



education

Department:
Education
Kwazulu - Natal

GRADE 12

ENGINEERING GRAPHICS AND DESIGN P2
TRIAL EXAMINATION 2012

MARKS : 200
TIME : 3 HOURS
 This question paper consists of 6 pages.

INSTRUCTIONS AND INFORMATION

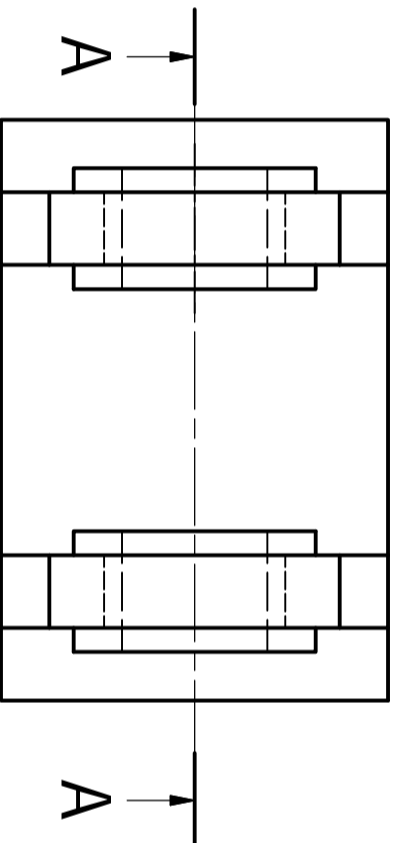
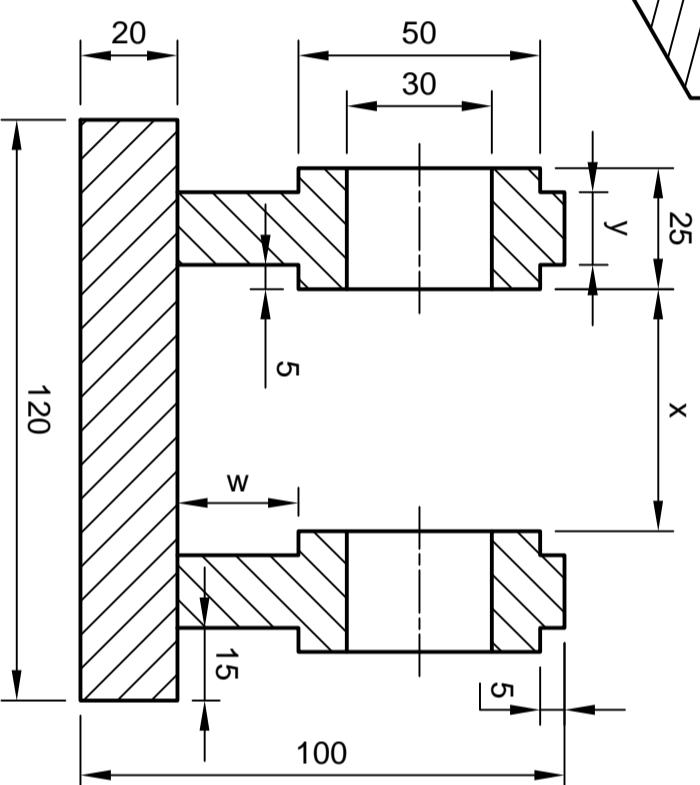
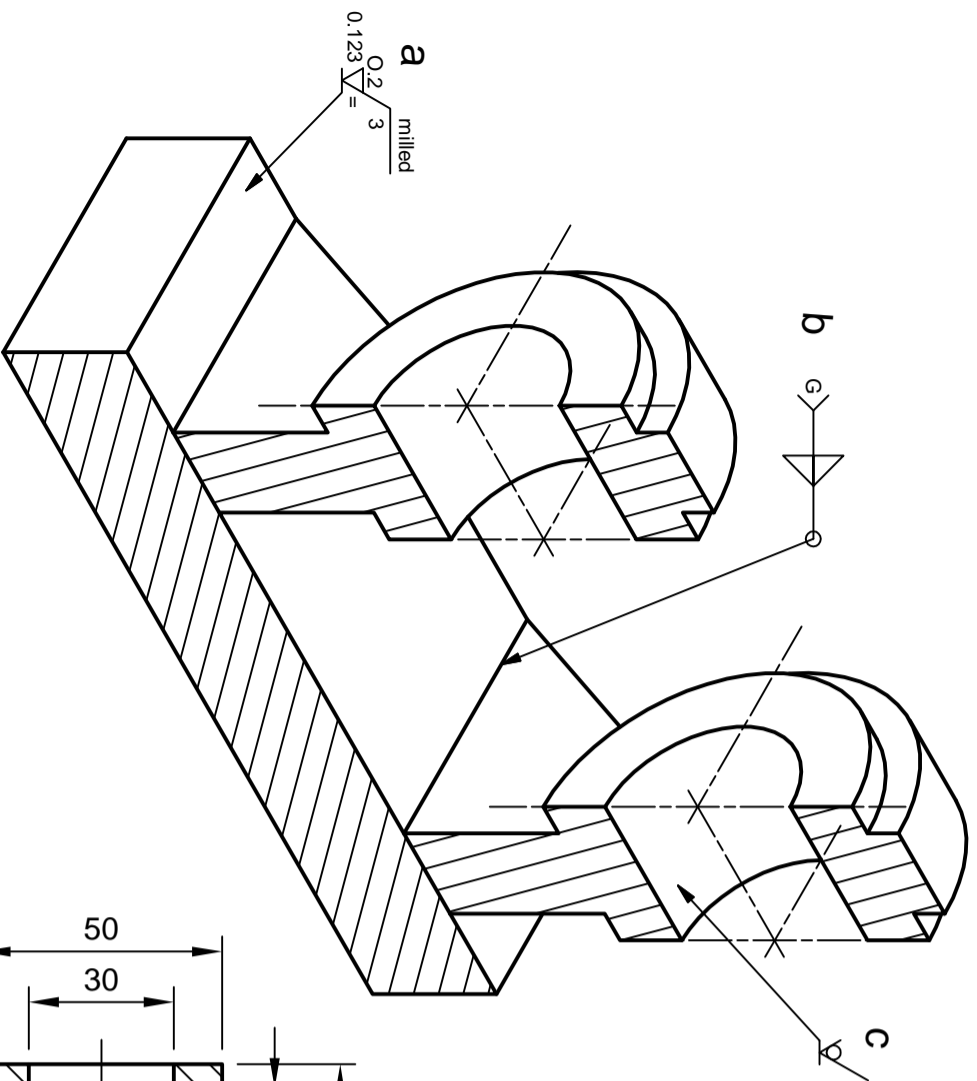
1. The question paper consists of FOUR questions.
2. Answer ALL the questions.
3. All drawings are in third-angle orthographic projection unless otherwise stated.
4. All drawings must be drawn to scale 1:1, unless otherwise stated.
5. The questions must be answered on the answer sheets provided.
6. All the answer sheets must be re-stapled in numerical sequence and handed in irrespective of whether the question was attempted or not.
7. Careful time management is essential in order to complete all the questions.
8. Print your NAME in the block provided on every answer sheet.
9. All answers must be drawn accurately and neatly.
10. Any details or dimensions not given must be assumed in good proportion.

