



HILLCREST HIGH SCHOOL

**GRADE 10**

**ENGINEERING GRAPHICS AND DESIGN  
JUNE EXAMINATIONS 2022  
PAPER 1**

**MARKS : 85  
TIME : 2 HOURS**

**INSTRUCTIONS AND INFORMATION**

1. This question paper consists of THREE questions.
2. Answer ALL the questions.
3. ALL drawings are in third-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 name 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	LEARNERS MARK		MODERATED MARK		
ONE			25		
TWO			25		
THREE			35		
TOTAL		8	5		

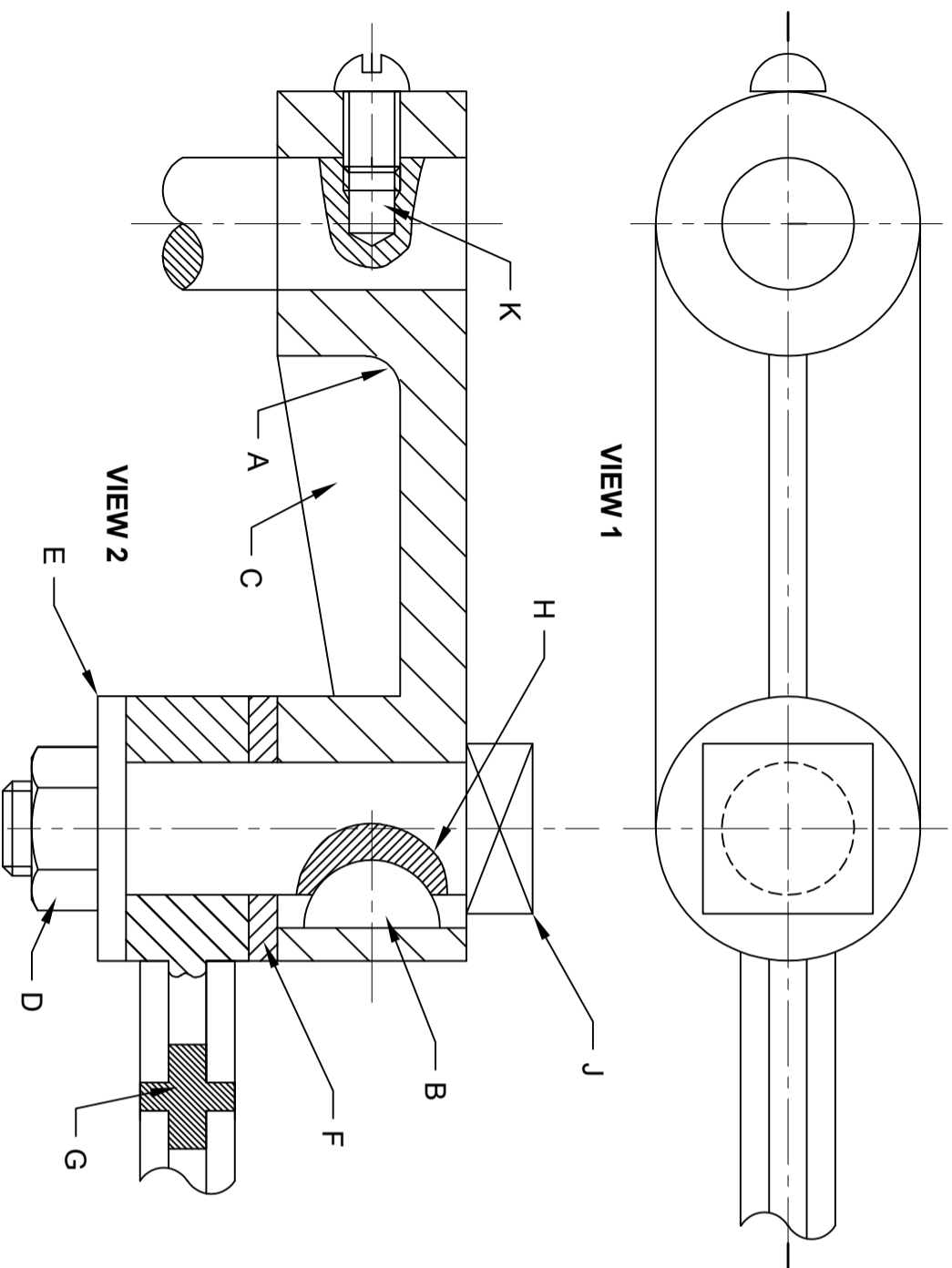
FINAL CONVERTED MARK	CHECKED BY
100	

01

**QUESTION ONE : MECHANICAL ANALYTICAL**

**GIVEN:**  
Two views of a GUIDE UNIT and a table of questions based on the drawings.

**INSTRUCTIONS:**  
Complete the table below by neatly answering the questions, which all refer to the accompanying drawing and title panel. **[25]**

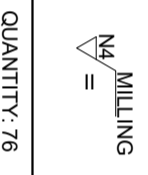


**QUESTIONS**

**ANSWERS**

1	How old is the company?		1
2	What is the website address of this company?		1
3	What is the drawing number?		1
4	Where is the company based?		1
5	What is the scale for the drawing?		1
6	How many components make up this assembly?		1
7	What would VIEW 1 be called?		1
