higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T420**(E)**(A12)T

NATIONAL CERTIFICATE: MULTIDISCIPLINARY DRAWING OFFICE PRACTICE

COMPUTER-AIDED DRAUGHTING

(6010035)

12 August 2019 (X-Paper)
09:00–12:00

CLOSED-BOOK EXAMINATION

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

This question paper consists of 5 pages, 2 diagram sheets, 1 addendum and 1 answer sheet.

Copyright reserved

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

Copyright reserved

QUESTION 1: COMPUTER ORIENTATION

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

1.1 Explain what a *computer virus* is. (3)

1.2 A computer monitor states that the computer would be running in *Safe mode.*

Explain the meaning of this message. (2)

1.3 Explain the term *Bluetooth.* (2)

1.4 What is meant by the computer term *default*? (1)

1.5 Name the device capable of sending information along various paths through a network. (1)

1.6 Name any device that can be connected to a computer. (1)

[10]

QUESTION 2: STRUCTURAL STEEL DETAILING

FIGURE 1, DIAGRAM SHEET 1 (attached), shows a pictorial view of an H-profile stanchion connected to a base plate and strengthened with TWO gusset plates and TWO rolled steel angles. The column will be secured to a reinforced concrete base with holding-down bolts (NOT shown). The stanchion is welded to the base plate. The gusset plates are welded to the flanges of the stanchion. Both welds must be 6 mm fillet welds.

Specifications:

Reinforced concrete base:	1 000 mm × 1 000 mm × 450 mm deep with 25 mm chamfered edges
Base plate:	530 mm × 530 mm × 25 mm thick
H-profile stanchion:	254 × 254 × 72,9 kg/m
Rolled steel angles:	150 × 75 × 10
Gusset plate:	12 mm thick
Holding-down bolts:	M20

Do NOT draw the given pictorial view, but draw, to scale 1:10, the top view as indicated by arrow A. Insert ALL dimensions, labels, sectioning as well as the welding symbols. Provide the drawing with a title and scale. **[18]**

Copyright reserved

QUESTION 3: GENERAL AND MECHANICAL DRAUGHTING

FIGURE 2, DIAGRAM SHEET 1 (attached), shows the front view of a spoke gearwheel mounted on a stand.

Draw, to scale 1:2, the given view using the following gear specifications:

Number of teeth: 24
Pitch-circle diameter: 168 mm
Pressure angle: 20 degrees

Insert ALL dimensions, sectioning and centre lines. **[30]**

QUESTION 4: ELECTRICAL DRAUGHTING

FIGURE 3 shows an incomplete current double circuit diagram. Draw a large, neat circuit diagram in good proportion with ALL nominated symbols in the correct position.

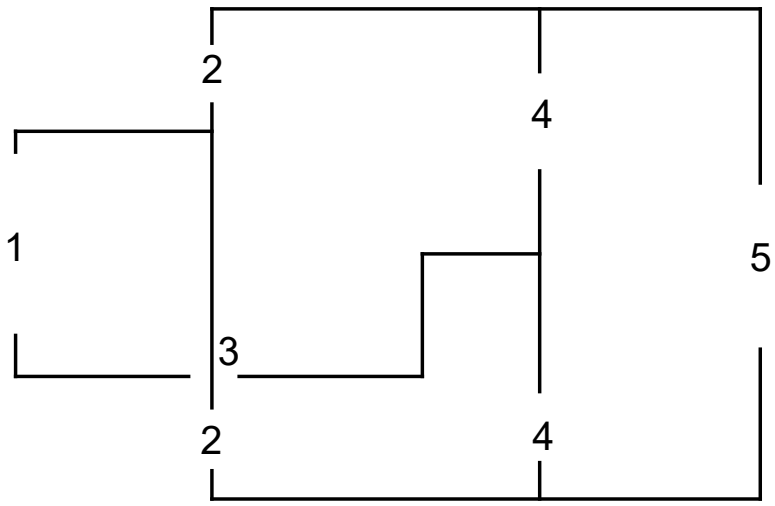


FIGURE 3

The missing parts are as follows:

2	Rectifier (2 off)	5	D.C. Generator
4	Capacitor (2 off)	3	Crossing
1	A.C. Generator		

[12]

QUESTION 5: BUILDING DRAUGHTING

FIGURE 4, DIAGRAM SHEET 2 (attached), shows the plan view of a luxury house to be built in an upmarket suburb.