FOR OFFICIAL USE ONLY			
QUESTION	LEARNER'S MARK	MODERATED MARK	
ONE		25	
TWO		30	
THREE		45	
FOUR		100	
TOTAL	200		

FINAL CONVERTED MARK	CHECKED BY
100	

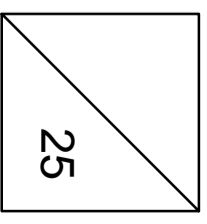
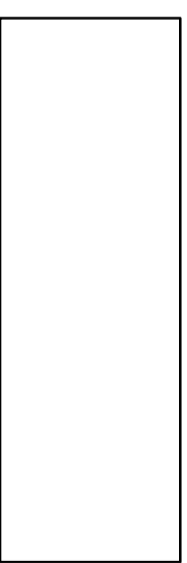
NAAM
 NAME

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QUESTION ONE : MECHANICAL ANALYTICAL			
NO.	QUESTIONS	ANSWERS	MARKS
1	On what date was the drawing checked?		1
2	Who approved the drawing?		1
3	What is the title of the drawing?		1
4	What is the drawing number?		1
5	From what material is the pipe support made?		1
6	What scale is indicated for the drawing?		1
7	What was the date of the first revision?		1
8	What was the reason for the last revision?		1
9	What would view 1 be called?		1
10	What would view 2 be called?		1
11	Determine the dimension at w.		1
12	Calculate the dimension at x.		1
13	What is the dimension at y?		1
14	Explain in detail all the information found in the symbol next to a.		4
15	Letter b is a welding symbol. What is the correct representation of this symbol?		4
16	What does the symbol at c indicate?		1
17	Draw the projection symbol used in this drawing.		3
TOTAL			25

ANSWER QUESTION 17 IN THIS BLOCK



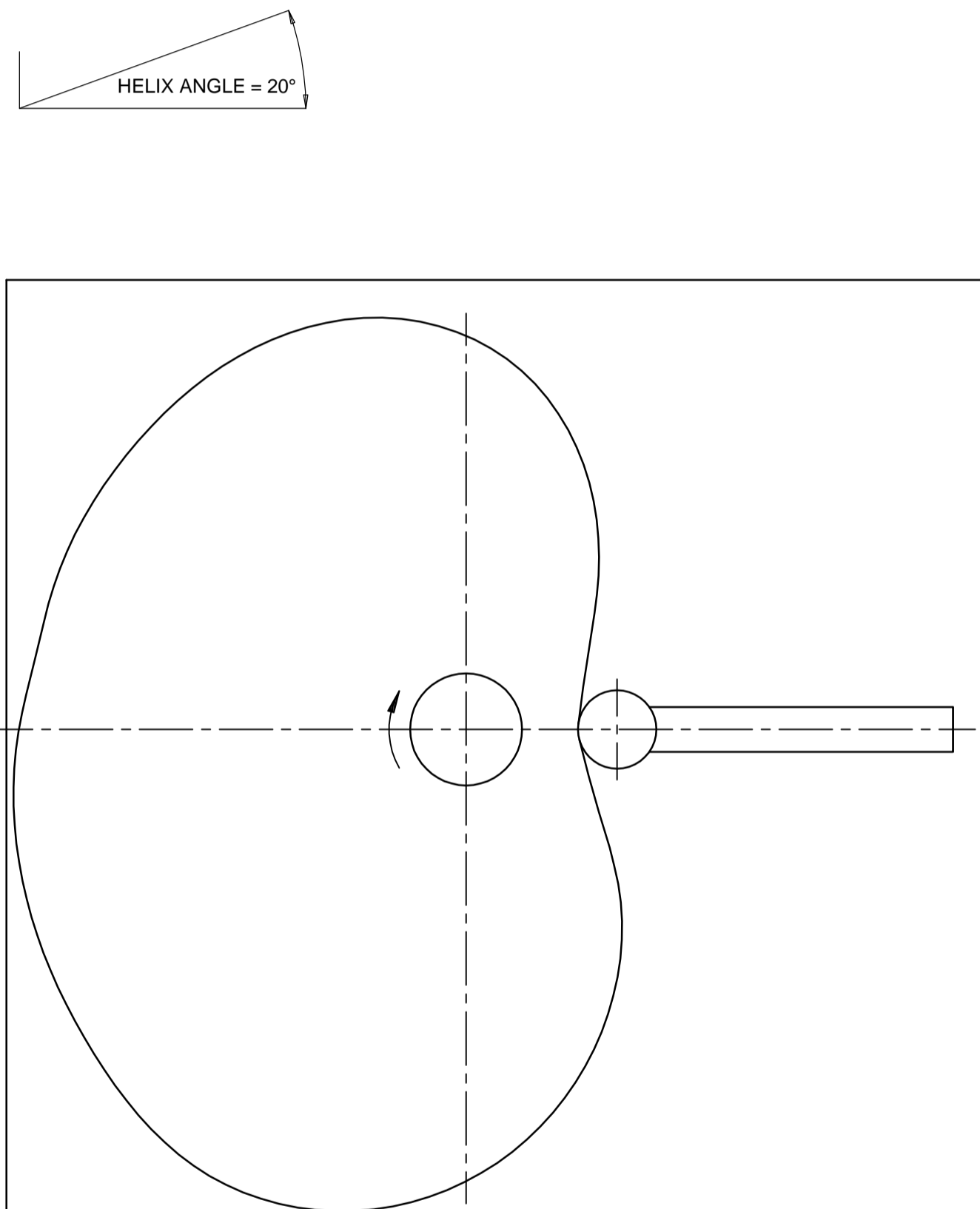
DRAWING SYSTEM	Autocad		
DRAWING NUMBER	19/1259		
FILE NAME	RHG 53/12		
DRAWN BY	Vishnu	20/04/12	
CHECKED BY	Harry	08/06/12	
APPROVED BY	Fareed	12/08/12	
25/07/12	Anand	Welding details	02
12/05/12	Fahim	Diameter of holes	01
DATE	CHANGE BY	REVISION DESCRIPTION	NO.

