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NATIONAL  
SENIOR CERTIFICATE

GRADE 11

ENGINEERING GRAPHICS AND DESIGN P1

NOVEMBER 2012

MARKS: 100

TIME: 2 hours

This question paper consists of 6 pages.

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\* G R D D M 1 \*

## INSTRUCTIONS AND INFORMATION

1. The question paper consists of FOUR questions.
2. Answer ALL the questions.
3. All drawings must be drawn to scale 1:1, unless stated otherwise.
4. The questions must be answered on the answer sheets provided.
5. All the answer sheets must be re-stapled in numerical sequence and handed in irrespective of whether the question was answered or not.
6. Careful time management is essential in order to complete all the questions.
7. Print your name in the block provided on every answer sheet.
8. All answers must be drawn accurately and neatly.
9. Any details or dimensions not given must be assumed in good proportion.

FOR OFFICIAL USE ONLY									
								MODERATED MARK	
1									
2									
3									
4									
TOTAL									
	1	0	0						

### COMPLETE THE FOLLOWING:

NAME

NAME

EXAMINATION CENTRE

EXAMINATION CENTRE






Please turn over





QUESTION 1.1: ANALYTICAL (ELECTRICAL)

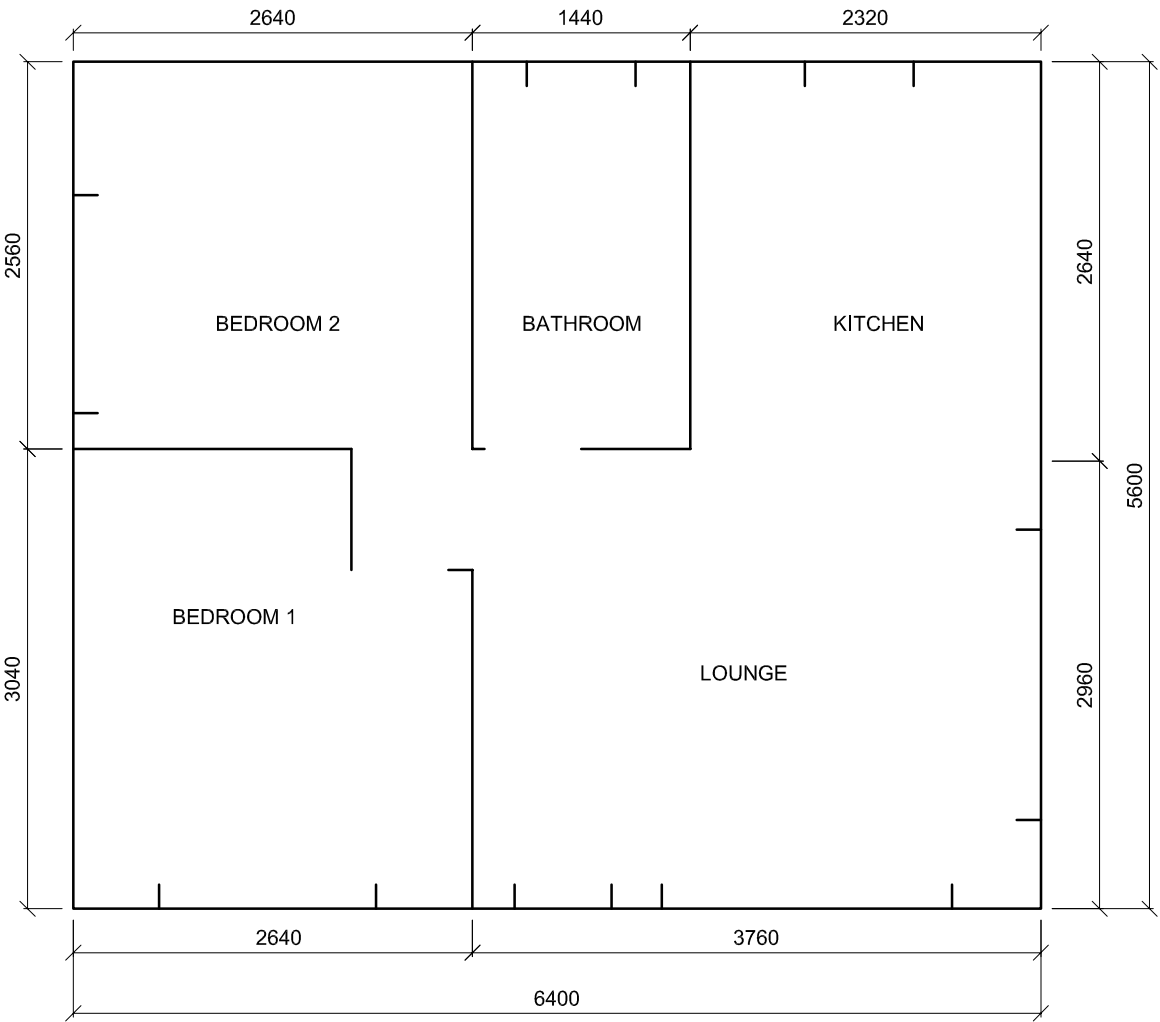
**Given:**  
A table with names and illustrations of electrical components.  
**Instructions:**  
Complete the table by neatly drawing the symbols of these components in the space provided. **[5]**

