STAPEL

education

Department of Education
FREE STATE PROVINCE

PROVINCIAL PAPER

GRADE 10

ENGINEERING GRAPHICS AND DESIGN P2

NOVEMBER 2018

MARKS: 100
TIME: 2 HOURS

This paper consists of 6 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions.
2. Answer ALL the questions.
3. ALL drawings are in third-angle orthographic projection, unless stated otherwise.
4. ALL drawings must be drawn to scale 1:1, unless stated otherwise.
5. ALL questions must be answered on the DIAGRAM SHEETS, as instructed.
6. ALL the pages must be restapled in numerical sequence, irrespective of whether the question was attempted or not.
7. Time management is essential in order to complete all the questions.
8. Print your name and surname as well as the grade in the space provided on each page.
9. ALL answers must be drawn accurately and neatly.
10. ALL necessary construction and projection lines must be shown.
11. Plan each drawing carefully from the given position, which is indicated on the diagram sheets.
12. Any details or dimensions not given must be assumed in good proportion.

FOR OFFICIAL USE ONLY								
QUESTION	MARKS OBTAINED			½	MODERATED			½
1								
2								
3								
4								
TOTAL								
	1	0	0		1	0	0	

FINAL CONVERTED MARK	CHECKED BY
100	

NAME & SURNAME		GRADE	10	1

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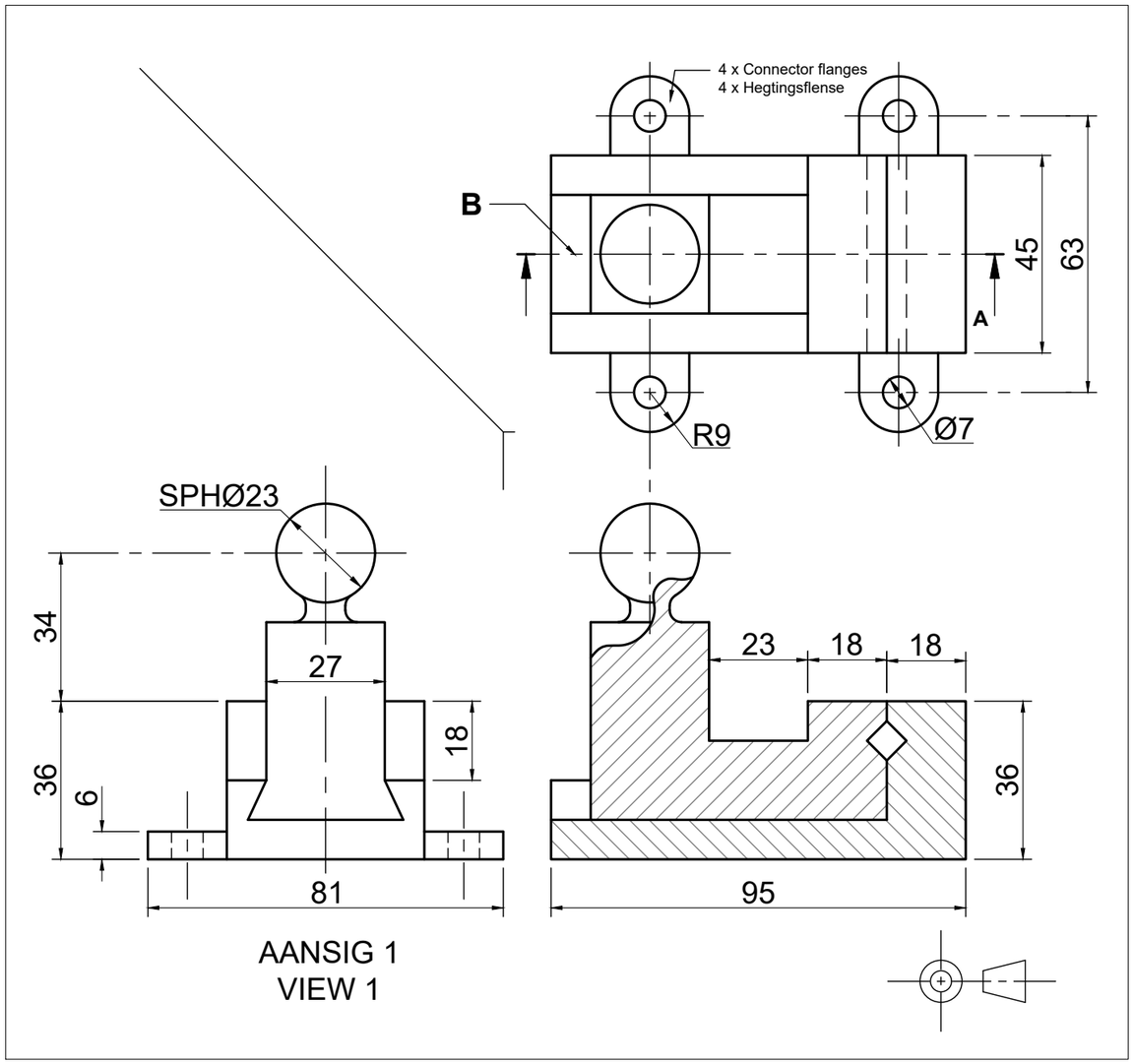