COASTAL STEEL MANUFACTURING
 P.O.Box 786 JACOBS 4052
 www.csm@gmail.com
 Tel. 031 4657826
 Fax. 031 4659220

PIPE SUPPORT
 Galvanised Mild Steel

SCALE 1:2
 TOLERANCE : 0.05

NAME



GRAPH OF DISPLACEMENT
SCALE : 4mm=20° ROTATION

QUESTION 2.1

The cam profile together with the cam shaft, follower and direction of rotation is given.

Motion of the follower:

- Over the first 120° the follower rises with uniform acceleration and retardation motion.
 - The follower is then at rest for the next 50°.
 - The follower then rises with uniform motion over the next 70°.
 - The follower returns to its original position with simple harmonic motion.
- From the given information draw:**
- The displacement graph with a horizontal scale of 4mm equals 20° and the vertical scale of 1:1.

QUESTION TWO

MARKING CRITERIA

MARK

QUESTION 2.1

1	POINTS ($\frac{25}{100}$)	11
2	CALC/CONSTRUCTION	4
	TOTAL	15

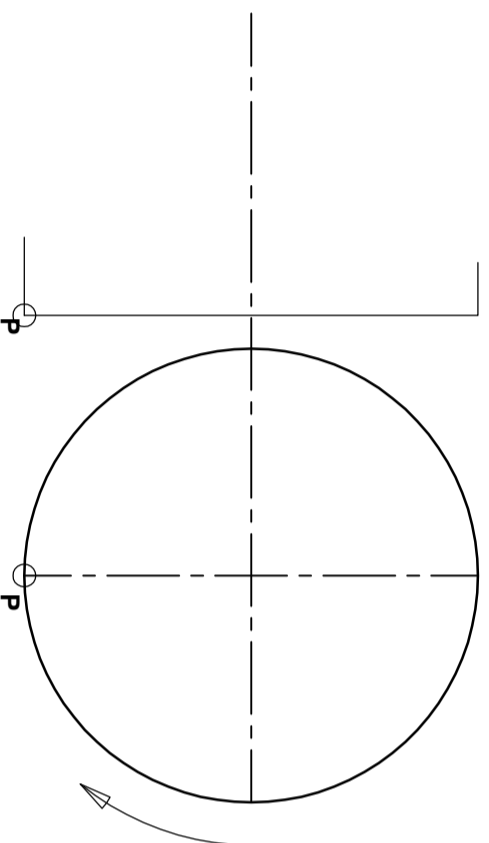
QUESTION 2.2

1	CONSTRUCTION	15
	TOTAL (2.1 + 2.2)	30

QUESTION 2.2
The side view, incomplete front view and part development of a transparent cylinder together with the direction of rotation is given.