Name	Component	Symbol
1) BULB		(1)
2) FUSE		(1)
3) SWITCH		(1)
4) MOTOR		(1)
5) CELL		(1)

QUESTION 1.2: ANALYTICAL (AREA AND PERIMETER)

**Given:**  
• A schematic floor plan of a house showing the dimensions of the rooms.  
• A table for your answers.  
**Instructions:**  
• Calculate the combined floor area of the kitchen and lounge in m².  
• Calculate the perimeter of the house.






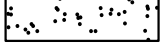

NB: Show all calculations **[5]**



ANSWERS	
AREA	
	(3)
PERIMETER	
	(2)

QUESTION 1.3: ANALYTICAL (CIVIL SECTIONS)

**Given:**  
• A column with various types of sectioning used in civil drawings.  
• A table with names of section types and spaces for inserting your answers.  
**Instructions:**  
Complete the table by placing only the correct letter of the section next to the description of the section type. **[5]**

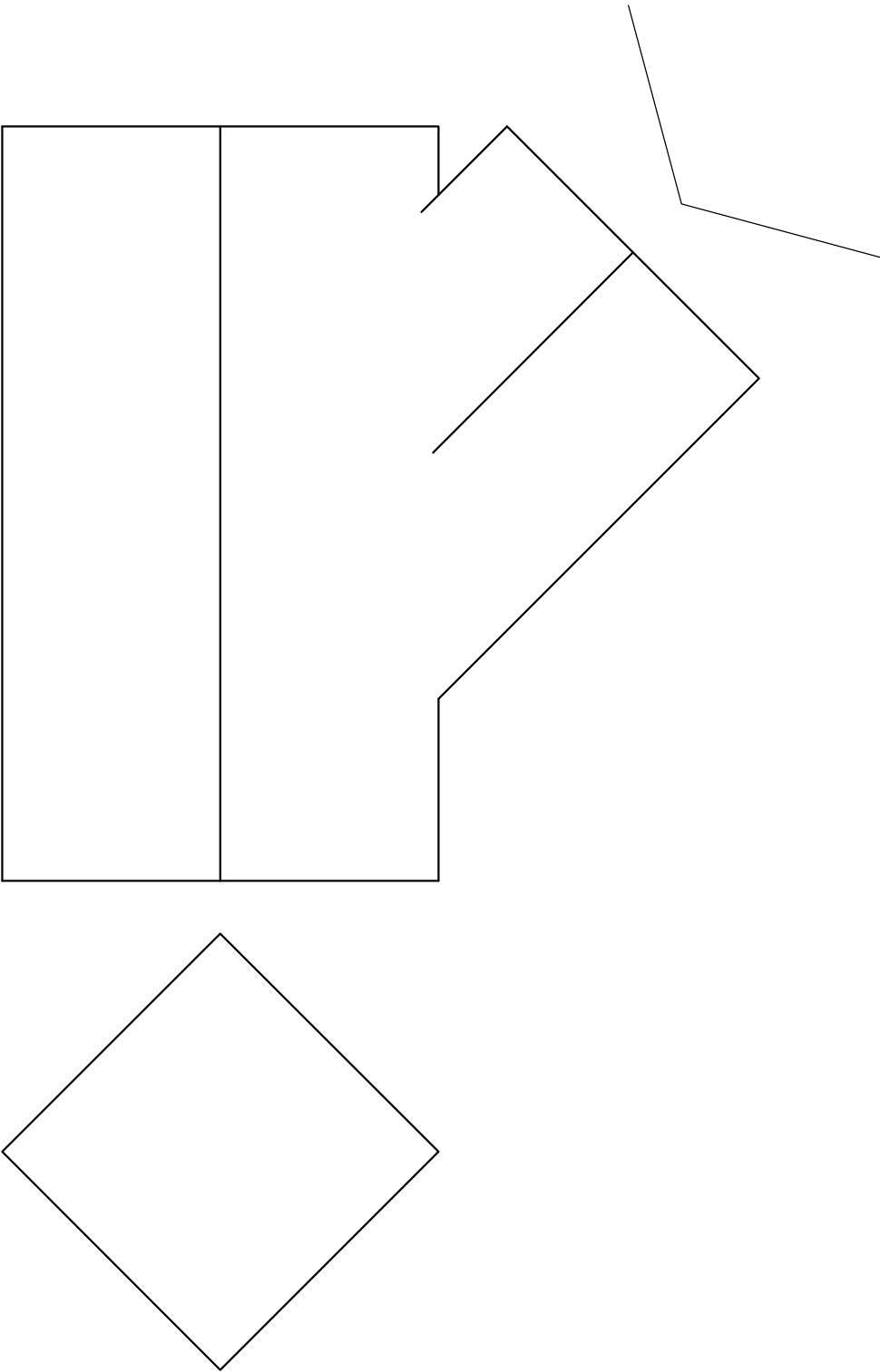
SECTION TYPE		ANSWERS		SECTIONAL VIEWS	
1	CONCRETE		1	A	
2	FACE BRICK		1	B	
3	COMPACTED hardcore		1	C	
4	SCREED		1	D	
5	UNDISTURBED EARTH		1	E	
				F	
				G	

