



HILLCREST HIGH SCHOOL

**GRADE 11**

**ENGINEERING GRAPHICS AND DESIGN  
JUNE EXAMINATIONS 2022  
PAPER 2**

**MARKS : 120  
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				28	
TWO				27	
THREE				65	
TOTAL	1	2	0		

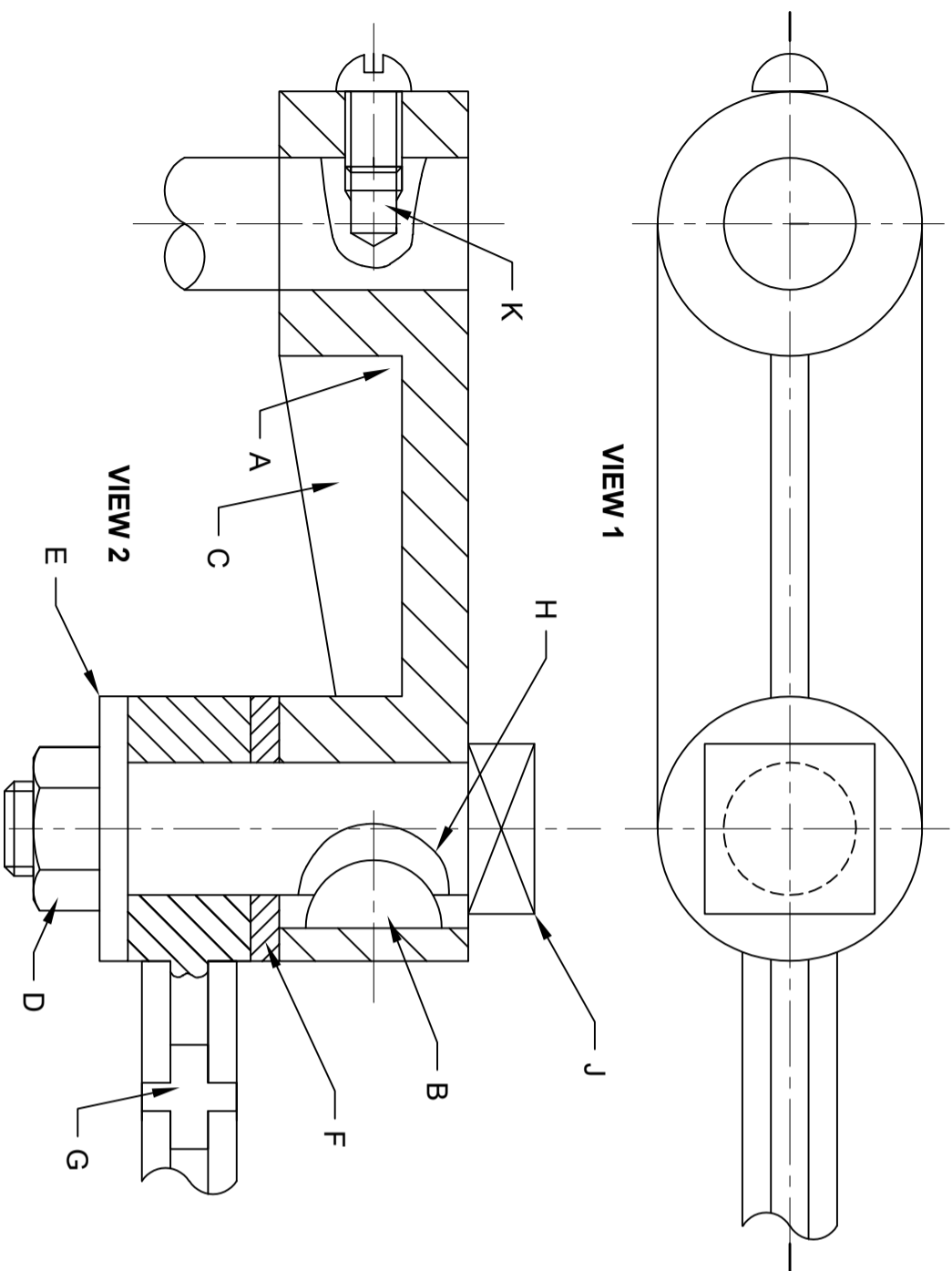
FINAL CONVERTED MARK	CHECKED BY
100	

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. **[28]**



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	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 hatching that has been omitted in four areas in VIEW 2.	4
14	If item D is M20. What is the height of item D?	1
15	Fill in the arrows for the cutting plane and label it A - A.	2
16	What is the shape of the feature at point J?	1
17	What type of hole is shown at point K?	1
18	Complete the projection symbol in the space provided.	2
TOTAL:		28

