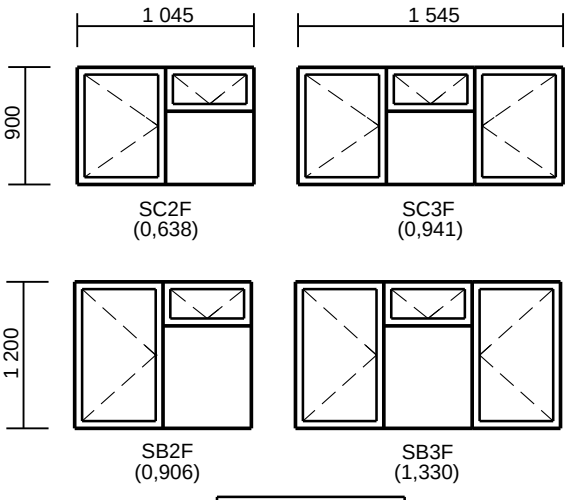
INVERTED CANTILEVER STEEL ROOF TRUSS



ARRANGEMENT OF MEMBERS AT 'P'

FIGURE 4

WINDOW SCHEDULE



WINDOW SIZES

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ANSWER SHEET **EXAMINATION NUMBER:**

QUESTION 1

You may use a pencil or a pen.

Marks

1.1 1.1.1 _____

1.1.2 _____

1.1.3 _____

1.1.4 _____

1.2 1.2.1 _____

1.2.2 _____

1.2.3 _____

1.2.4 _____

1.2.5 _____

Question 1……../10 **Question 4……../30**

Question 2……../30 **Question 5……../20**

Question 3……../10

TOTAL……/100 **……%**

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