

NATIONAL SENIOR CERTIFICATE EXAMINATION

2011

ENGINEERING GRAPHICS AND DESIGN

PAPER 1

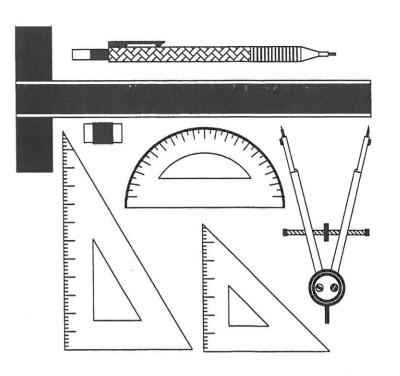
MARKS: 200

TIME:

3 HOURS

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

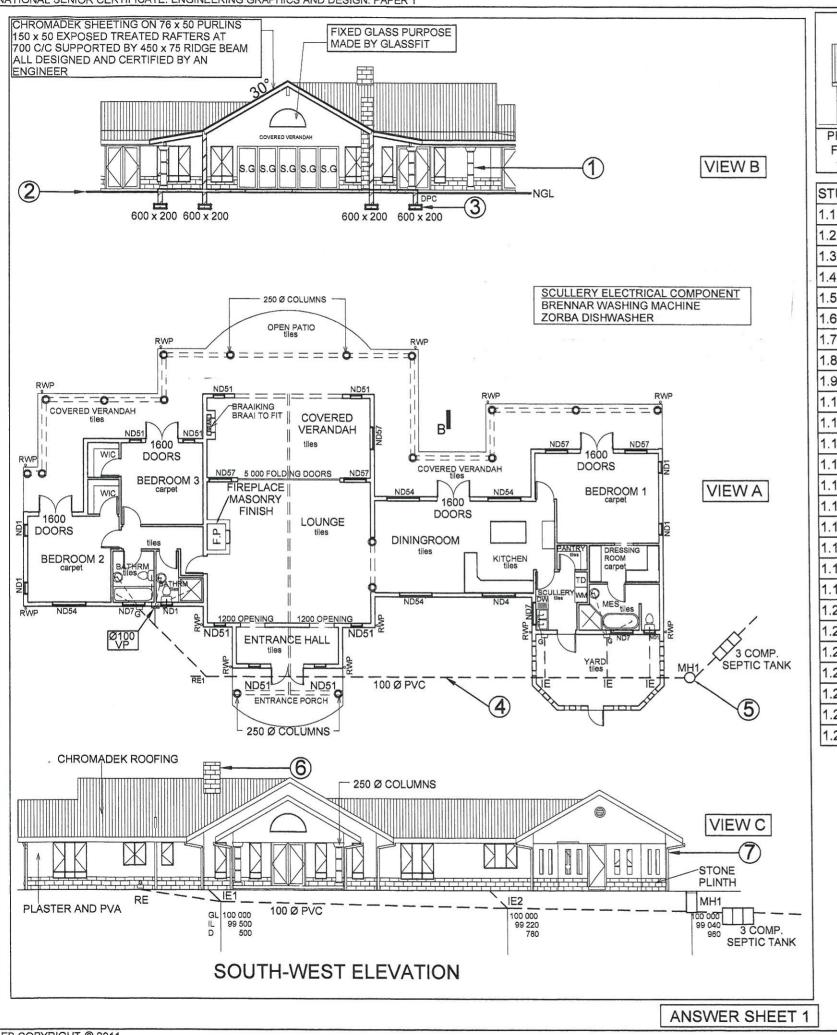
- 1. This question paper consists of 6 pages including the cover page and 4 questions.
- 2. All questions must be answered.
- 3. Unless specified otherwise, all questions are in First Angle Orthographic Projection.
- 4. Unless specified otherwise, all questions are to be completed to a scale of 1:1.
- 5. All answer sheets must be re-stapled in numerical order, even questions that are not attempted/blank.
- 6. All construction work must be shown.
- 7. Print your **examination number** neatly on each page.
- 8. Use only the **drawing sheets** provided.
- Your drawings should reflect neatness and accuracy.
- 10. All dimensions or detail not given may be assumed in good proportion.