8	What would VIEW 2 be called?		1
9	Identify the following parts as indicated by the letters: A	A	1
		B	1
		C	1
		D	1
		E	1
		F	1
10	What is the tolerance of the drawing?		1
11	What type of section is shown at point G?		1
12	What type of section is shown at point H?		1
13	Fill in the arrows for the cutting plane and label it A - A.		3
14	What is the shape of the feature at point J?		1
15	What type of hole is shown at point K?		1
16	Complete the projection symbol in the space provided.		3
<b>TOTAL:</b>			<b>25</b>

ALL DIMENSIONS ARE IN MILLIMETRES. ALL UNSPECIFIED RADII ARE 2.5 mm. UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE ± 0,03.



2012-08-06	MARYNA	ADD MACHINING SYMBOLS	2	
2012-08-04	MARYNA	INCREASE TOLERANCE	1	
DATE	REVISED BY	REVISION DESCRIPTION	No	

QUANTITY: 76	ANSWER 16
DATE: 2012-07-15	
CHECKED BY: AKHEEL	
DATE: 2012-07-18	
APPROVED BY: DANIEL	
DATE: 2012-07-19	
MATERIAL: CAST IRON	
FILE NAME: UFF 335.dwg	
HEAT TREATMENT: NONE	
DRAWING No. 12-0967-rnsc	

**SAMCO** ENGINEERING EST. 1986  
261 SYLVESTER NTULI ROAD DURBAN  
WWW.SAMCO.CO.ZA 043 645 7820

**CONNECTOR**

SCALE: 1:2

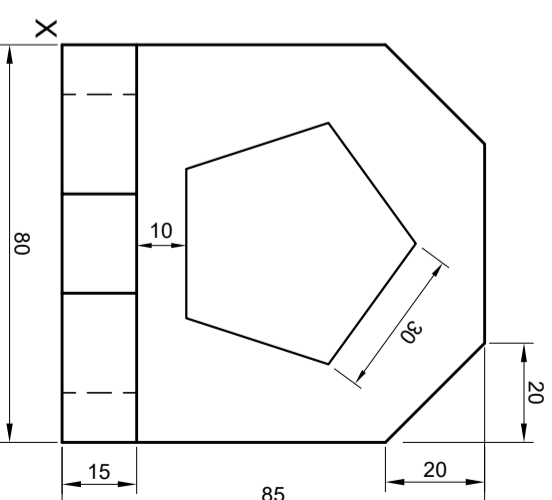
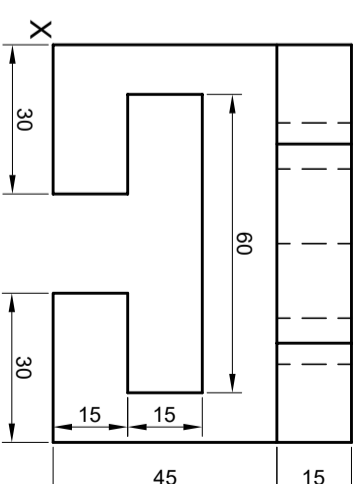
02

