

HILLCREST HIGH SCHOOL

GRADE 12

**ENGINEERING GRAPHICS AND DESIGN
JUNE EXAMINATION 2021**

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 otherwise stated.
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 attempted 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.

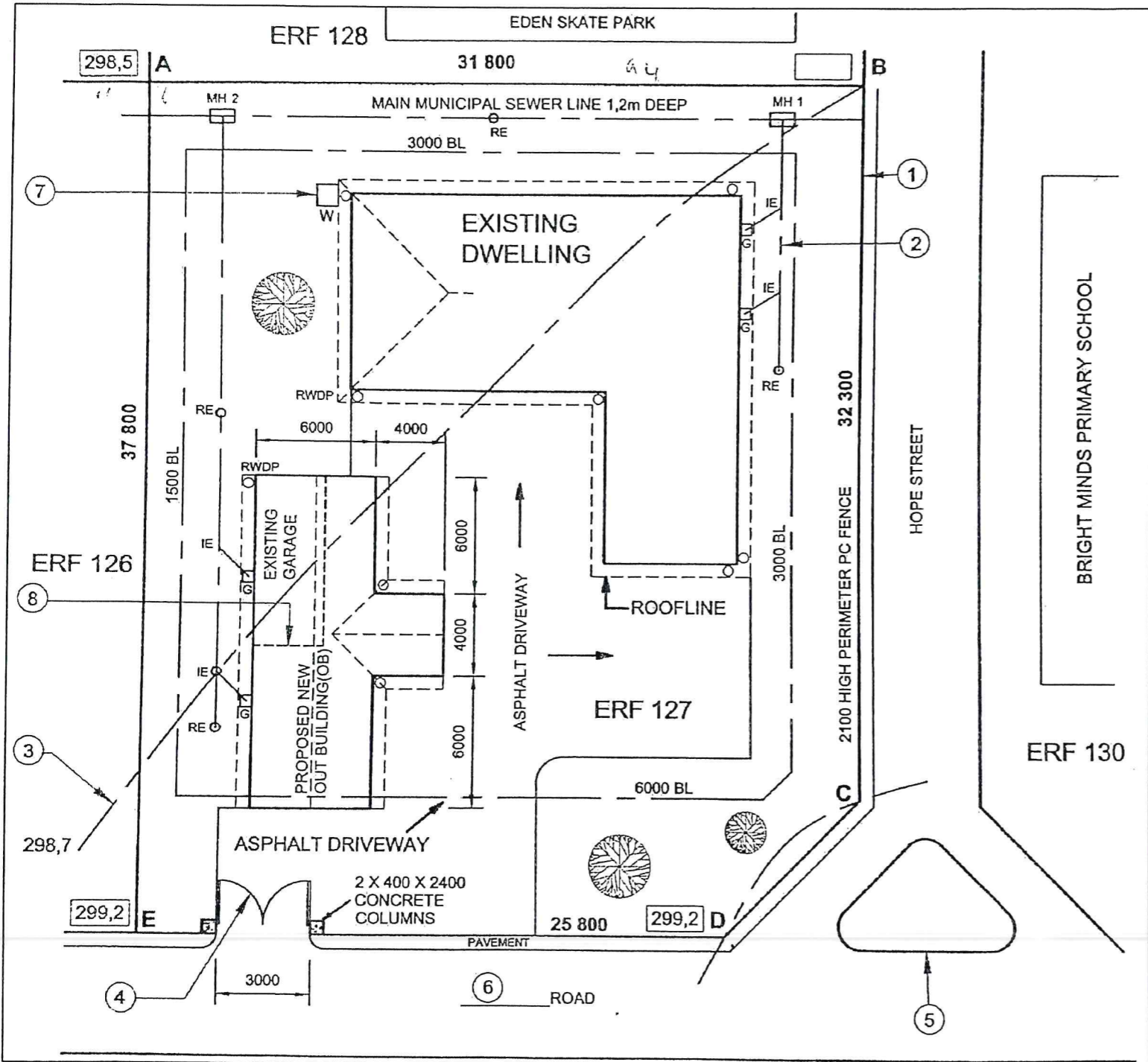
FOR OFFICIAL USE ONLY						
QUESTION	LEARNER'S MARK				MODERATED MARK	
ONE				20		
TWO				20		
THREE				28		
FOUR				32		
TOTAL	1	0	0			

MARKS : 100
 TIME : 2 HOURS
 This question paper consists of 5 pages.