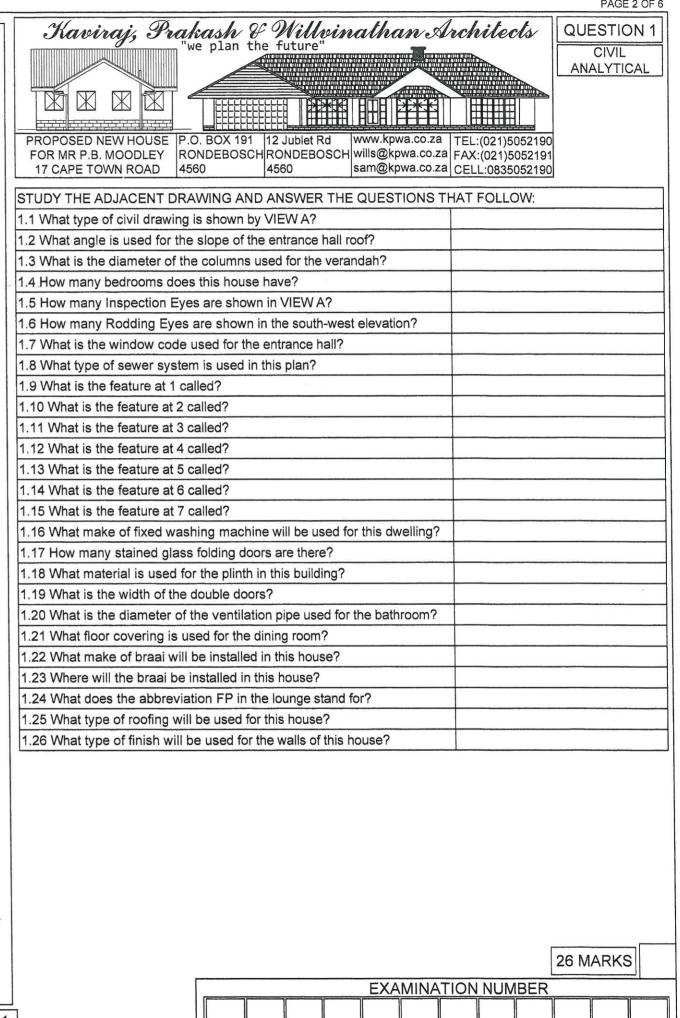


FOR OFFICIAL USE ONLY								
QUESTION	SECTION	MARK	MODERATED	MAXIMUM	CODE			
1	CIVIL ANALYTICAL			26				
2	DEVELOPMENT			40				
3	TWO POINT PERSPECTIVE			32				
4	CIVIL DRAWING			102				
SYMBOL	TOTAL			200				
				100				

FINAL CONVERTED MARK	CHECKED BY
100	

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QUESTION 2

DEVELOPMENT

The figure shows the front view and **incomplete** top view of a PIPING ASSEMBLY. The assembly is made up of four parts:

- A square prismatic shell
- B square to round transition piece
- C truncated cylindrical pipe
 - double truncated cylindrical pipe

Draw the following:

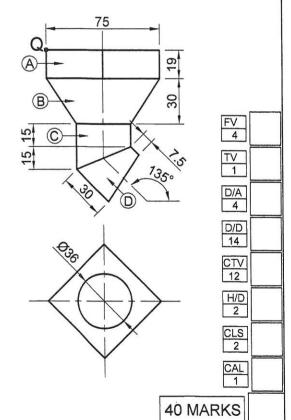
D

- 2.1 Draw the given front view.
- 2.2 Draw the complete top view, clearly showing part D. Show all hidden detail.
- 2.3 The surface development of A (square prismatic shell).
- 2.4 The surface development of D (double truncated cylindrical pipe).
- 2.5 Show all construction.

Do **not** draw the development of the Transition Piece (B) and the Truncated Cylindrical Pipe (C).