Draw:

- Draw $1\frac{1}{2}$ turns of a helix from point P.
- Show all constructions or calculations.



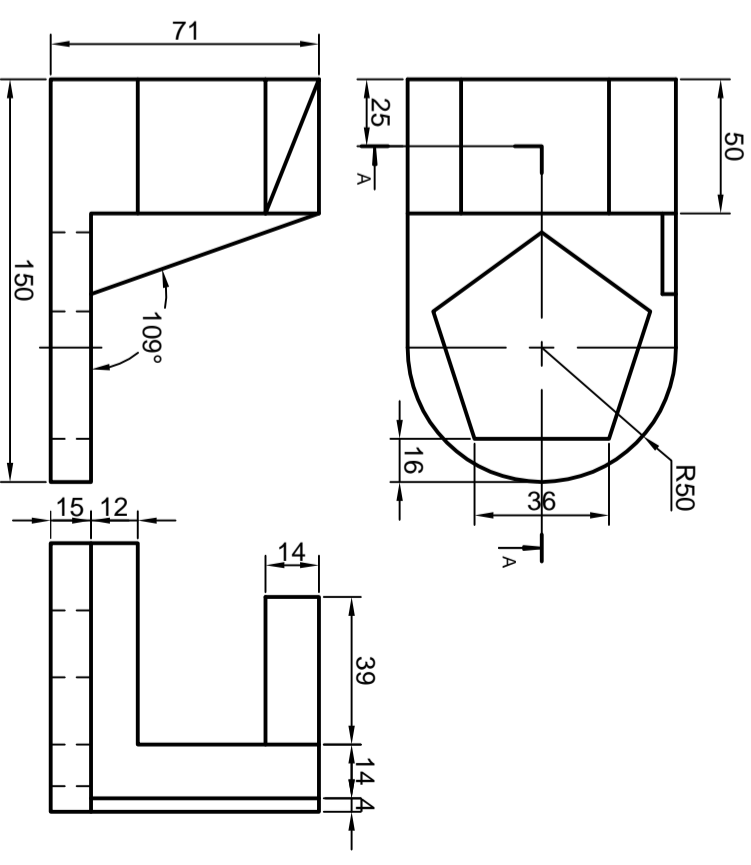
NAME

QUESTION 3

Three views of a shaped block are given in third angle orthographic projection.

