



JUNE EXAMINATION
GRADE 12
2024

ENGINEERING GRAPHICS AND DESIGN
PAPER 1

MARKS:100

TIME: 3 Hours

This question paper consists of 6 pages.

INSTRUCTIONS AND INFORMATION

1. The question paper consists of FOUR questions.
2. Answer ALL the questions.
3. ALL drawings are in first angle orthographic projection unless otherwise stated.
4. ALL drawings must be prepared using pencil and instruments, unless otherwise stated.
5. ALL answers must be drawn accurately and neatly.
6. ALL the questions must be answered on the QUESTION PAPER, as instructed.
7. ALL the pages must be re-stapled in numerical sequence and handed in irrespective of whether the question was attempted or not.
8. Careful time management is essential in order to complete all the questions.
9. Print your name and class in the block provided on every page.
10. Any details or dimensions not given must be assumed in good proportion.

FOR OFFICIAL USE ONLY										
QUESTION	MARKS OBTAINED			$\frac{1}{2}$	SIGN	MODERATED			$\frac{1}{2}$	SIGN
1										
2										
3										
4										
TOTAL										
	2	0	0			2	0	0		

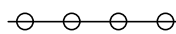
FINAL CONVERTED MARK	CHECKED BY
100	

COMPLETE THE FOLLOWING
NAME AND SURNAME
NAME AND SURNAME
CLASS AND TEACHER
CLASS AND TEACHER

DO NOT FOLD THE QUESTION PAPER IN HALF

Downloaded from Stanmorephysics.com

LAND SURVEYOR'S CERTIFICATE OF THE BOUNDARY LENGTHS OF STAND NO. 24 SURVEYED ON 08-02-2023	
BOUNDARY LENGTHS IN MILLIMETRES	
AB	25000
BC	14142
CD	30000
DE	35000
EA	40000

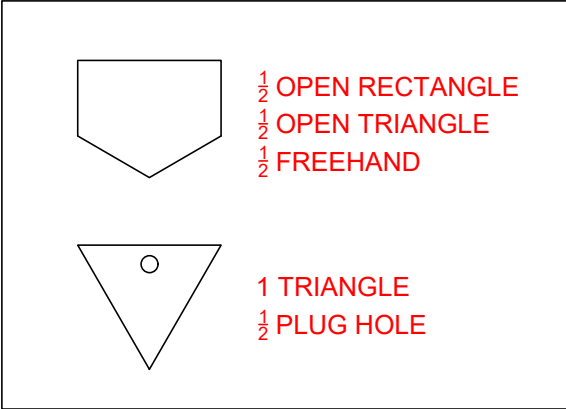
SYMBOL LEGEND	
	PALM TREE
	DECIDUOUS TREE
	2 m HIGH ELECTRIC FENCE

NOTE:
Contractors must verify all dimensions and levels on site before commencing work. Architects to be notified immediately of any discrepancies.

ARCHITECT'S SIGNATURE:

CLIENT'S SIGNATURE:

ANSWER 22
In the space below, draw, in neat freehand, the elevation and plan of the SANS 10143 graphical symbol for a wall-mounted URINAL.



2	2023-06-22	ADD A NEW DRIVEWAY
1	2023-06-11	ADD A LEGEND
REVISION	DATE	DESCRIPTION

SPIDER ARCHITECTS
11 WEB STREET
NEW YORK
www.spidey.com
011 842 1565

PRINTED BY:
HAWKEYE PRINTS
DATE OF PRINT:
2024-04-25

DRAWING TITLE:
SITE PLAN

PROJECT:
**PROPOSED NEW EXTENSION
FOR T. STARK
MARVEL STREET
CENTRAL CITY
2055**

PROJECT NUMBER:	DRAWING NUMBER:
EGD2024P1-GDE	ACAD/DR/24-01

DATE:	DRAWN:	DATE:	CHECKED:
2024-02-01	DANVERS	2024-03-11	PARKER

REFERENCE CODE:	SCALE:
08 - EGD235 - 678	1:400

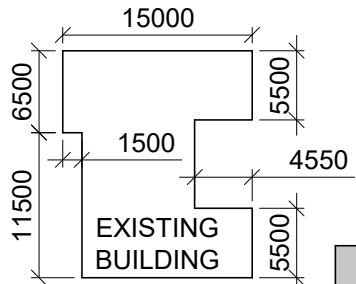
QUESTION 1: ANALYTICAL (CIVIL)