FINAL CONVERTED MARK	CHECKED BY
100	

NAME : _____ GRADE : _____

- NOTE:
- Contractors must verify all dimensions and levels on site before commencing work. Architects to be notified immediately of any discrepancies.
 - Driveway to be asphalted on compacted crusher run.
 - Existing 100 UG - PVC sewerage pipe laid to fall 1:40.
 - All rain water to run off ground surface, via RWDP.



QUESTION ONE : CIVIL ANALYTICAL

GIVEN:
A site plan for an existing dwelling and a new out building, 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 all refer to the accompanying drawing and title panel. [20]

QUESTIONS		ANSWERS
1	What is the reference code?	1/2
2	What was the first revision?	1/2
3	In what colour would waste water pipe be presented?	1/2
4	Name the feature at 1.	1/2
5	Name the feature at 2.	1/2
6	Name the feature at 3.	1/2
7	Name the feature at 4.	1/2
8	Name the feature at 5.	1/2
9	Identify the name of the road at 6.	1/2
10	What is the height of the perimeter fence, in metres?	1/2
11	What is the value of the corner height at B?	1
12	Name the feature indicated at 7.	1
13	What does the line at 8 indicate?	1
14	What type of roof is planned for the proposed new out building?	1
15	Which elevation of the new dwelling faces Eden Skate Park?	1
16	Supply one further reason why this plan is likely to be revised for the second time.	1
17	Using instruments, complete the "hip and valley" roof on the existing dwelling.	2
18	Determine the PERIMETER of the proposed new OUT BUILDING in metres. [Show all calculations]	2
19	Determine the AREA of ERF 127 in square metres. [Answer below. Show all calculations]	3
20	In the space below, draw in neat freehand, the SANS 10143 convention symbol for a GREASE TRAP.	2

ANSWER FOR QUESTION 19:

ANSWER FOR QUESTION 20:

PROJECT PROPOSED NEW ALTERATION FOR M BAJNATH ON STAND 127, 21 TAGORE ROAD, CLARE ESTATE SITUATED IN THE DURBAN MUNICIPALITY OF KWAZULU-NATAL.		DRAWING TITLE : SITE PLAN			1	30-07-2018	WIDEN ENTRY POINT
PROJECT NUMBER SITE-09/18	DRAWN BY COLIN S	DATE 15-07-2018	REVISION		DATE	DESCRIPTION	
REFERENCE CODE KZN 2018/07	CHECKED BY DHUKIE	DATE 30-07-2018	CHANGES ARCHITECTS EST 1984 19 HOPE STREET, CLARE ESTATE CHANESARCH@gmail.com				
DRAWING NUMBER GS 1114	PASSED BY PERU	DATE 15-08-2018	SCALE 1:200				