AANSIG 1
VIEW 1

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
The working drawing of a clamp device in third-angle orthographic projection, a title block and a table of questions.

Instructions:
With a pencil, complete the table by neatly print the correct answers in the corresponding answer column. All the questions refer to the accompanying drawings and the title block on diagram sheet 1. **[20]**

QUESTIONS		ANSWERS			
1	On which date was this drawing approved?		1		
2	Who designed the clamp device?		1		
3	What treatment process must be applied on the clamp device?		1		
4	What is the name of the drawing file?		1		
5	How many clamp devices should be manufactured?		1		
6	What is VIEW 1 called?		1		
7	What is the size of the sphere shaped handle?		1		
8	What is the dimension height of the connector flanges at view 1?		1		
9	What is the purpose of the line indicated at B?		1		
10	What size of bolts is needed to secure the clamp device to a work surface?		1		
11	What is the total width of the clamp device?		1		
12	Who drew the drawing?		1		
13	What material is used to manufacture the clamp device?		1		
14	On what date was the drawing drawn?		1		
15	How many parts make up the clamp device?		1		
16	What is the maximum jaw slide distance of the clamp device?		1		
17	What scale is indicated for the drawing?		1		
18	What drawing program was used to draw the drawing?		1		
19	Which manufacturing company will manufacture the clamp device?		1		
20	Which SI measuring unit is used for all dimensions on this drawing?		1		
	TOTAL		20		

FILE NAME: LMG 7.62 MM	MATERIAL: CAST IRON	ALL DIMENSIONS ARE IN MILLIMETERS	
DRAWING NUMBER: 101 CLAMP DEVICE DUP CONTRACTORS 17 VERRE WAY SENEKAL	FINISHING: CHROME PLATING DRAWING PROGRAM: AUTOCAD 2016 Scale 1:1	DRAWN BY: R SECHABA	2017/06/22
		CHECKED: J TSEPANG	2017/07/25
	ALL UNSPECIFIED RADII ARE R3.	APPROVED BY: DJ SMALL	2018/05/10
Design by: STEM ENGINEERING WORKS		Manufacturer: **CAST WORLD**	
TITEL: CLAMP DEVICE		Contact detail: 33 Kolbe Avenue Prieska 1039 www.zuis.co.za. Contact Number: 089 000 2598	Manufacture 100 Clamp Devices

NOTES:

Use a M7 size bolt to join the 4 connector flanges of the clamp device to a work surface.

Maximum jaw slide distance of clamp device: 50mm.