Given:
The site plan of an existing building with a proposed new extension, a title panel and a table of questions. The drawing has not been presented to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions, which refer to the accompanying drawing, title panel and civil content. **[30]**

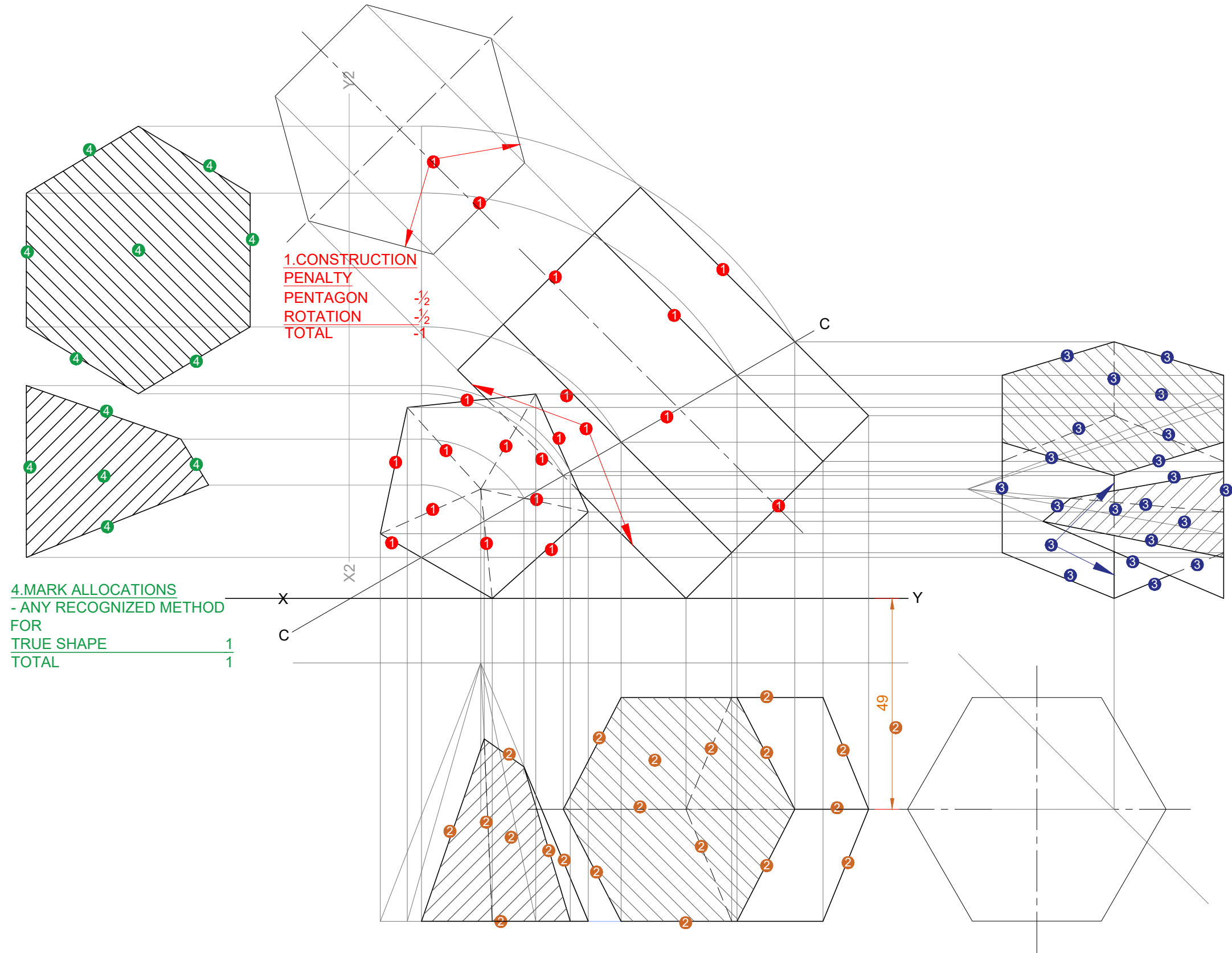
QUESTIONS		ANSWERS	
1	What scale is indicated for the site plan?	1:400	1
2	In which city can the architectural company be found?	NEW YORK	1
3	Name the company that printed the site plan?	HAWKEYE	1
4	Who is the client?	T STARK	1
5	What is the project number?	EGD2024P1-GDE	1
6	What is the first revision?	ADDED A LEGEND	1
7	What does the symbol at 1 indicate?	DIRECTION OF NORTH	1
8	What is the width of Marvel Street in metres?	6m	1
9	Name the feature at 2.	CONTOUR LINE	1
10	Which corner is the lowest corner on STAND 24?	B	1
11	What does the abbreviation IC stand for?	INSPECTION CHAMBER	1
12	How many palm trees are on STAND 24?	4	1
13	Name the feature at 3.	WATT/ELECTRICAL METER	1
14	What do the arcs at 4 indicate?	GATE SWING	1
15	What does the dimension at 5 indicate?	HEIGHT ABOVE SEA LEVEL	1
16	With regards to the building regulations, why would the proposed new extension NOT be accepted?	OVER THE BUILDING LINE	1
17	What natural feature is south of STAND 24?	RIVER	1
18	What does the arrow on the municipal sewer line indicate?	DIRECTION FLOW	2
19	Why can nothing be built on the STAND next to boundary AB?	SERVITUDE	2
20	In the space below (ANSWER 20), determine the perimeter of stand 24 in metres.	3	
21	In the space below (ANSWER 21), determine the total area of the existing building in square meters.	3	
22	In the space in the title panel (ANSWER 22), draw, in neat freehand, the elevation and plan of the SANS 10143 graphical symbol for a wall-mounted URINAL.	3	
TOTAL		30	