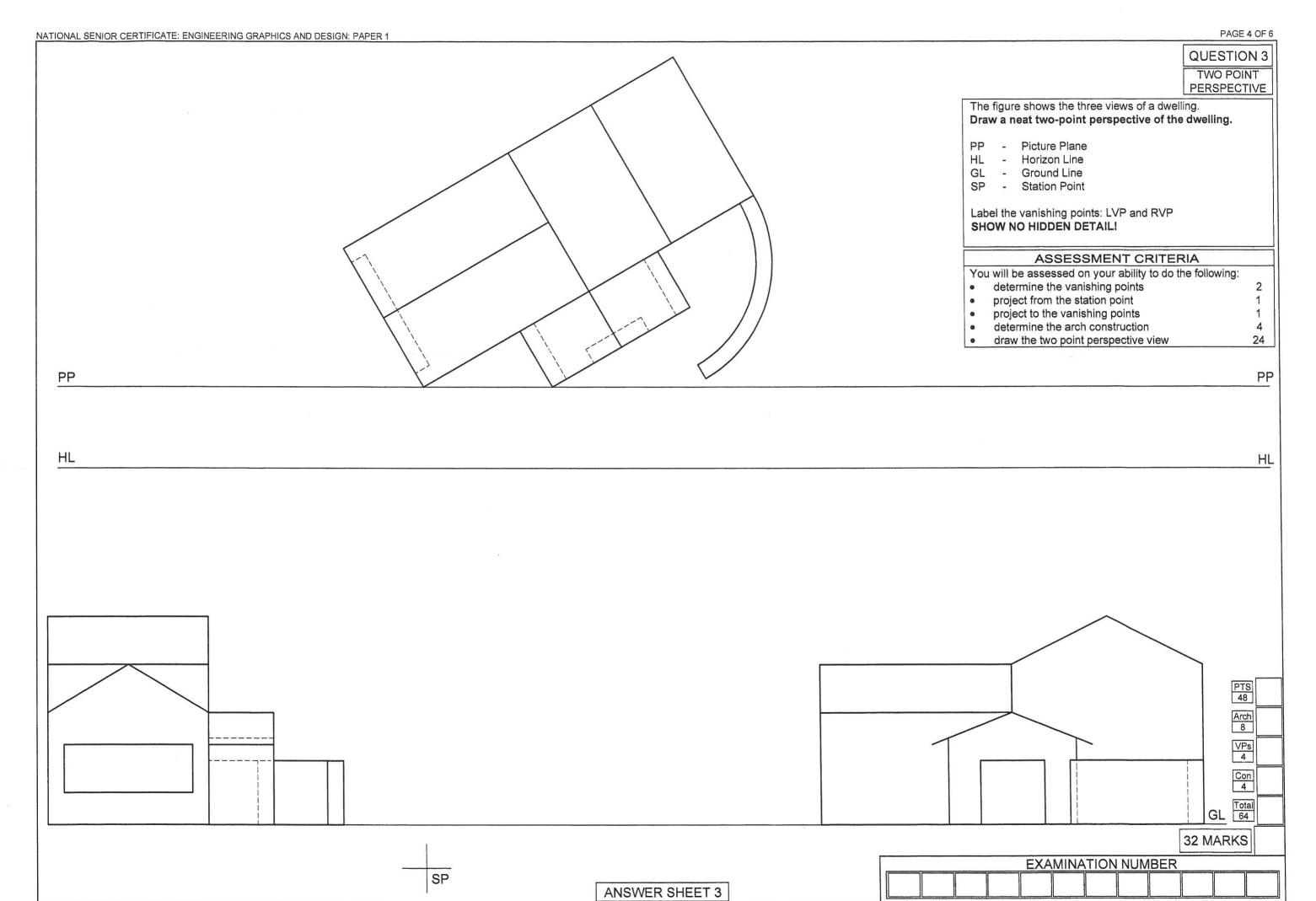
Use point Q as your starting point.