DIAGRAM SHEET 1	ENGINEERING GRAPHICS AND DESIGN	NOVEMBER 2018 - PAPER 2	NAME & SURNAME	GRADE	10 2

Please turn page over

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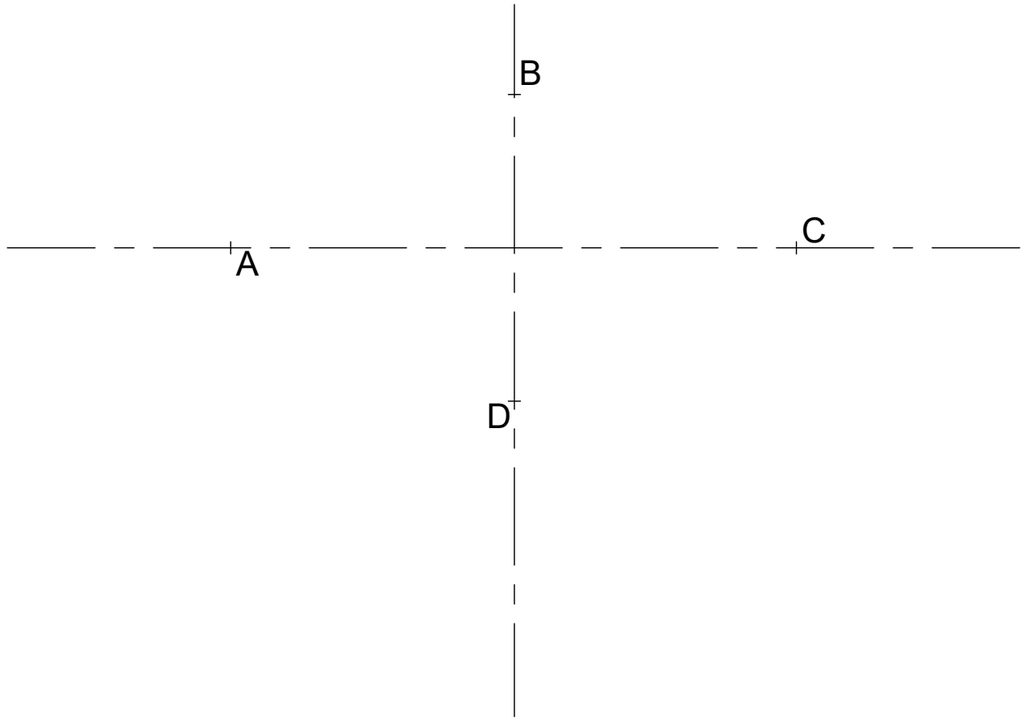
QUESTION 2 : GEOMETRICAL CONSTRUCTION

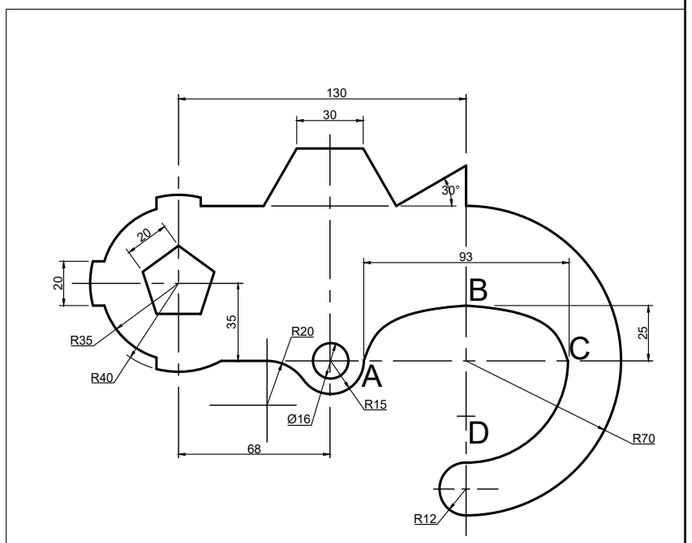
Given:

- A casting with all the necessary dimension.
- The position of A, B, C & D for the ellipse.
- Some of the center lines.

Instructions:
Copy the given view to scale 1:1.

Note:
ALL construction must be shown for maximum marks.