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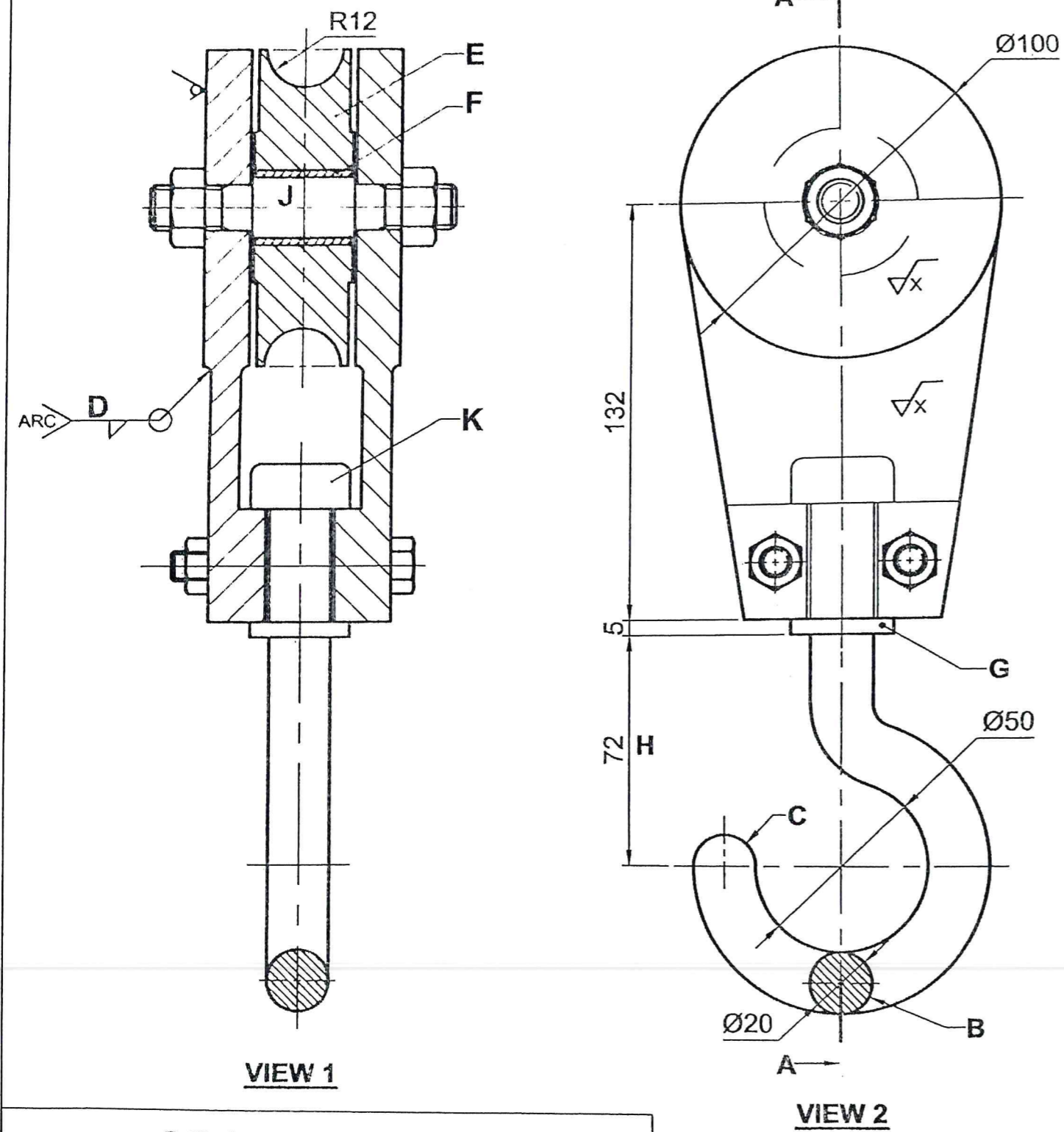
QUESTION TWO : MECHANICAL ANALYTICAL

GIVEN:

A detailed drawing showing 2 views of an assembled CRANE HOOK., a title block and a table of questions. The drawings have not been prepared to the indicated scale.