ANSWER 20:
SHOW ALL CALCULATIONS.
APPLYING THE CORRECT FORMULA
 $AB + BC + CD + DE + EA$
 $25 + 14.142 + 30 + 35 + 40$
 $=144.142$ ✓
CONVERTED TO METERS ✓



ANSWER 21:
SHOW ALL CALCULATIONS. ✓
APPLYING THE CORRECT FORMULA
 $(18 \times 15) - (11,5 \times 1,5) - (7 \times 4,55)$
 $= 220.9m^2$ ✓
CONVERTED TO METERS SQUARED ✓

NAME AND SURNAME
CLASS



4.MARK ALLOCATIONS
- ANY RECOGNIZED METHOD
FOR
TRUE SHAPE

1
1
TOTAL

QUESTION 2: SOLID GEOMETRY

Given:

- The front view of a right regular hexagonal prism and a right regular pentagonal pyramid.
- An auxiliary view for the front view of the prism.
- The top view of the pyramid, as well as the axis and an auxiliary view of the prism.
- Cutting plane C-C.

Specifications:

- The pyramid and the pyramid do NOT touch.
- Both solids are cut by cutting plane C-C.

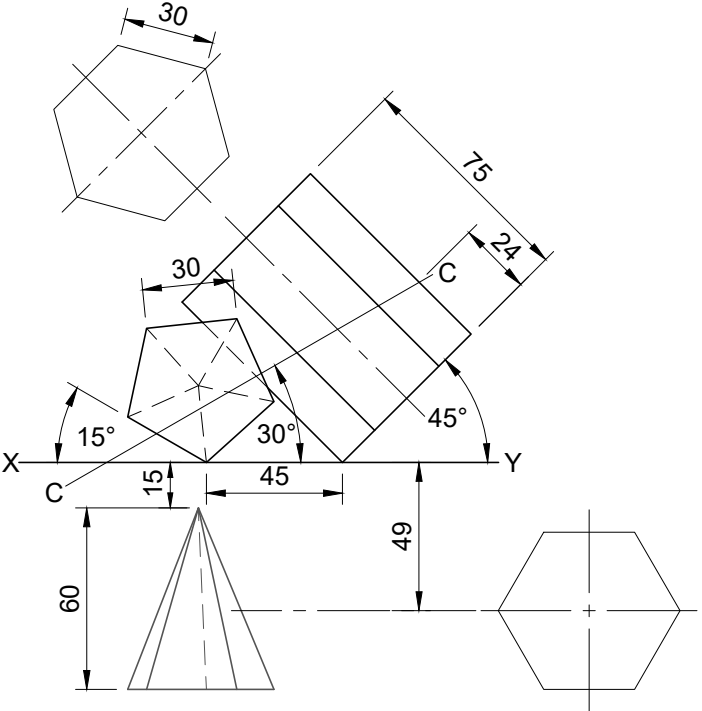
Instructions:

Draw, to scale 1:1, the following views of the TWO solids:

- 2.1 The given front view
- 2.2 A sectional top view
- 2.3 A sectional left view
- 2.4 The true shape of the cut surfaces of both solids

- Planning is essential.
- Show ALL hidden detail.
- Show ALL construction.

[38]



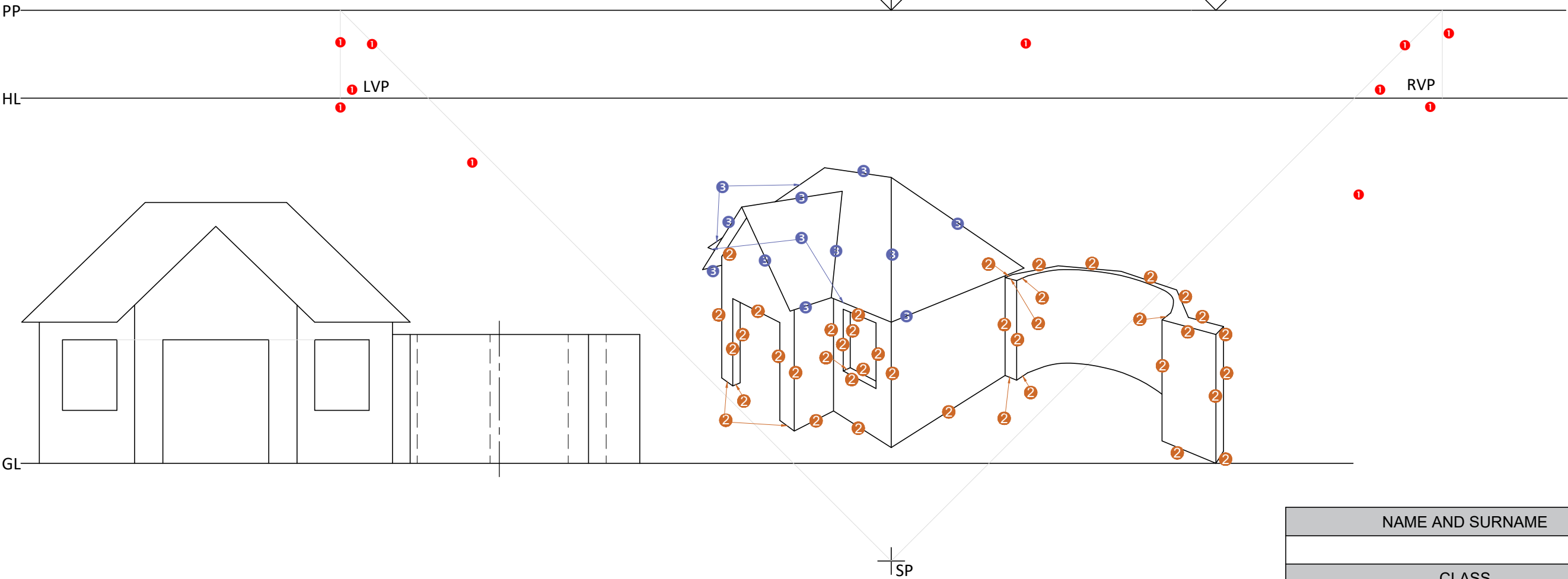
ASSESSMENT CRITERIA				
1	FRONT VIEW + AUX	10		
2	SECTIONAL TOP VIEW	10 1/2		
3	SECTIONAL LEFT VIEW	10 1/2		
4	TRUE SHAPES	7		
TOTAL		38		
NAME AND SURNAME				
CLASS				
3				