ASSESSMENT CRITERIA				
1	CIRCLES $(\frac{20}{2})$	10		
2	POLYGONS $(\frac{8}{2})$	4		
3	ELLIPSE $(\frac{19}{2})$	9.5		
4	LINES $(\frac{9}{2})$	4.5		
TOTAL		28		

DIAGRAM SHEET 2	ENGINEERING GRAPHICS AND DESIGN	NOVEMBER 2018 - PAPER 2	NAME & SURNAME		GRADE	10	3

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AUXILIARY VIEW

S

QUESTION 3: ISOMETRIC DRAWING

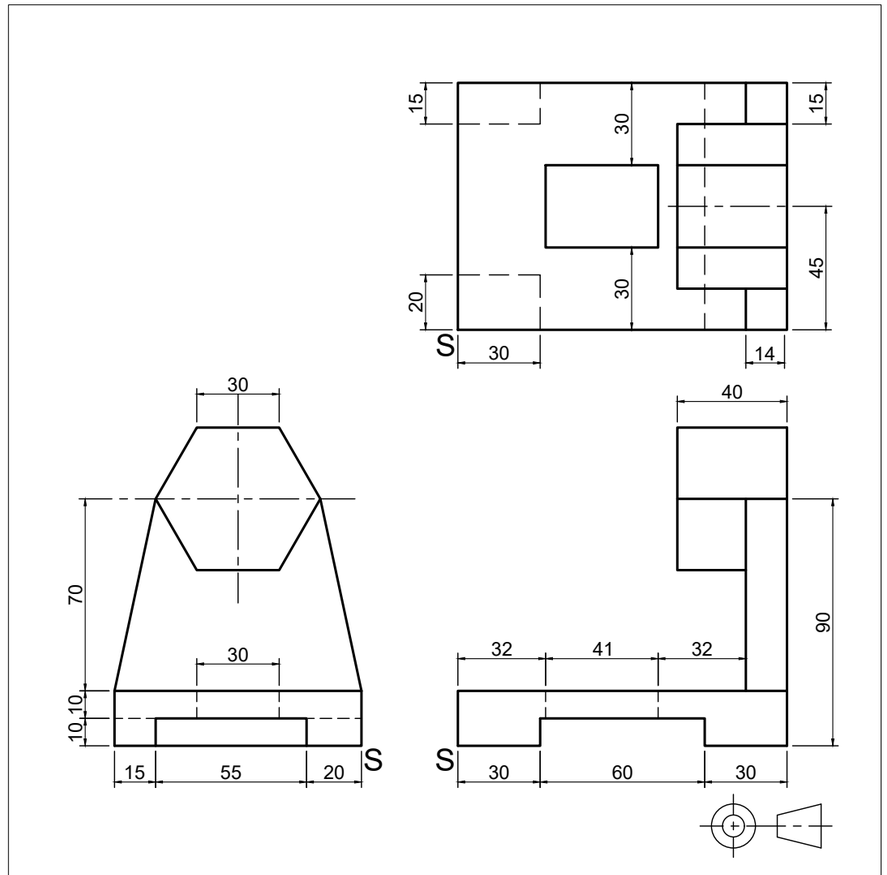
Given:

- The front view, top view and left view of a casting.
- The position of point S on the diagram sheet 3 (page 4).

Instructions:

Use a scale of 1:1 and convert the orthographic view of the casting into an isometric drawing.

- Make S the lowest point of the drawing.
- Show ALL necessary construction lines
- Show ALL necessary auxiliary views.
- NO hidden detail is required. **[24]**



ASSESSMENT CRITERIA				
1	PLACEMENT	2		
2	ISO- + NON ISOMETRIC LINES ($\frac{19}{2}$)	14.5		
3	AUXILIARY VIEW ($\frac{2}{2}$)	1		
4	HEXAGON ($\frac{13}{2}$)	6.5		
	TOTAL	24		