1.1	5	
1.2	5	
1.3	5	
TOTAL	15	

NAME

NAME





QUESTION 2: INTERPENETRATION AND DEVELOPMENT

- Given:**
- The incomplete top view and front view of a regular hollow hexagonal prism intersecting a regular hollow square prism.
  - An incomplete auxiliary view of the hexagonal prism.


- Instructions:**
- Complete the auxiliary view of the hexagonal prism.
  - Complete the top view.
  - Complete the front view, clearly showing the curve of interpenetration formed between the two prisms.
  - Develop only the sides of the square prism showing the true shape of the hole formed.

**Note:**  
The axes of both prisms lie in the same vertical plane.  
Show all constructions and projections. [19]

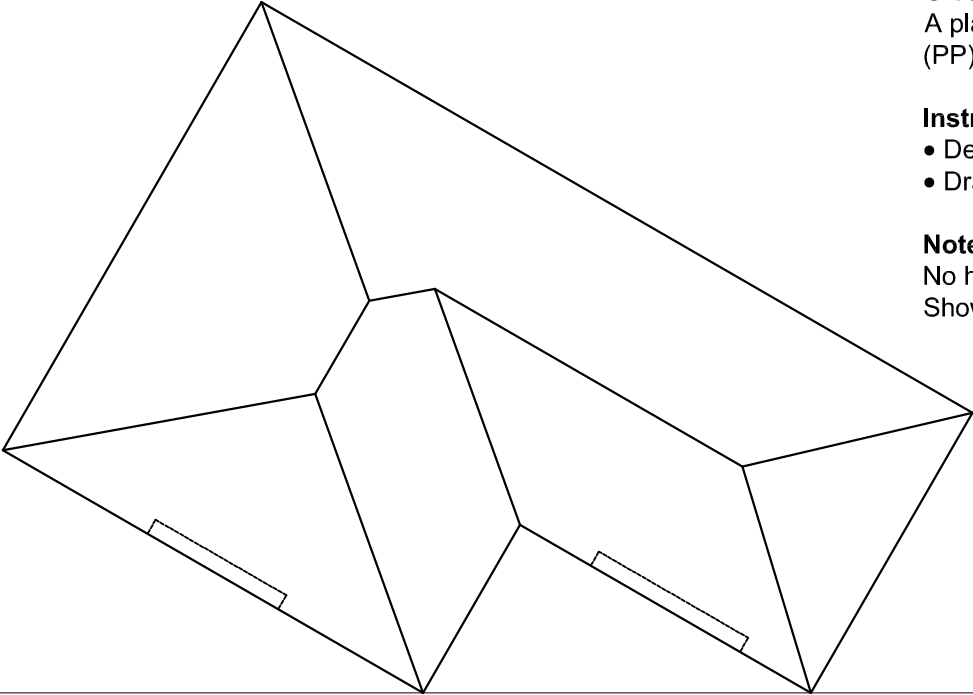
ASSESSMENT CRITERIA		
Auxiliary view	2	
Completed top view	5	
Interpenetration curve	4	
Development	5	
Constructions	3	
TOTAL	19	

