

STAPLE



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE/
NATIONAL SENIOR CERTIFICATE

GRADE 12

ENGINEERING GRAPHICS AND DESIGN P1

NOVEMBER 2020

MARKS: 100

TIME: 3 hours

This question paper consists of 6 pages.

Barcode label



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INSTRUCTIONS AND INFORMATION

1. This 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, irrespective of whether the question was attempted or not, must be re-stapled in numerical sequence in the TOP LEFT-HAND CORNER ONLY.
8. Time management is essential in order to complete all the questions.
9. Print your examination number 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			1/2	SIGN	MODERATED			1/2	SIGN	RE-MARKING
1											
2											
3											
4											
TOTAL											
	2	0	0			2	0	0			2 0 0

FINAL CONVERTED MARK

100

CHECKED BY

COMPLETE THE FOLLOWING:

CENTRE NUMBER

CENTRE NUMBER

EXAMINATION NUMBER

EXAMINATION NUMBER

Please turn over

STAPLE

CORNER HEIGHTS AND BOUNDARY LENGTHS OF STAND 2463 IN METRES			
A	357,5	AB	59,5
B	356,7	BC	23,45
C	356,3	CD	61,15
D	357,1	DA	37,5

SYMBOL LEGEND:

1. DECIDUOUS TREES

2. SHRUBBERY

3. DRAIN FIELD

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 20

In the space below, draw, in neat freehand, the front view and top view of the SANS 10143 graphical symbol for a SINGLE SLAB or STALL TYPE URINAL.

1	2019-07-08	ADD COLOUR FOR NEW WORK
REVISION	DATE	DESCRIPTION
FUNKY DESIGNS 52 Rex Street, George 041 640 4321 fd.architects@yahoo.com		
PRINTED BY: TIME-PRINT		DATE OF PRINT: 2019-09-21
DRAWING TITLE: SITE PLAN		
PROJECT: PROPOSED NEW FLATLET AND GARAGE FOR MR A BOBANI ON STAND 2463, BROWN STREET, GEORGE, 6529.		
PROJECT NUMBER: FDBS-2019		DRAWING NUMBER: 1 OF 6
DATE: 2019-07-05	DRAWN: CALIB	CHECKED: ASHLEY
REFERENCE CODE: 422-2019		SCALE: 1 : 400

QUESTION 1: ANALYTICAL (CIVIL)

Given:

The site plan of an existing house and a proposed new flatlet and garage, a title panel and a table of questions. The drawing has not been prepared 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.

QUESTIONS		ANSWERS	
1	What is the reference code of the drawing?	1	
2	Who is the client?	1	
3	On what date was the drawing printed?	1	
4	How many signatures are required?	1	
5	How many stands border STAND 2463?	1	
6	What is the number of the electrical substation?	1	
7	What does the abbreviation IC stand for?	1	
8	What is the height of the precast concrete wall in metres?	1	
9	What is the abbreviation of the component that you will find at 1?	1	
10	What is the colour that must be added to new work, as indicated in the revision?	1	
11	What does the chain line at 2 indicate?	1	
12	Name the symbol at 3.	1	
13	Name the feature at 4.	1	
14	What is the fall of the new sewer line?	1	
15	Which elevation of the existing house faces the new flatlet?	2	
16	What is the total height of the retaining wall in metres?	2	
17	Determine the distance from boundary AD to the reference corner P on the proposed new flatlet in metres.	2	
18	In the space below (ANSWER 18), determine the total length of the precast concrete fence in metres.	3	
19	In the space below (ANSWER 19), determine the total area of the proposed new flatlet and garage in square metres. Round the answer off to TWO decimal places.	3	
20	In the space in the title panel (ANSWER 20), draw, in neat freehand, the front view and top view of the SANS 10143 graphical symbol for a SINGLE SLAB or STALL TYPE URINAL.	4	
TOTAL		30	

ANSWER 18

Show ALL calculations.

ANSWER 19

Show ALL calculations.