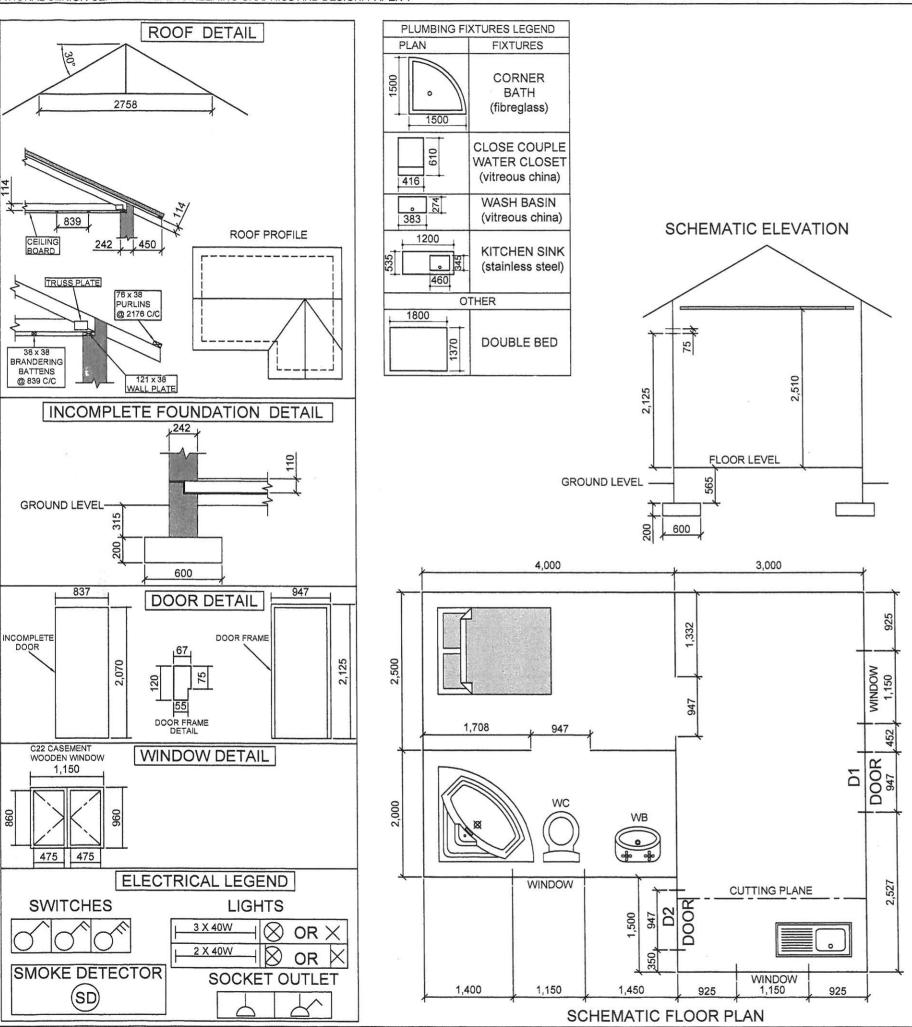
ASSESMENT CRITERIA You will be assessed on your ability to do the following: or draw the given front view draw the given top view draw the completed top view showing part D show all hidden detail in completed top view develop part A calculate the circumference of the circle develop part D draw all centre lines



EXAMINATION NUMBER

ANSWER SHEET 2





QUESTION 4 CIVIL DRAWING

Answer this question on ANSWER SHEET 4.

Use a scale of 1:50.

All drawings must comply with SABS 0143.

The following is given:

- An incomplete schematic floor plan of a GARDEN COTTAGE
 - window position and door position
 - perimeter dimensions and cutting plane A-A
 - An incomplete schematic elevation
 - ▶ door position, ceiling height, ground level and floor level
- Door and frame detail
- Incomplete foundation detail
- Roof detail, including purlin, batten and truss detail
- Plumbing fixtures detail
- Window detail
- Electrical legend

Draw the following:

1) the complete floor plan

2) the complete sectional elevation, including the rest of the elevation that is not sectioned. (Include all outside roof and window detail.)

FLOOR PLAN INSTRUCTIONS

- Hatch all the external and internal walls
- Insert all window and door details and label the cutting plane
- Show all door detail at D1 and D2 only
- Label the floor plan and print the scale
- Indicate the room name for each room
- Insert the following electrical detail according to the legend given:
 - ▶ A THREE, 40 watt fluorescent tube light fitting in living area, a single wall mounted light outside both external doors, one three pole switch for three lights.
 - ▶ A battery operated smoke detector in the centre of the kitchen.
- Insert the following plumbing detail according to the legend given:
 - ▶ A water closet (toilet), a corner bath, a wash basin in the bathroom. (Position suitably)
 - ▶ A sink in the kitchen. (Decide on a suitable position)
- Draw a double bed in the bedroom. (Decide on a suitable position)

SECTIONAL ELEVATION INSTRUCTIONS

- Complete the foundation details
- Insert all floor slab details
 - ▶ use 25 mm screed
 - ▶ use 150 mm compacted hardcore filling
- Label the ground level and damp proof course
- Draw the sectional door in the space indicated ▶ use ONE, 242 x 75 concrete lintel above door
 - show door frame detail
 - ▶ label the damp proof course
 - Complete the roof details
 - ▶ draw the roof truss
 - ▶ use 114 x 38 rafters and suitable truss plates for the truss
 - ▶ use FOUR 76 x 38 purlins spaced at 2 176 centres

 - ▶ use TWO, 121 x 38 wall plates
 - ▶ use TWO 38 x 38 battens spaced at 839 centres
 - ▶ use asbestos sheeting for the roof and a 30° pitch
 - ▶ use 6 mm Gypsum ceiling boards
- Complete all hatching detail and label the sectional elevation
- Do not show plumbing on this elevation!