NAME
NAME

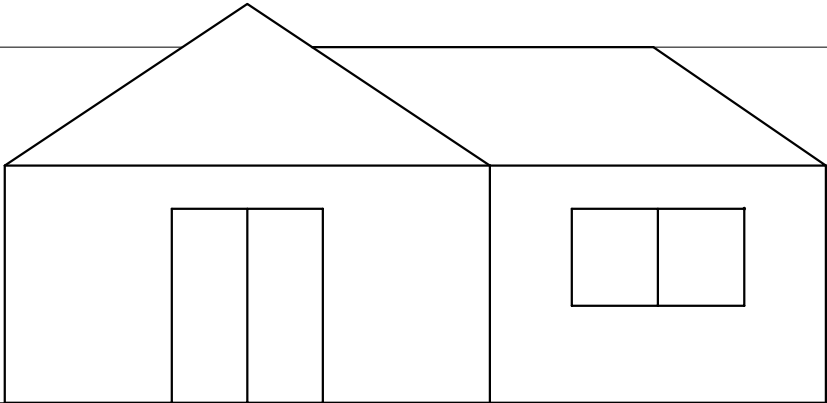




ASSESSMENT CRITERIA		
Vanishing points	2	
Constructions	3	
Roof	8	
Walls	5	
Door and window	8	
TOTAL	26	