PROPOSED NEW FLATLET AND GARAGE

11890

10000

2500

5550

6000

3750

EXAMINATION NUMBER

EXAMINATION NUMBER

2

STAPLE

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EXAMINATION NUMBER

EXAMINATION NUMBER

2

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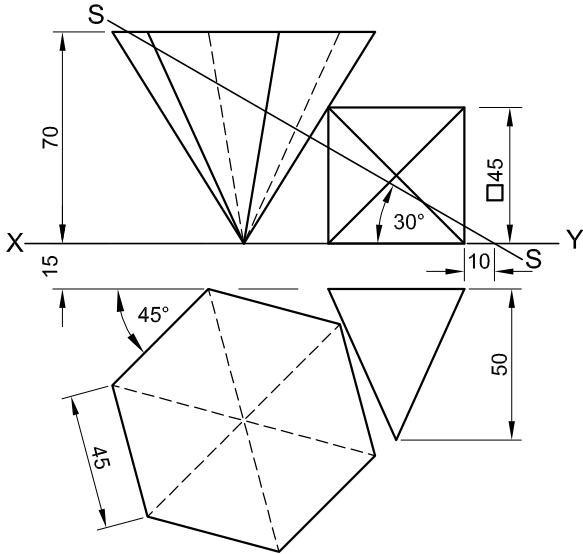


QUESTION 2: SOLID GEOMETRY

- Given:**
- The front view and the top view of a right regular hexagonal pyramid and a right square pyramid
 - Cutting plane S-S

- Specifications:**
- The two solids do not touch
 - Both solids are cut by cutting plane S-S

- 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 right view
 - 2.4 The true shape of the cut surface of the hexagonal pyramid
- Planning is essential.
 - Show ALL construction.
 - Show ALL hidden detail.
- [38]



ASSESSMENT CRITERIA					
1	FRONT VIEW	7½			
2	SECTIONAL TOP VIEW + CONSTRUCTION	13½			
3	SECTIONAL RIGHT VIEW	11½			
4	TRUE SHAPE	5½			
PENALTIES (-)					
TOTAL		38			
EXAMINATION NUMBER					
EXAMINATION NUMBER					3