**QUESTION TWO: ISOMETRIC DRAWING**

**Given:**  
The front view and top view of a casting.

**Instruction:**  
Use the given views to produce an ISOMETRIC drawing of the block using a scale of 1:1

Make point X the lowest point of your drawing. [25]



ASSESSMENT CRITERIA			
	POSSIBLE	OBTAINED	SIGN
			MODEARTE
1	ISOMETRIC LINES	13	
2	NON-ISOMETRIC LINES	3	
3	AUXILIARY VIEW	2	
4	PENTAGON	7	
TOTAL		25	

**QUESTION 3: MECHANICAL ASSEMBLY**

**Given:**

- The exploded isometric drawing of the parts of a CLAMP and BRACKET assembly, showing the position of each part relative to all the others.
- Orthographic views of each of the parts of the assembly

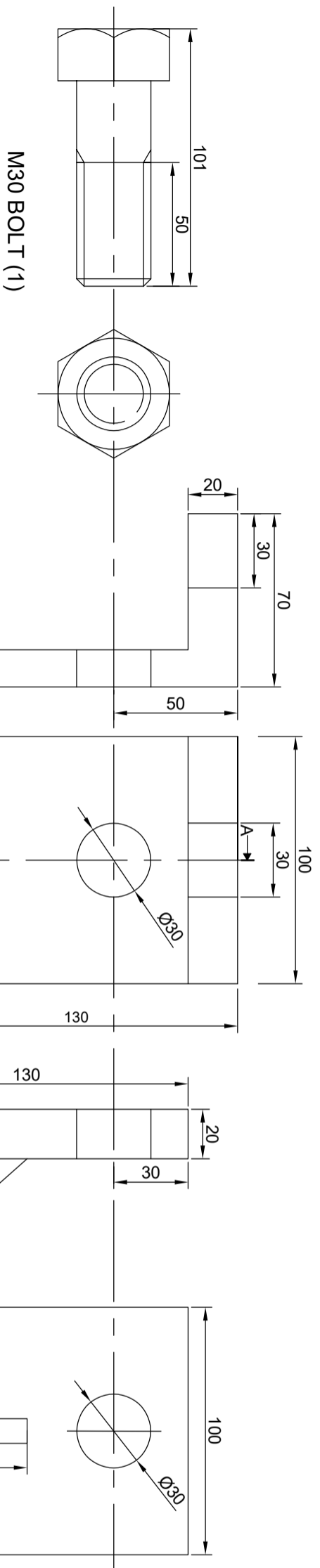
**Instructions:**

- Draw to a scale of 1:1 and in third angle orthographic projection, on the next page. The following view of the assembled parts of the assembly:
- 2.1. A **sectional front view** on cutting plane A-A, as seen from the direction arrow shown on the exploded isometric drawing. The cutting plane, which passes vertically through the centre of the assembly, is shown on part 2.
- ALL drawing must comply with the guidelines contained in the SANS 10111.

**NOTE:**

- Planning is essential
- Show **THREE** faces for the nut and **TWO** faces of the bolt head and **ALL** necessary construction.
- Label the sectioned view.
- Print the title and the scale in the space provided.
- NO** hidden detail is required.