PP



HL

GL

SP

NAME
NAME

4

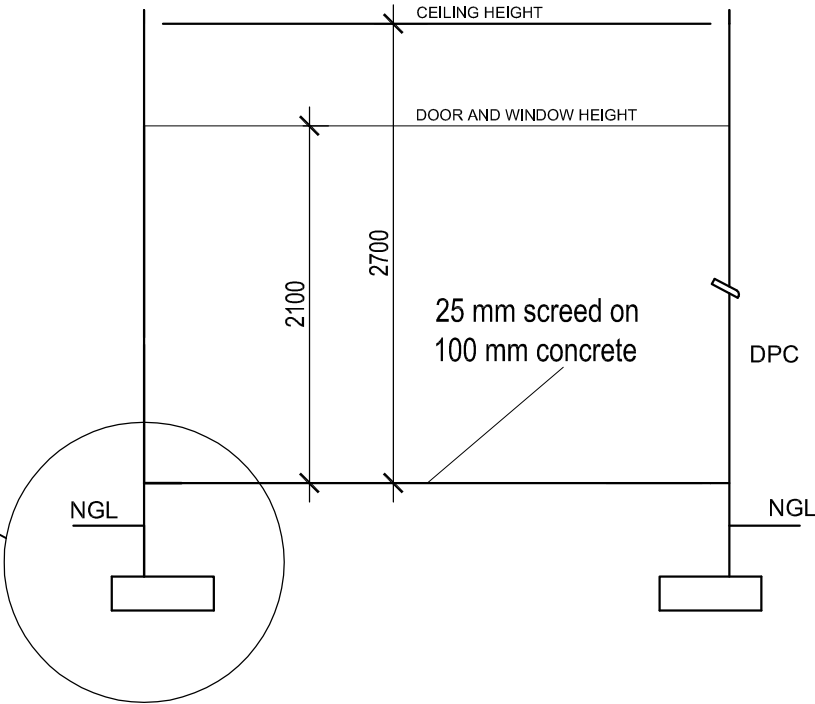
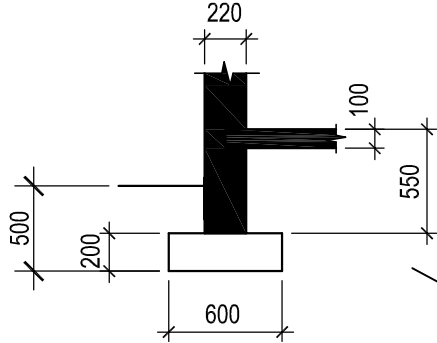
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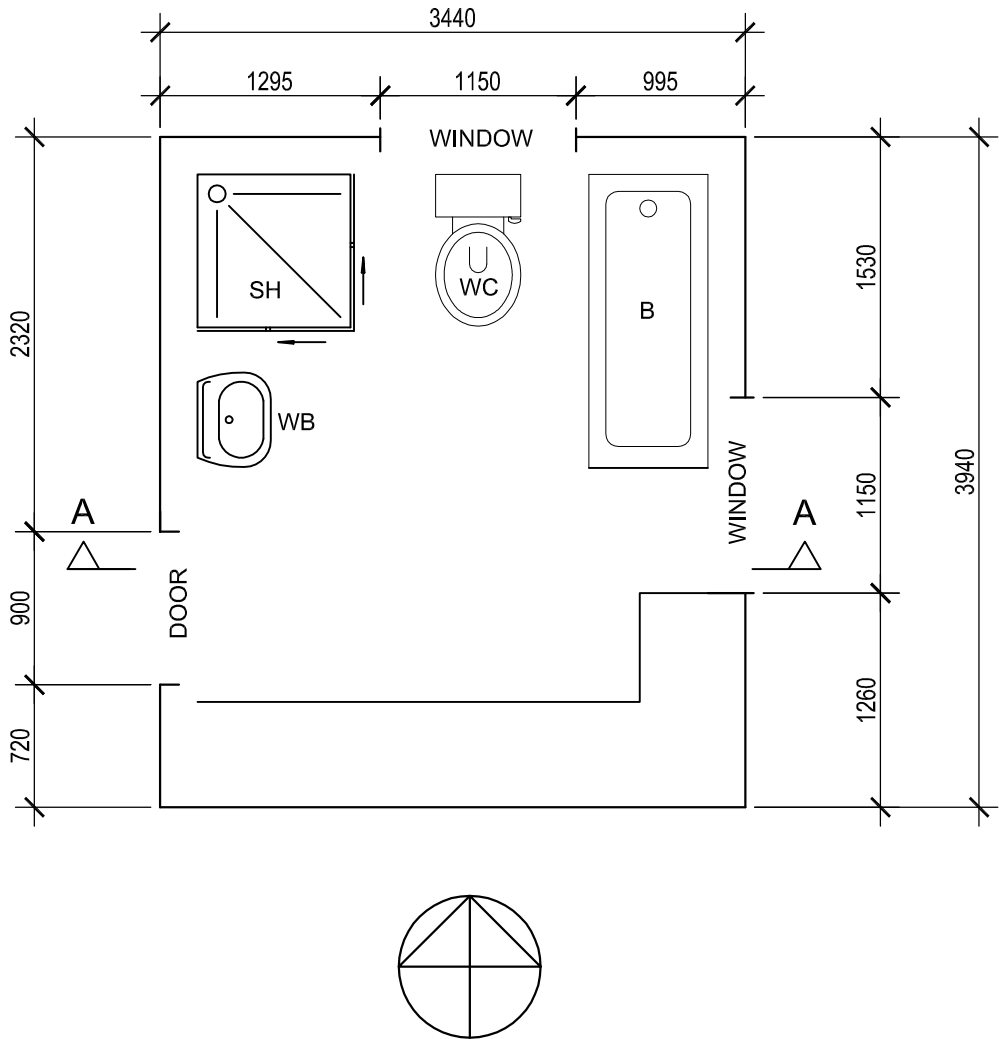