INSTRUCTIONS:

Complete the table below by neatly answering the questions, which all refer to the accompanying assembly drawing and title panel. [20]



QUESTIONS		ANSWERS
1	Which company manufactured the CRANE HOOK?	1/2
2	What is the company slogan?	1/2
3	How old is the company?	1/2
4	When was the CRANE HOOK drawn?	1/2
5	What is the total height of the assembly?	1
6	If the drawing was drawn full size, what would dimension H read?	1
7	Identify part E.	1
8	Identify part F.	1
9	How many components make up this assembly?	1
10	How many bolts are there in this assembly?	1
11	What does this symbol denote?	1
12	What type of symbol is shown at point D?	1
13	What is denoted by the triangle in symbol D?	1
14	Identify feature B.	1
15	Identify feature G.	1
16	What is the maximum diameter of the cable that can be used to suspend the CRANE HOOK?	1
17	Why is item E not fixed to item J by using a key?	2
18	Draw, in neat FREEHAND, the projection symbol used for this assembly in the space provided below.	4

CRANE HOOK			NOTES	
SCALE 1:2			1	ALL DIMENSIONS MILLIMETRES
DRAWN BY	R. MOHUNLAL	DATE 22-07-2016	2	ALL UNSPECIFIED RADII R4
CHECKED BY	S.V. MOODLEY	DATE 14-08-2016	3	DRAWING PROGRAMME AUTOCAD 2014
APPROVED BY	N. WARD	DATE 16-08-2016	4	DRAWING NO. T12 - N/16
			5	MAXIMUM LIFT CAPACITY 1000 Kg

SAMCO ENGINEERING
EST 1976
'RAILS & CRANES- ALWAYS ON TRACK'
101 BUCKS PLACE, BOARDWALK

ANSWER FOR QUESTION 20:

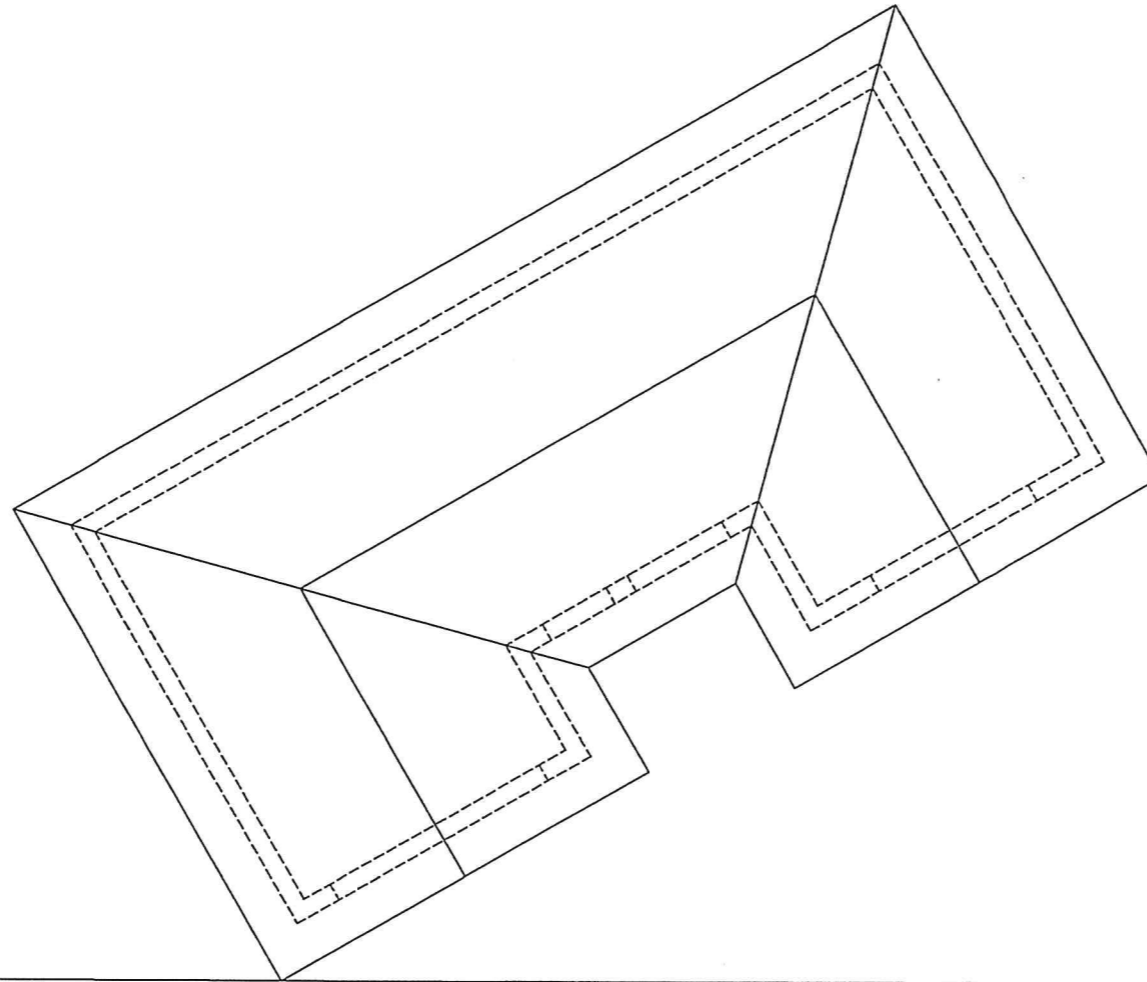
NAME _____

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ASSESSMENT CRITERIA

1	CONSTRUCTION & VP'S	4	
2	WALLS	5	
3	ROOF	8	
4	DOOR & WINDOWS	8	
5	ARCH	7	
TOTAL		32	



QUESTION 3: PERSPECTIVE

Given:

Three views of a house with a pitched roof and the information needed to draw a two-point perspective drawing.

PP- Picture Plane

HL - Horizon Line

GL - Ground Line

SP - Station Point

Instructions:

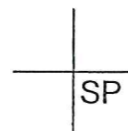
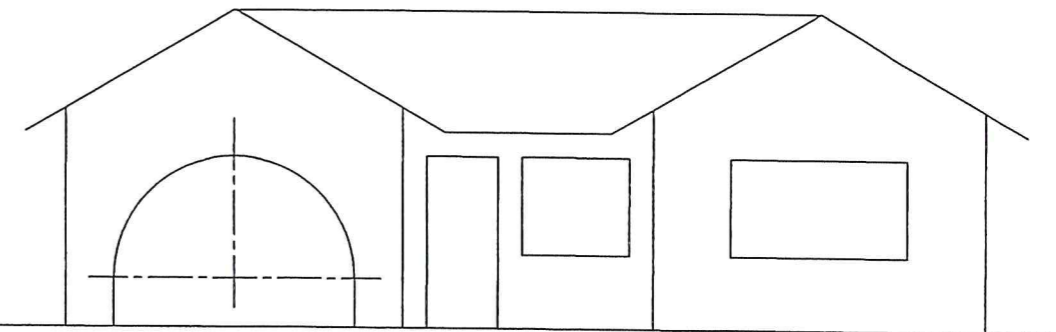
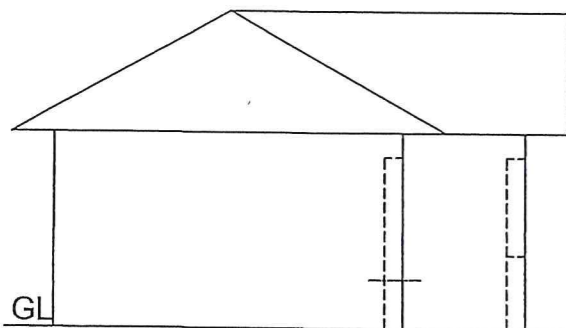
Complete the perspective drawing.

NOTE:

- Align the drawing sheet with the GL.
- Determine and label the vanishing points.
- Show ALL construction.
- No Hidden detail is required.

PP

HL



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QUESTION 4: ISOMETRIC DRAWING

Given:

- The front, top and left view of a mounting plate.
- The position of point A on the drawing sheet.