DIAGRAM SHEET 3	ENGINEERING GRAPHICS AND DESIGN	NOVEMBER 2018 - PAPER 2	NAME & SURNAME		GRADE	10	4

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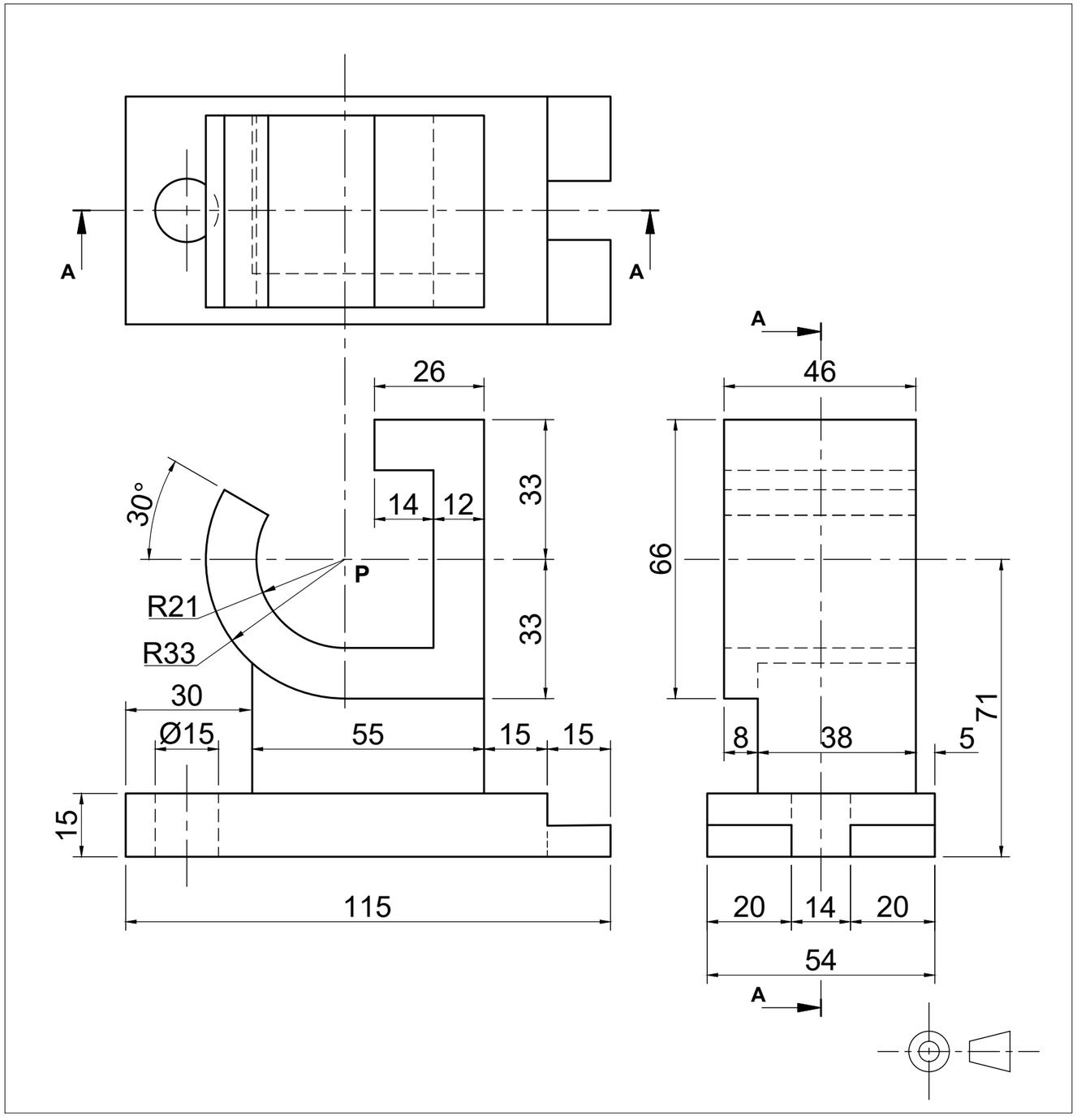

QUESTION 4: MECHANICAL SECTION

Given:

- A front view, a right view and a top view of a trophy in third-angle orthographic projection.
- The top view already placed for the completion of this question.
- Starting position P for the completion of the sectional front view.