		ALL DIMENSIONS ARE IN MILLIMETRES. ALL UNSPECIFIED RADII ARE 2.5 mm.	
2012-08-06	MARYNA	ADD MACHINING SYMBOLS	2
2012-08-04	MARYNA	INCREASE TOLERANCE	1
DATE	REVISED BY	REVISION DESCRIPTION	№
<p><b>SAMCO</b> ENGINEERING</p> <p>261 SYLVESTER NTULI ROAD DURBAN</p> <p>WWW.SAMCO.CO.ZA 043 645 7820</p>		CHECKED BY: AKHEEL	DATE: 2012-07-15
		APPROVED BY: DANIEL	DATE: 2012-07-18
		MATERIAL: CAST IRON	DATE: 2012-07-19
		HEAT TREATMENT: NONE	FILE NAME: UFF 335.dwg
TITLE		CONNECTOR	DRAWING No. 12-0967-rnsc
		SCALE: 1:2	

ANSWER 18

**QUESTION TWO: ISOMETRIC DRAWING**

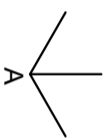
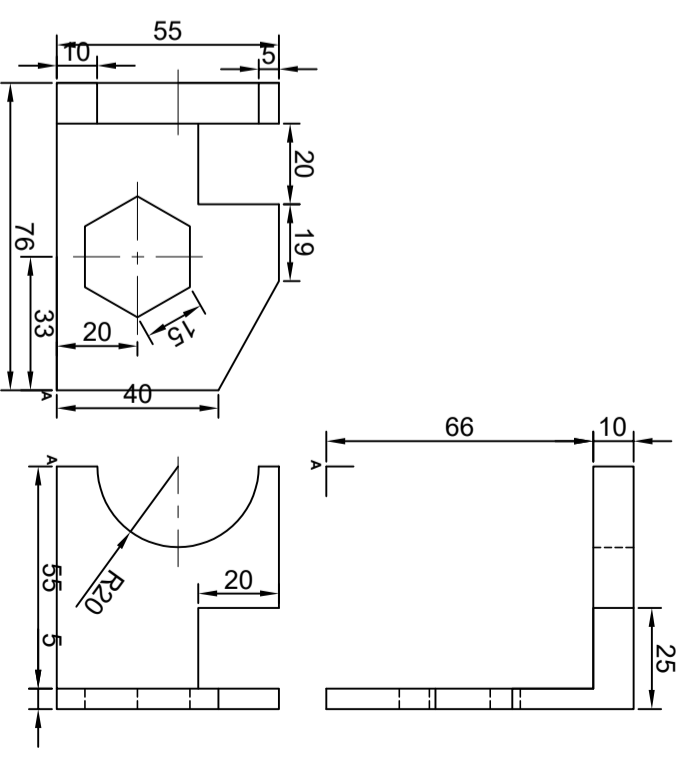
**Given:**