Print or plot, to scale 1:100, the given plan view on a landscape-orientated A4 DRAWING SHEET. The completed drawing must include ALL dimensions and labels. Provide the drawing with a title and scale. Refer to the ADDENDUM (attached) for the sizes of the windows. **[30]**

TOTAL: 100

Copyright reserved

DIAGRAM SHEET 1

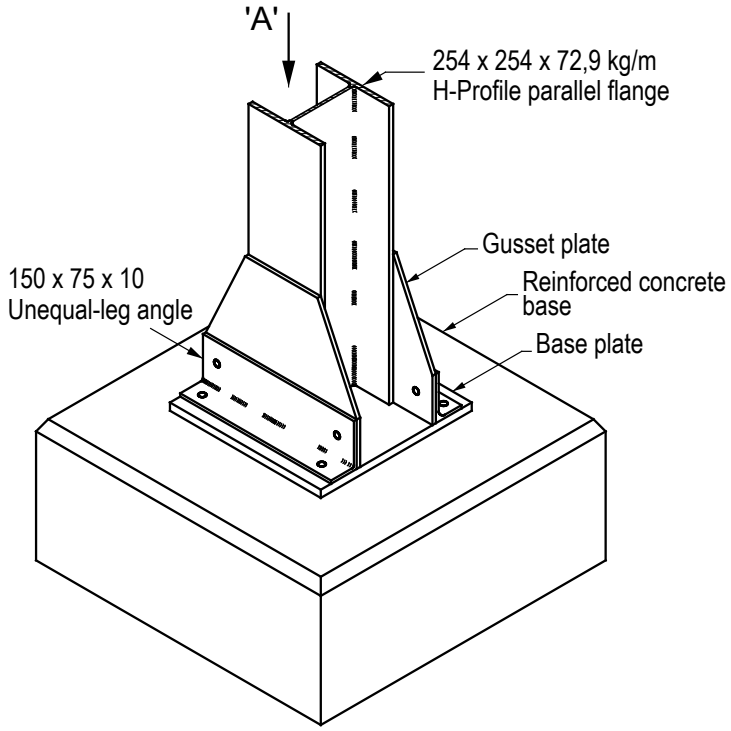


FIGURE 1

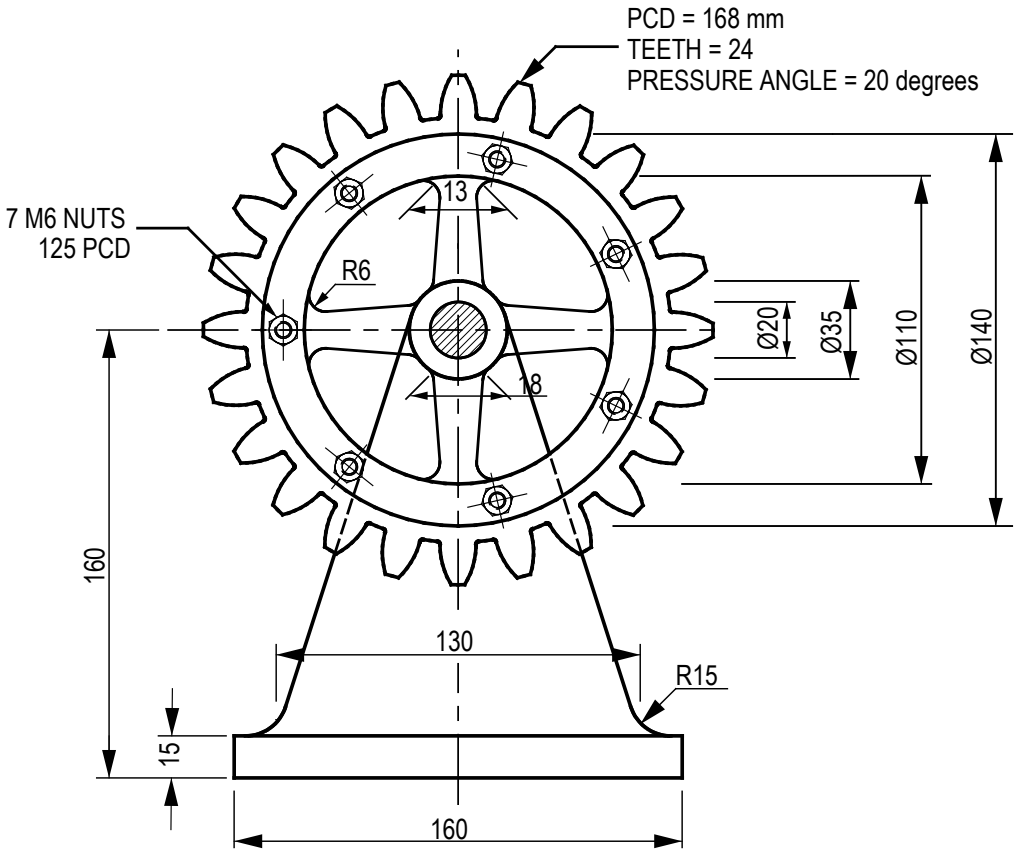
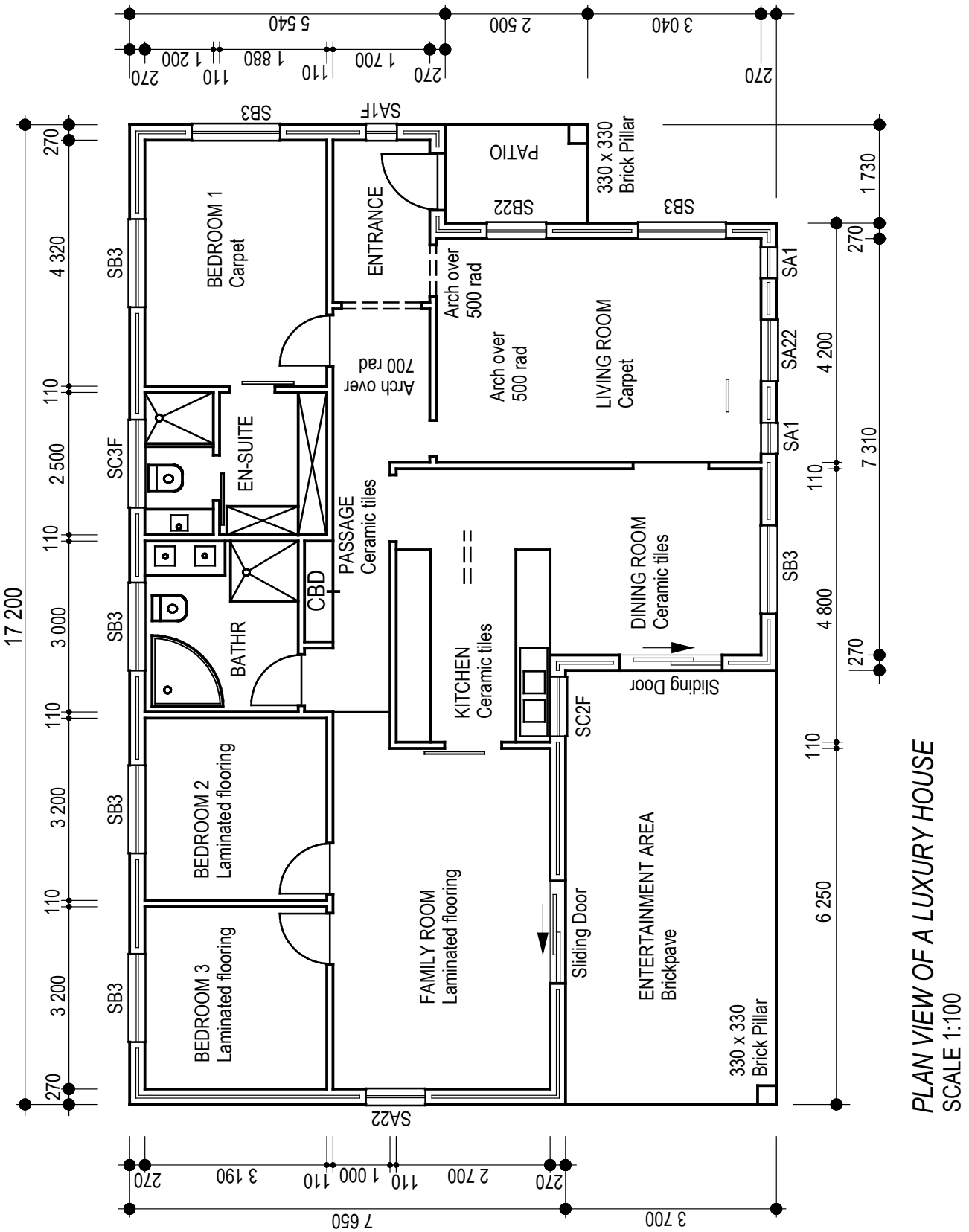


FIGURE 2

Copyright reserved

DIAGRAM SHEET 2



PLAN VIEW OF A LUXURY HOUSE
SCALE 1:100

FIGURE 4

Copyright reserved

(6010035)

ADDENDUM



(Figures in brackets indicate glass area)

Timber window schedule

Copyright reserved

ANSWER SHEET **EXAMINATION NUMBER:**

QUESTION 1

You may use a pencil or a pen. **MARKS**

1.1 …… ……..

…… ……..

…… ……

1.2 …… ……

…… ……

…… ……

…… ……

1.3 …… ……

…… ……

…… ……

…… ……

1.4 …… ……

1.5 …… ……

…… ……

1.6 …… ……

QUESTION 1……../10 **QUESTION 4……../12**

QUESTION 2……../18 **QUESTION 5……../30**

QUESTION 3……../30 **TOTAL……/100** **……..100%**

Copyright reserved