Instructions:

- Answer this question on diagram sheet 5, page 6.
- Use the given information and draw, according to scale 1 : 1 and in third-angle orthographic projection, the following view of the trophy:

4.1 A sectional front view according to cutting plane A-A.

4.2 A left view (Show all hidden detail).

Note:

- This drawing must comply with the guidelines contained in the SANS 10111 document.
- Show section line A-A in the left view.
- Show the symbol of projection for third-angle orthographic projection in the space provided.
- Write the title and scale of this drawing in the space provided. [28]

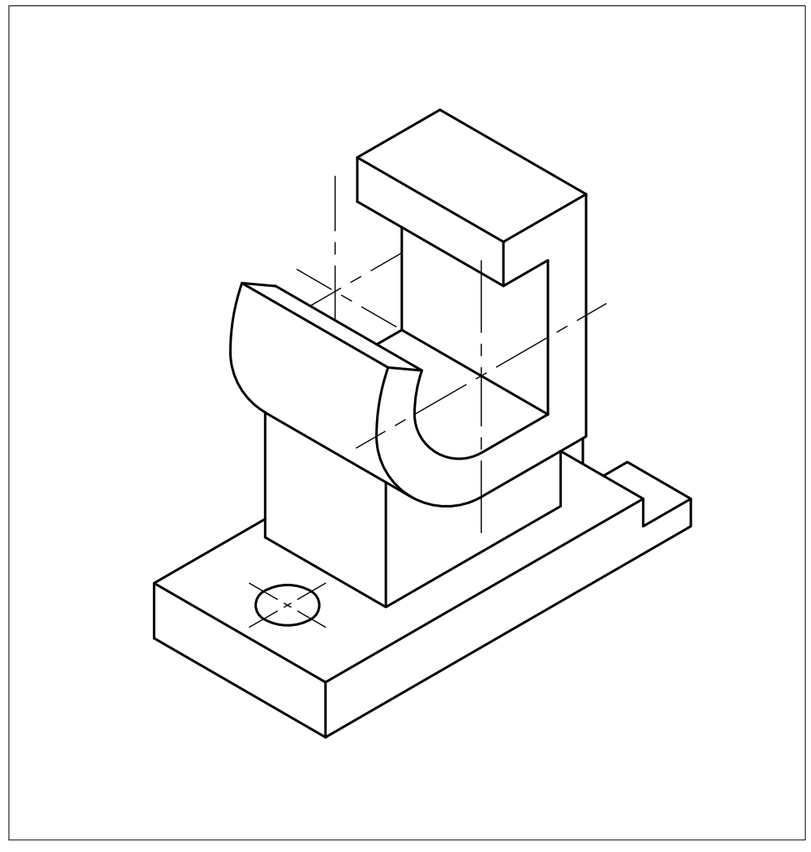

DIAGRAM SHEET 4	ENGINEERING GRAPHICS AND DESIGN	NOVEMBER 2018 - PAPER 2	NAME & SURNAME		GRADE	10	5

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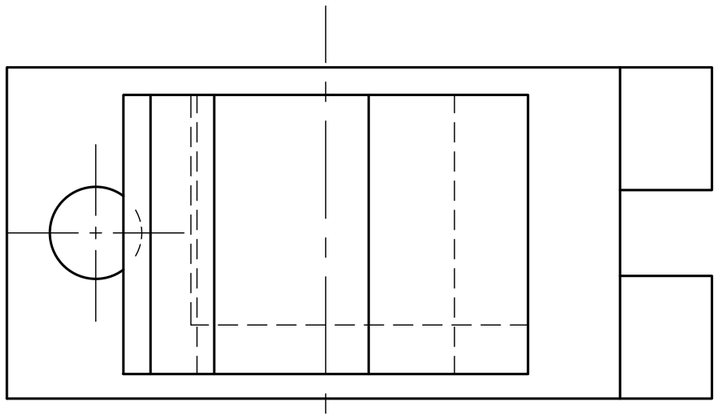

ASSESSMENT CRITERIA				
1	SECTIONAL FRONT VIEW ($\frac{25}{2}$)	12.5		
2	LEFT VIEW ($\frac{19}{2}$)	9.5		
3	SECTION LINE AA ($\frac{6}{2}$)	3		
4	PROJECTION SYMBOL	1		
5	TITLE & SCALE	2		
	TOTAL	28		

PROJECTION SYMBOL

TITLE & SCALE

DIAGRAM SHEET 5	ENGINEERING GRAPHICS AND DESIGN	NOVEMBER 2018 - PAPER 2	NAME & SURNAME	GRADE	10 / 6