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

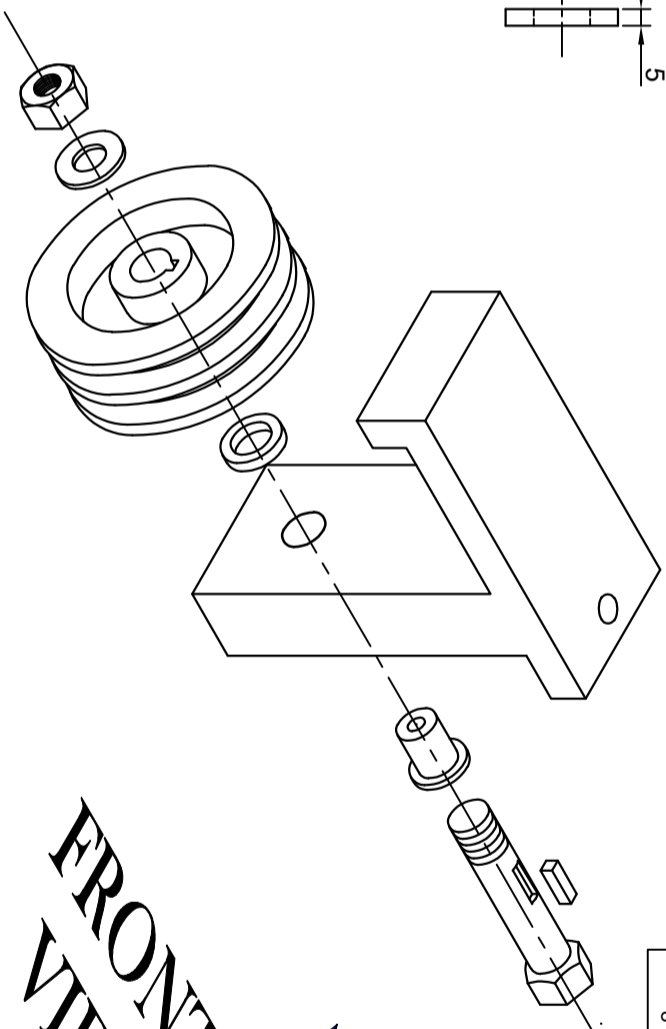
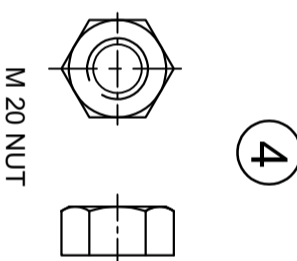
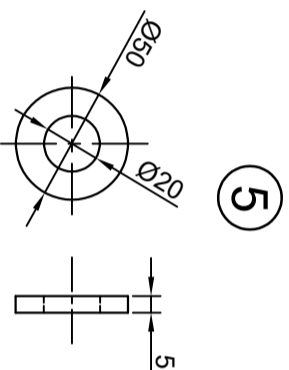
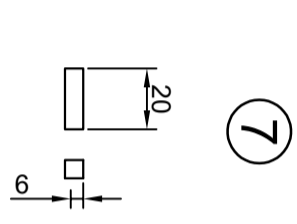
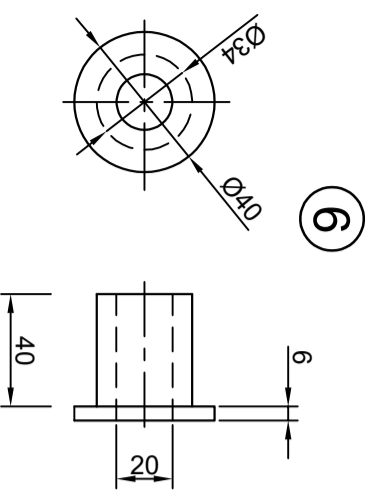
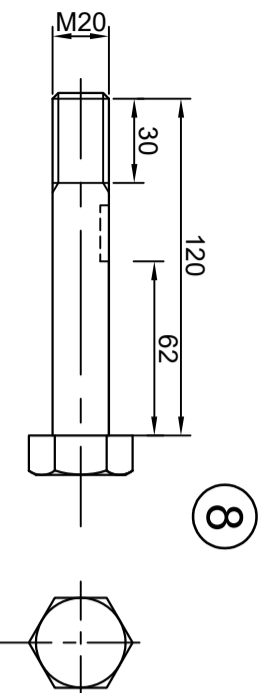
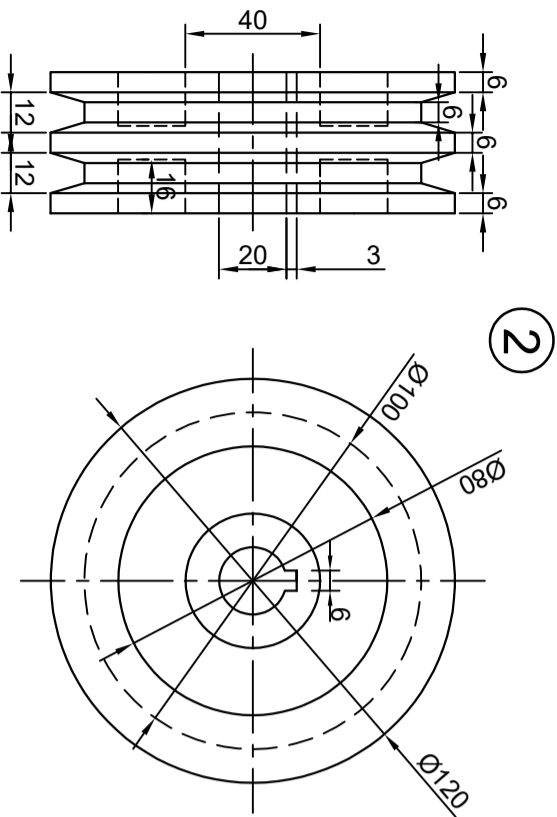
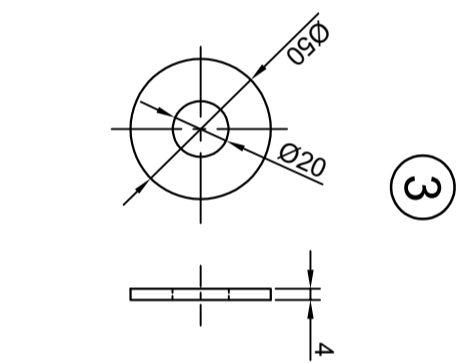
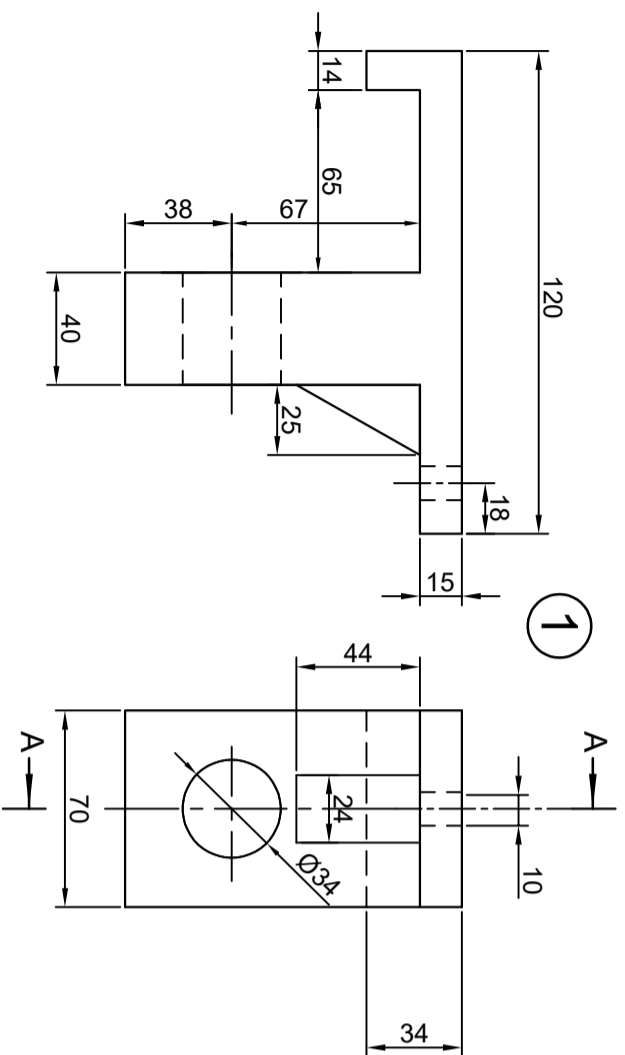
**Instruction:**