[35]

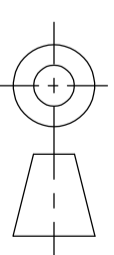
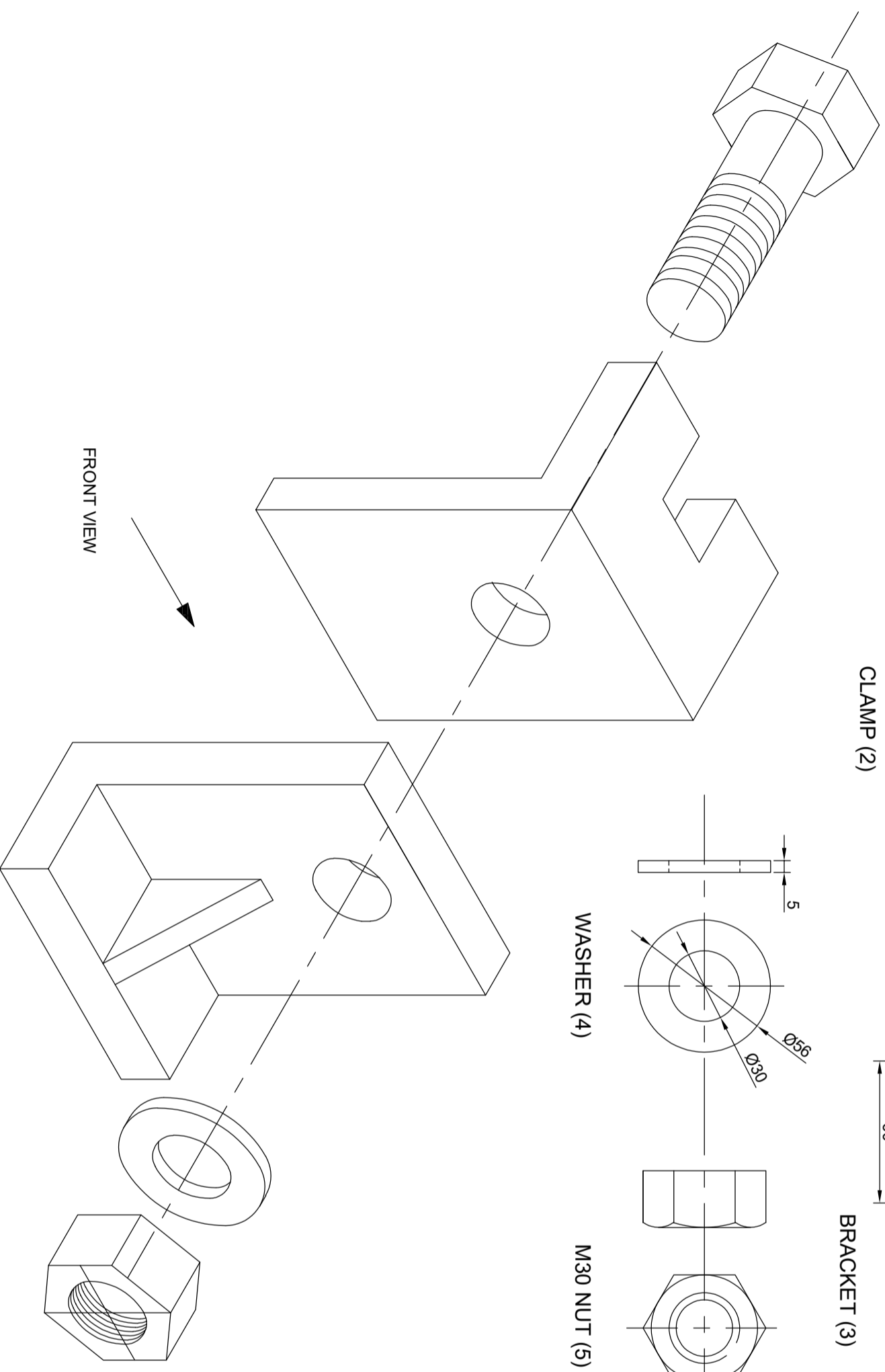


CLAMP (2)

BRACKET (3)

WASHER (4)

M30 NUT (5)



**PARTS LIST**

1	M30 BOLT	1	
2	CLAMP	1	
3	BRACKET	1	
4	WASHER	1	
5	M30 NUT	1	

**CCLL**  
ENGINEERING CC

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La Lucia  
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031 562 0050

ALL DIMENSIONS ARE  
IN MILLIMETRES

ALL UNSPECIFIED  
RADII ARE R4