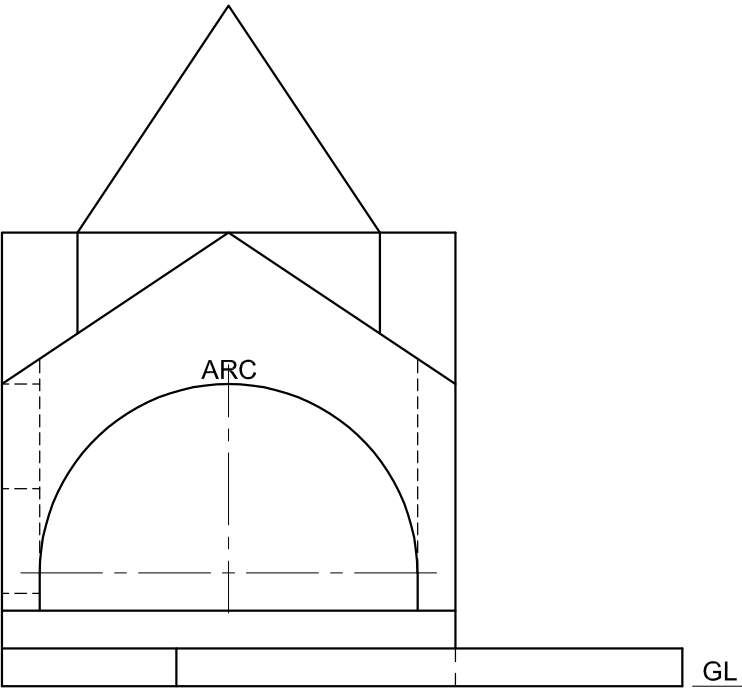
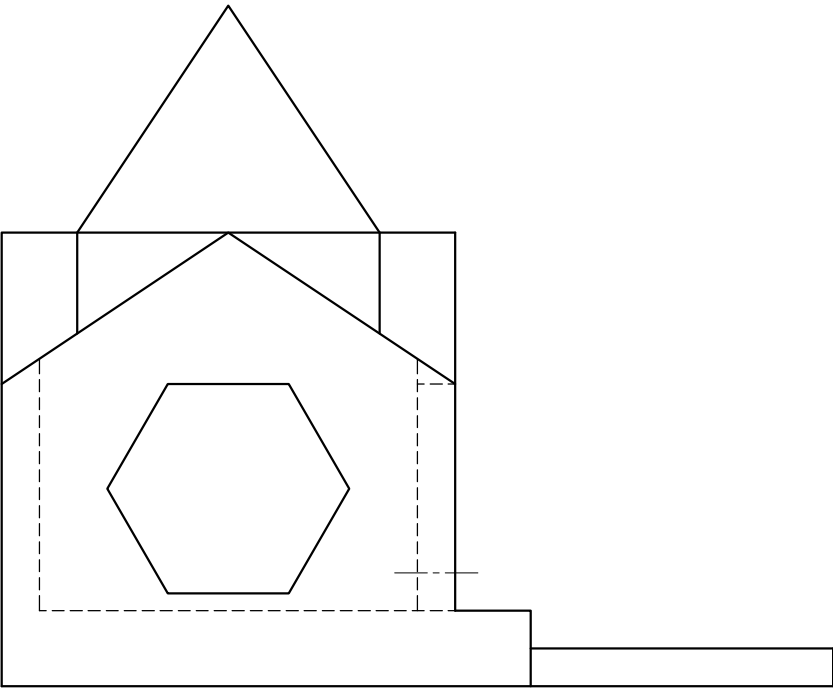
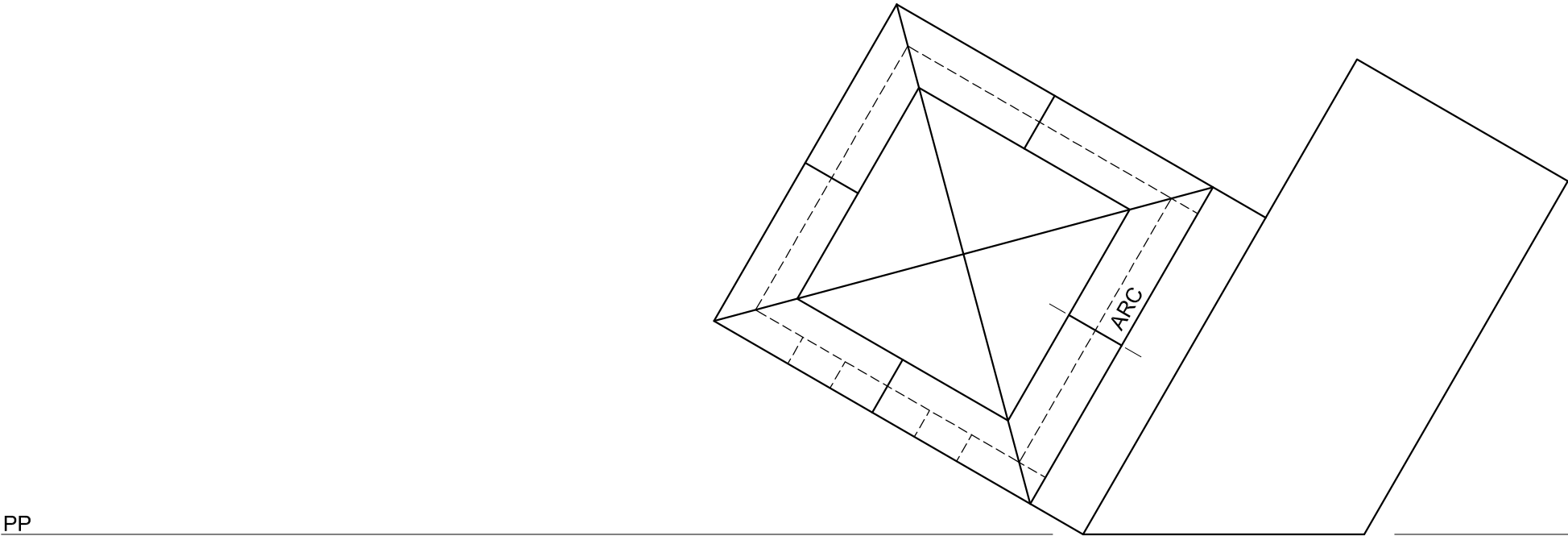