Use a scale of 1 : 1, convert the orthographic views into an isometric drawing.

- Make point A the lowest point of your drawing.
  - Show all construction.
  - No hidden detail is required.
- [27]



ASSESSMENT CRITERIA			
	POSSIBLE	OBTAINED	SIGN MODERATE
1	ISOMETRIC LINES	13	
2	NON-ISOMETRIC LINES + HEXAGON	7½	
3	AUXILIARY VIEW	2	
4	CIRCLE + CENTRE LINES	4½	
<b>TOTAL</b>		<b>27</b>	



**QUESTION THREE: MECHANICAL ASSEMBLY**

**Given:**

- Orthographic views of each of the parts of the **VERNIER PULLEY** assembly
- **EXPLODED ISOMETRIC VIEW** showing the assembly of the components

**Instructions:**

- Answer this question on page 5.
- Draw to **scale 1 : 1** the following view of the assembled parts of the **VERNIER PULLEY** assembly:

**3.1 A full sectional front view** on cutting plane A-A, as indicated by the cutting plane on component 1.

The drawing must comply with the guidelines contained in the SABS 0111.

**NOTE:**

- Show **THREE** faces of the bolt head and **TWO** faces of the nut.
- Show **ALL** necessary construction.
- **NO** hidden detail is required.
- Any dimensions not given may be assumed to good proportion.

[65]

PARTS LIST		
NUMBER	PART	QUANTITY
1	HOUSING	1
2	VERNIER PULLEY	1
3	WASHER	1
4	M20 HEX.NUT	1
5	SPACER	1
6	BUSH	1
7	KEY	1
8	M20 BOLT	1