INCOMPLETE FOUNDATION  
DETAIL FOR EXTERIOR WALLS



SCHEMATIC SECTIONAL ELEVATION A-A

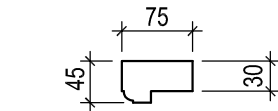
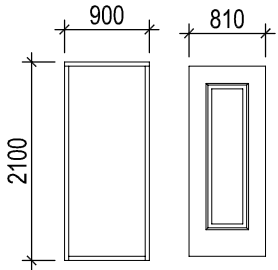


DOOR AND WINDOW SCHEDULE

DOOR FRAME  
1 x STANDARD HARDWOOD  
FRAME

DOOR

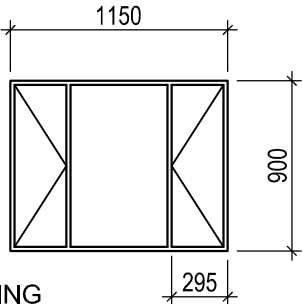
1 x STANDARD HOLLOW CORE  
DOOR



FRAME PROFILE

IRONMONGERY  
1 PAIR of 75 mm BRASS  
HINGES and SCREWS  
1 TWO-LEVER LOCKSET

WINDOW  
2 STANDARD HARDWOOD  
FRAME



GLAZING  
3 mm CLEAR GLASS

FINISHING SCHEDULE

FLOOR  
BATHROOM - TILES  
WALLS  
PLASTER AND PAINT

QUESTION 4: CIVIL DRAWING

Given:

- A schematic floor plan and a schematic sectional elevation of the outside lines of the perimeter of a **proposed new bathroom** attached to a house, and the position of all the fixtures in the bathroom as true representational drawings
- A door and window schedule
- A finishing schedule
- Incomplete sketches of the foundation detail.
- An answer sheet on page 6 showing an incomplete plan.

Instructions:

Use answer sheet 4 and the information on page 5 to draw to a scale of **1:40**, the following views:

- The completed floor plan
- The sectional elevation on cutting plane A-A, to the given specifications below:

SPECIFICATIONS:

THE FLOOR PLAN

Add the following features to the floor plan:

- The missing walls and hatching detail
- The missing door and windows with detail
- The cutting plane. Label the cutting plane A-A
- Label the bathroom and its floor finish

A SECTIONAL ELEVATION

Add the following features to the sectional elevation:

- The complete foundation, walls, screed and floor slab detail
- The lintels above the door and windows
- The door and complete window detail
- ALL necessary hatching
- All sanitary fixtures as **conventions**
- Label the sectional elevation: SECTIONAL ELEVATION A-A

NOTE:

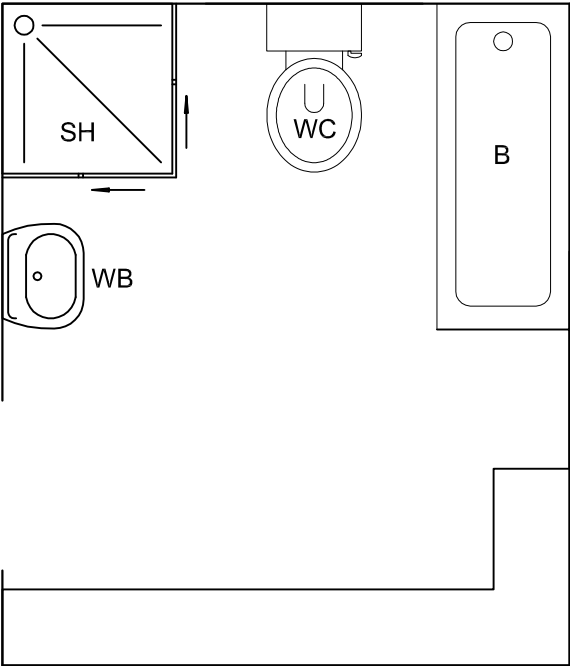
- ALL substructure hatching may be done in freehand.
- ALL drawing must comply with the guidelines contained in the SABS 0143. **[40]**

TERMINOLOGY

*Schematic diagram:* a diagram that shows the main features or relationships but not the details.



ANSWER SHEET 4



NAME
NAME