QUESTION 3: PERSPECTIVE

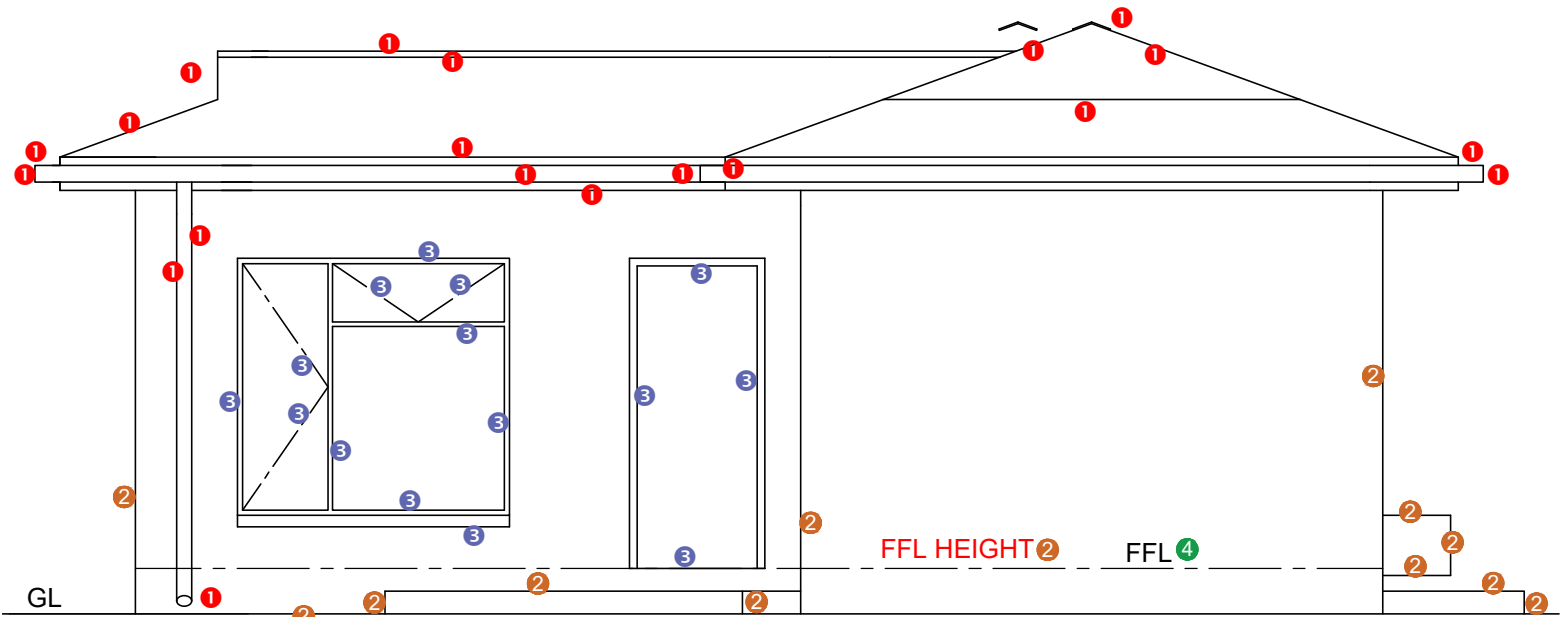
Given:
Two views of a house and the information needed to draw a two-point perspective drawing.
PP - Picture Plane
HL - Horizon Line
GL - Ground Line
SP - Station Point

- Instructions:**
Complete the perspective drawing.
- Align the drawing sheet with the ground line (GL).
 - Determine and label the vanishing points.
 - Show ALL construction.
 - Show the depth at the door and the window.
 - No hidden or internal detail is required. **[38]**