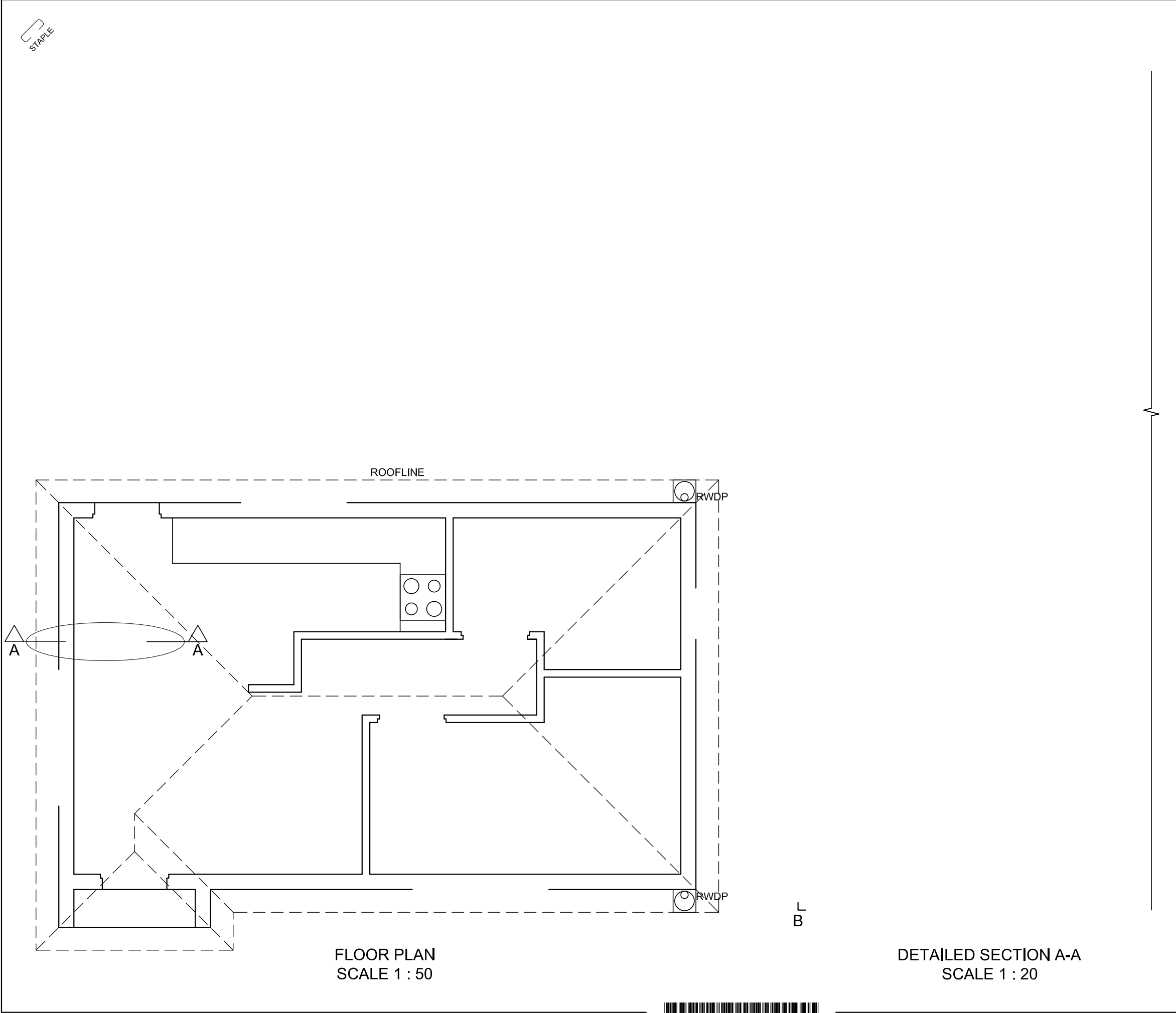
QUESTION 3: PERSPECTIVE

Given:
Three views of a building 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 internal lines seen through the hexagonal and arc openings.
 - NO hidden detail is required.
- [38]

ASSESSMENT CRITERIA					
1	CONSTRUCTION	6			
2	WALLS	10½			
3	HEXAGONAL OPENING	5½			
4	ROOF	9½			
5	ARC	6½			
PENALTIES (→)					
TOTAL		38			





MARK ALLOCATION FOR ROOF SECTION (4.2)		FOR OFFICIAL USE ONLY			
A		INCORRECT SCALE			
B		NON-ALIGNMENT OF VIEWS			
C		VIEW(S) ROTATED			
D		SECTION VIEWED INCORRECTLY			
E		INCORRECT LETTERING			
F					
G					
H					
I					
TOTAL				TOTAL	

ASSESSMENT CRITERIA					
FLOOR PLAN					
		POSSIBLE	OBTAINED	SIGN	MODERATED
1	DOORS + WINDOWS	12			
2	ELECTRICAL	10			
3	FIXTURES	9½			
4	HATCHING	3			
5	LABELS	4½			
SUBTOTAL		39			
SOUTH ELEVATION					
1	ROOF + RWDP	10½			
2	WALLS + FFL	5½			
3	DOOR + WINDOW	7½			
4	LABELS	1½			
SUBTOTAL		25			
DETAILED SECTION					
1	ROOF DETAIL	13			
2	WALL	8			
3	DOOR + CUPBOARD	4			
4	HATCHING	4			
5	LABELS	1			
SUBTOTAL		30			
TOTAL		94			
PENALTIES (-)					
GRAND TOTAL					
EXAMINATION NUMBER					
EXAMINATION NUMBER					
					6