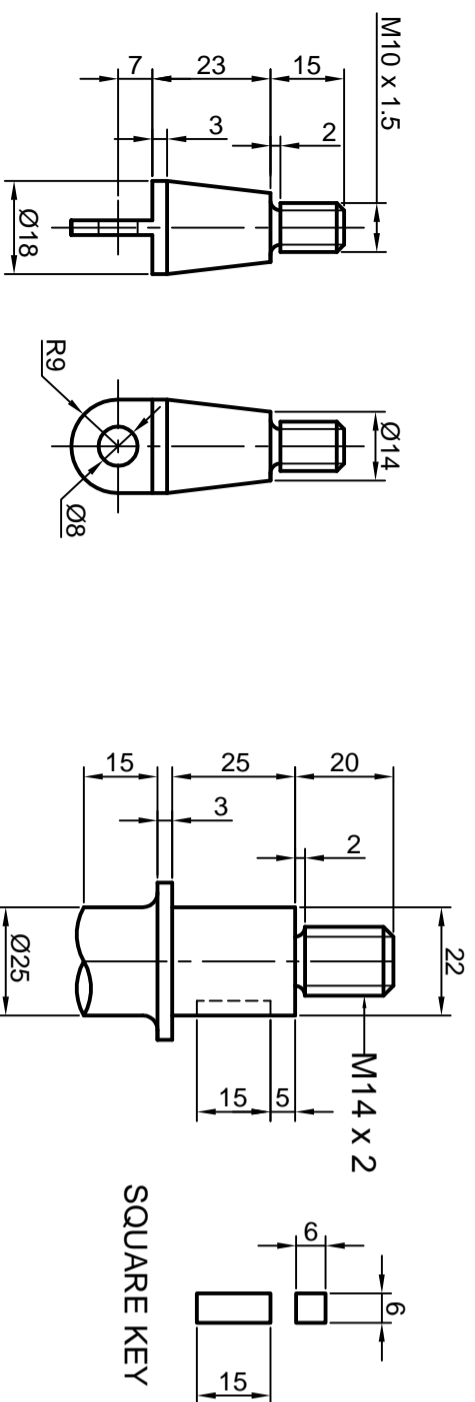
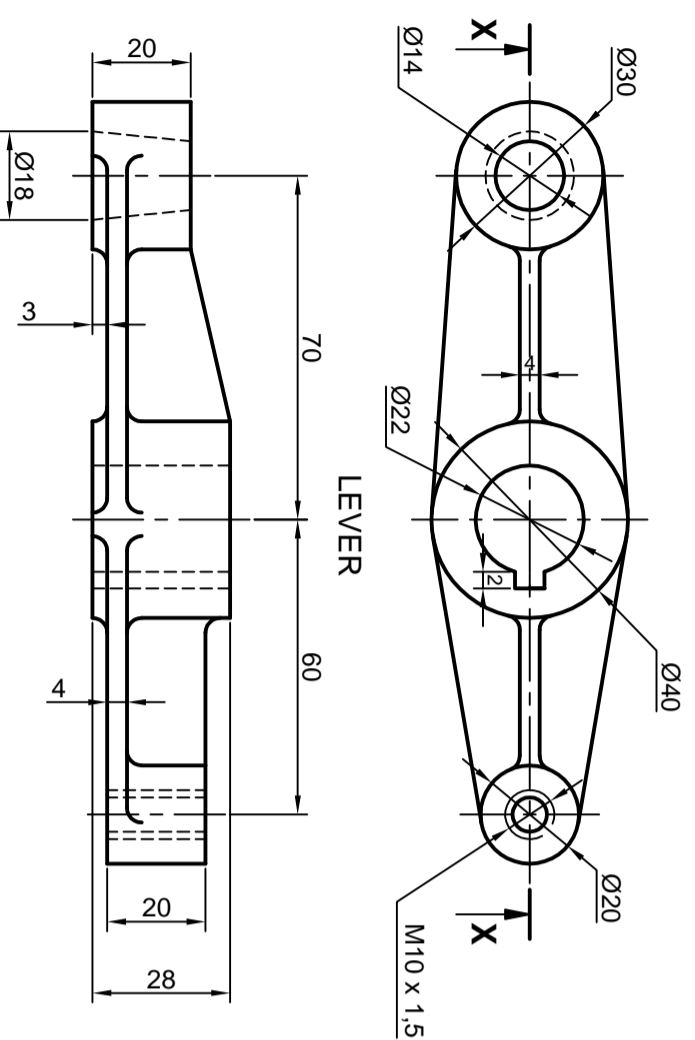