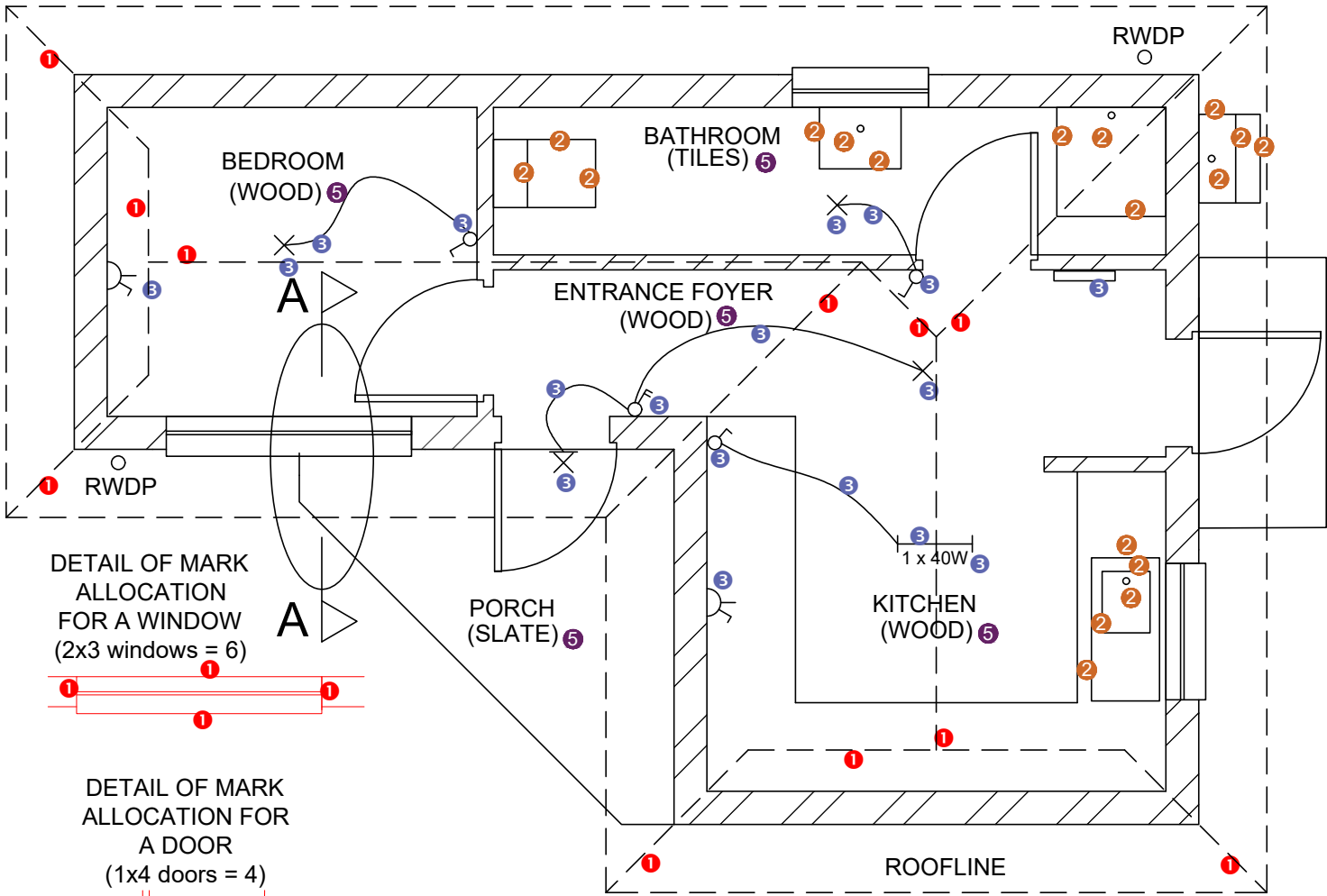
ASSESSMENT CRITERIA				
1	CONSTRUCTION	6		
2	WALLS, DOOR + WINDOW	20		
3	ROOF	6		
4	ARCH WALL	6		
TOTAL		38		