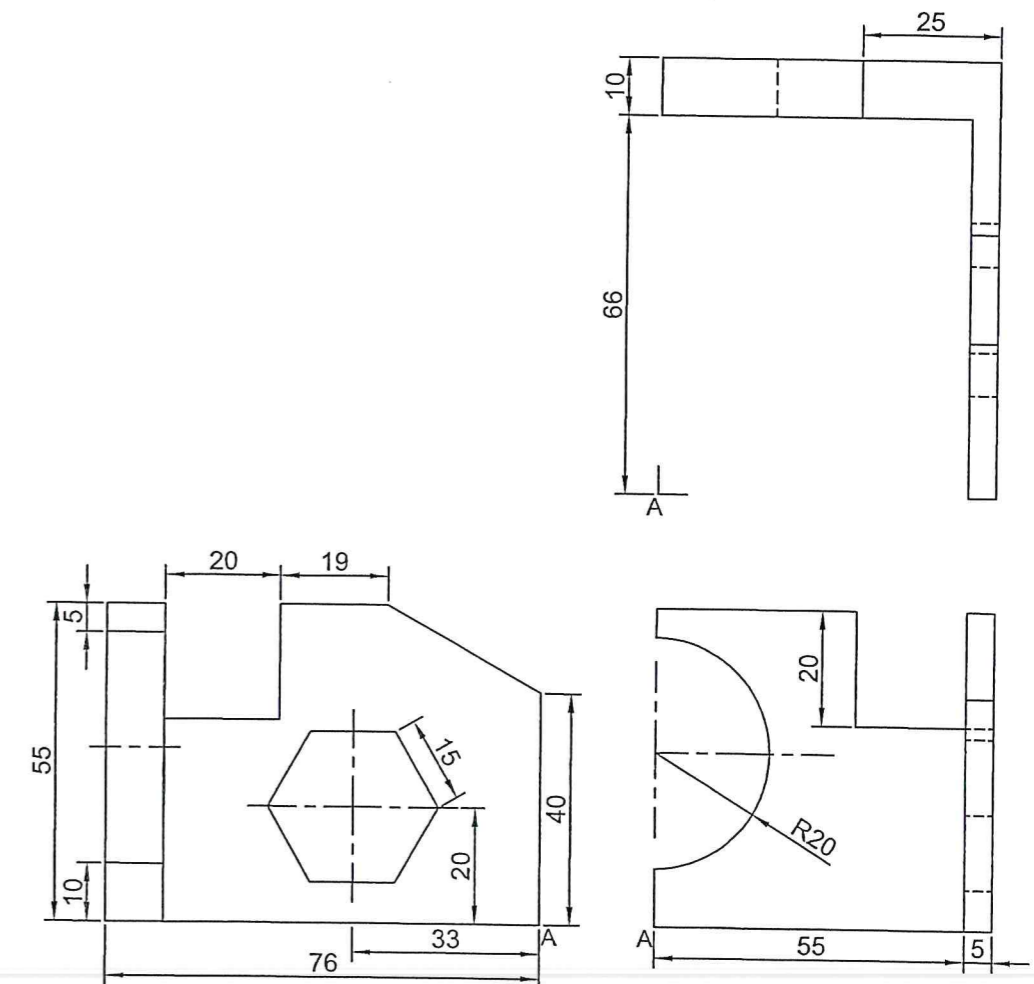
Instructions:

Using a Scale 1:1, convert the orthographic views into an isometric drawing.

NOTE:

- Make A the starting point of the drawing.
- Show ALL construction.
- NO hidden detail is required.

[34]



A

ASSESSMENT CRITERIA		
1	PLACEMENT & AUXILIARY	3
2	ISOMETRIC LINES	13
3	NON-ISO. LINES	6
4	CIRCLE & CENTRE LINES	6
TOTAL		28

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