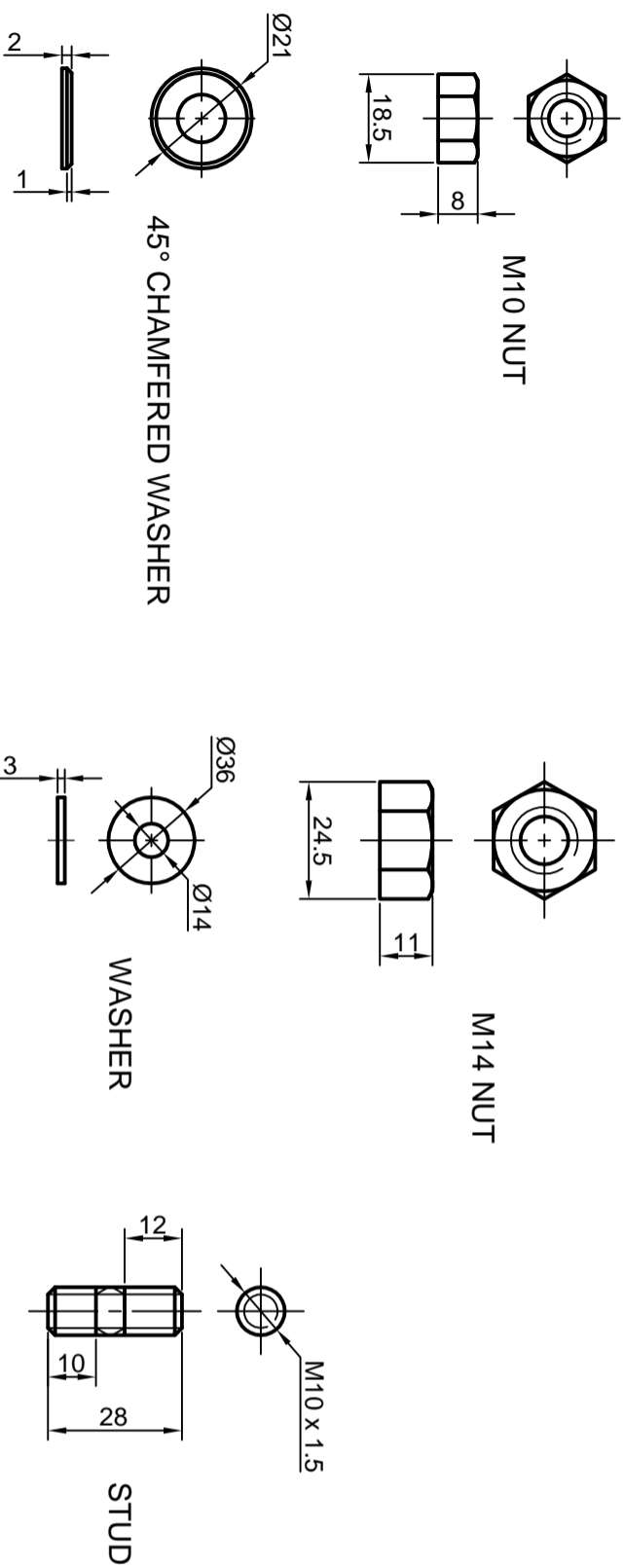
Draw:

- using instruments a neat sectioned isometric view of the shaped block on cutting plane A-A.
- Do not show hidden detail and dimensions.
- Show all constructions and/or calculations.



MARKING CRITERIA	MARK
1 SURFACES	26
2 CALC/CONSTRUCTION	5
3 CENTRE LINES	3
4 ISO CIRCLE AND CONST.	6
5 HATCHING	5
TOTAL	45

NAME



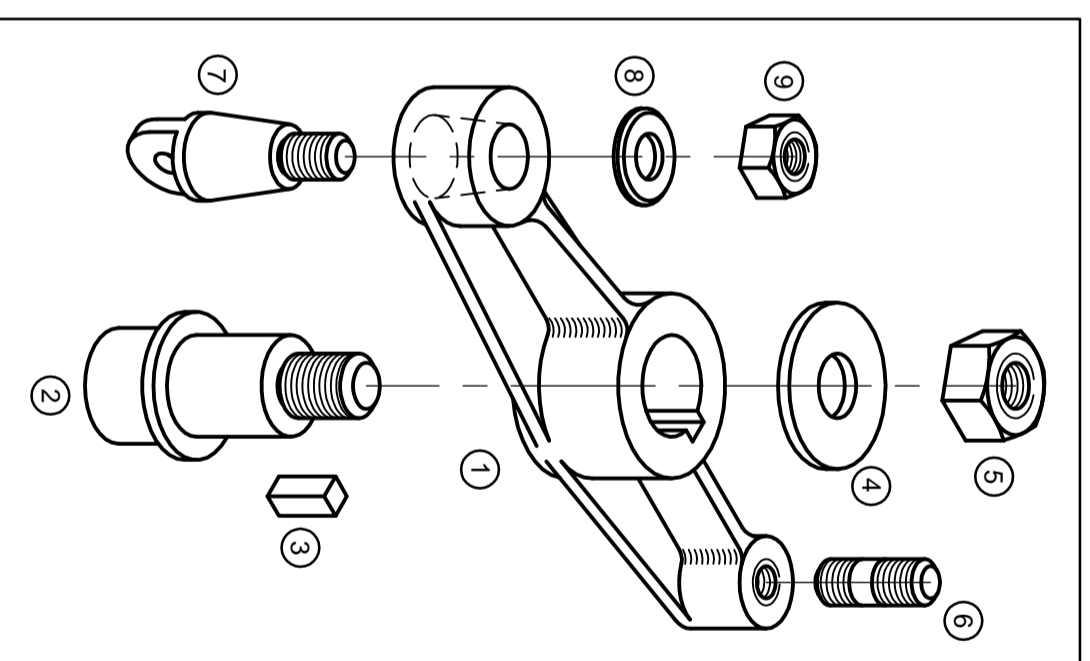
TAPERED PIN WITH LUG HEAD

SPINDLE

QUESTION FOUR - MECHANICAL ASSEMBLY

The diagram shows the component parts for a sub assembly of a Rotary Lever which turns with its centre spindle. The lever is shown in third angle orthographic projection. Draw full size in third angle orthographic projection the following views of the complete assembly:

- 4.1 a sectional front view on X - X.
 - 4.2 an outside top view
 - 4.3 show all centre lines, projection symbol, title, scale and all necessary constructions.
- Do not show hidden detail and dimensions.**



COMPONENT LIST

ITEM	NAME	QTY
1	LEVER	1
2	SPINDLE	1
3	SQUARE KEY	1
4	WASHER	1
5	M14 NUT	1
6	STUD	1
7	TAPERED PIN WITH LUG HEAD	1
8	45° CHAMFERED WASHER	1
9	M10 NUT	1

GOUNDEN
 13 BAYERN ROAD
 NEW GERMANY
 PINETOWN
 4023
 vgounden@yahoo.com
 073GOUNDEN
 ENGINEERING

ROTARY LEVER SUB-ASSEMBLY

ALL DIMENSIONS ARE IN MILLIMETRES	ALL UNSPECIFIED RADII ARE R3	
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QUESTION FOUR - MECHANICAL ASSEMBLY

4.2 TOP VIEW

ITEM	NAME	QTY
1	LEVER & FILLETS ($\frac{1}{8}$)	8
2	SPINDLE	1
3	CUTTING PLANE ($\frac{1}{2}$)	2
4	WASHER	1
5	M14 NUT	2
6	STUD	1
7	TAPERED PIN WITH LUG HEAD	1
8	45° CHAMFERED WASHER	1
9	M10 NUT	2
10	CENTRE LINES	4
	SUB-TOTAL	23
4.3	TITLES; SCALE; SYMBOL	4

4.1 SECTIONED FRONT VIEW

ITEM	NAME	MARK
1	LEVER	9
2	SPINDLE	7
3	SQUARE KEY	2
4	WASHER	2
5	M14 NUT	4
6	STUD	6
7	TAPERED PIN	6
8	45° CHAMFERED WASHER	2
9	M10 NUT	4
10	HATCHING	10
11	NO HATCHING	17
12	CENTRE LINES	4
	SUB-TOTAL	73
	TOTAL	100

NAME