NAME AND SURNAME
CLASS



WEST ELEVATION 4



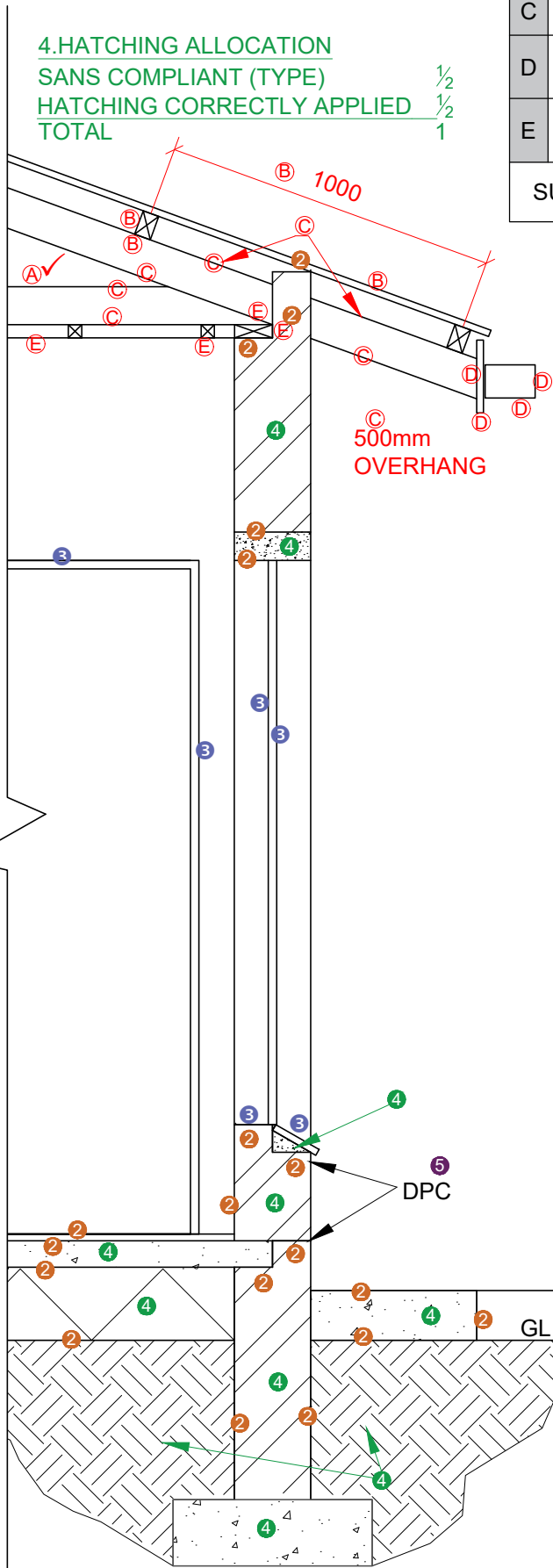
DETAIL OF MARK ALLOCATION FOR A WINDOW (2x3 windows = 6)

DETAIL OF MARK ALLOCATION FOR A DOOR (1x4 doors = 4)

FLOOR PLAN SCALE 1 : 50



4.HATCHING ALLOCATION
SANS COMPLIANT (TYPE) 1
HATCHING CORRECTLY APPLIED 2
TOTAL 3



SECTION ON A-A SCALE 1 : 20

ROOF DETAIL				FOR OFFICIAL USE ONLY	
A	ROOF ANGLE	1		INCORRECT SCALE (-2)	
B	ROOF COVER & PURLINS	2		NON-ALIGNMENT OF VIEWS (-2)	
C	RAFTER AND TIE BEAM	3 ½		VIEWS ROTATED (-2)	
D	FASCIA, GUTTER & RWDP	2		SECTION VIEWED INCORRECTLY(-2)	
E	BRANDERING, WALL PLATE & CEILING	2		INCORRECT LETTERING (-1)	
SUBTOTAL		10 ½		BREAK LINE (-1)	
				TOTAL	

ASSESSMENT CRITERIA

FLOOR PLAN			
		POSSIBLE	OBTAINED
1	DOORS + WINDOWS + ROOF LINE	15 ½	
2	ALL FIXTURES	9	
3	ELECTRICAL	9	
4	HATCHING	3	
5	LABELS	2 ½	
SUBTOTAL		39	
WEST ELEVATION			
1	ROOF + RWDP	10	
2	WALLS + FFL + PORCH + WASH TROUGH	6 ½	
3	DOOR + WINDOW	7 ½	
4	LABELS	1	
SUBTOTAL		25	
DETAILED SECTION A-A			
1	ROOF DETAIL	10 ½	
2	FOUNDATION + WALL + DOOR + FIXTURE	9 ½	
3	WINDOW & DOOR	3	
4	HATCHING	6	
5	LABELS	1	
SUBTOTAL		30	
PENALTIES (-)			
TOTAL		94	
NAME AND SURNAME			
CLASS			
6			