

FIG 1

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
A front view and incomplete right view of a nut assembly, a title block and a table of questions.

Instructions:
Complete the table below by neatly answering the questions, which all refer to the accompanying drawings and title block. [12]

QUESTIONS

1	Draw the arrows for the cutting plane located on the front view and label it A-A.	2	
2	Complete, with drawing instruments , the sectional right view on cutting plane A-A of the nut assembly.	4	
3	Neatly complete the dimension A.	2	
4	In the box below (ANSWER 4), draw, in neat freehand , the symbol for the projection system used.	4	
TOTAL		12	

05/07/2012	PETER	SIZE OF HOLE FOR BOLT	A
DATE	CHANGED BY	REVISION DESCRIPTION	№

DRAWN BY: NKOZI	DRAWING SET NO. 2 OF 3	MATERIAL: VARIOUS
DATE: 26/06/2012	FILE NAME: NB-S1-2012	HEAT TREATMENT: NONE

CHECKED BY: BAZI	DATE: 29/06/2012
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ALL UNSPECIFIED RADII ARE R3.	APPROVED BY: CHRIS	MANUFACTURING
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DRAWING PROGRAM: AUTOCAD 2012	DATE: 10/07/2012	SCALE: 1 : 2
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SECTIONAL VIEWS

ANSWER 4

EXAMINATION NUMBER	
EXAMINATION NUMBER	2



QUESTION 2.1: LOCI - HELICS

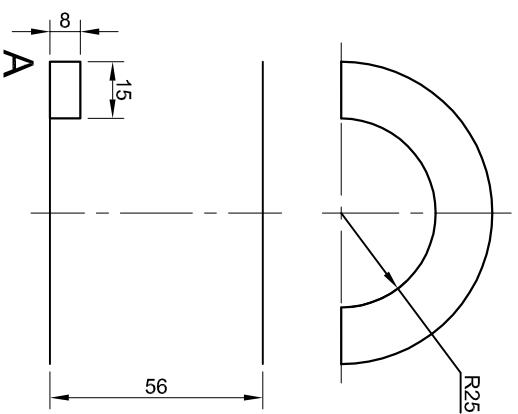
Given:

- Specifications for a left-hand spiral spring made from rectangular material, with an internal diameter of 50 mm.
- The spring completes one revolution in 96 mm (pitch).
- A diagram that shows the starting position, the displacement and the size of the rectangle.
- The center line where the drawing must be drawn.

Instructions:

- Draw a half revolution of the spring from the starting point A, as shown on the diagram.
- Show ALL the necessary constructions.
- Do not show any hidden detail.

[13]



QUESTION 2.2: LOCI - CAMS

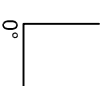
Given:

- Information on the movement of a wedge shaped cam follower that moves with uniform velocity.

Instructions:

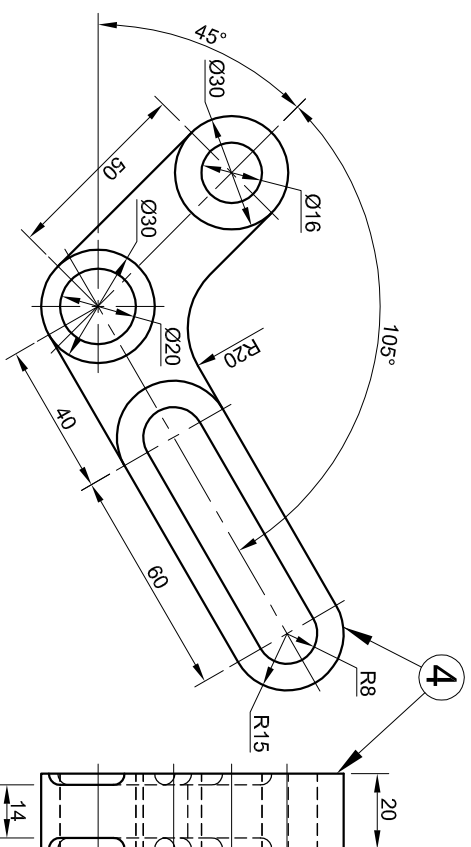
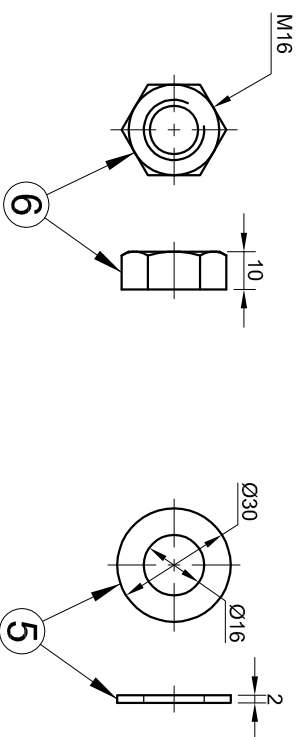
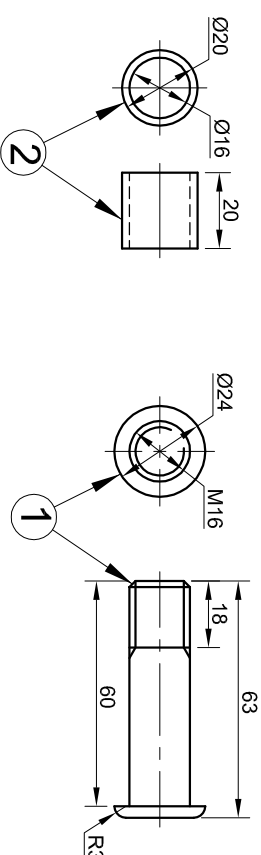
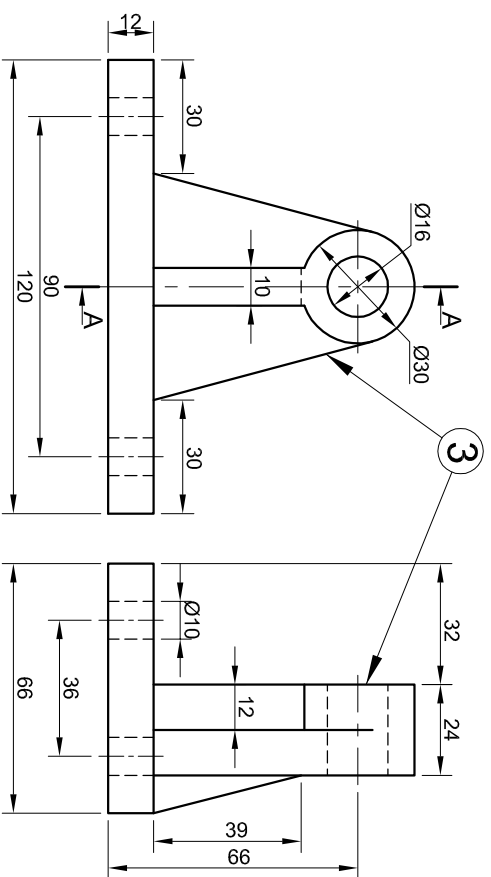
- Draw ONLY the displacement diagram of the cam follower. Use a scale of 8 mm = 30°. The displacement height is 45 mm. Start at minimum cam diameter and rise to maximum displacement.
 - 90° - 135° Remain at rest.
 - 135° - 180° Decent to half the displacement height.
 - 180° - 240° Remain at rest.
 - 240° - 360° Return to its original position.
- Supply the diagram with the following labels:
 CAM DISPLACEMENT DIAGRAM
 SCALE 8 mm = 30°
 DISPLACEMENT
 DISPLAY the degree intervals clearly.

[9]



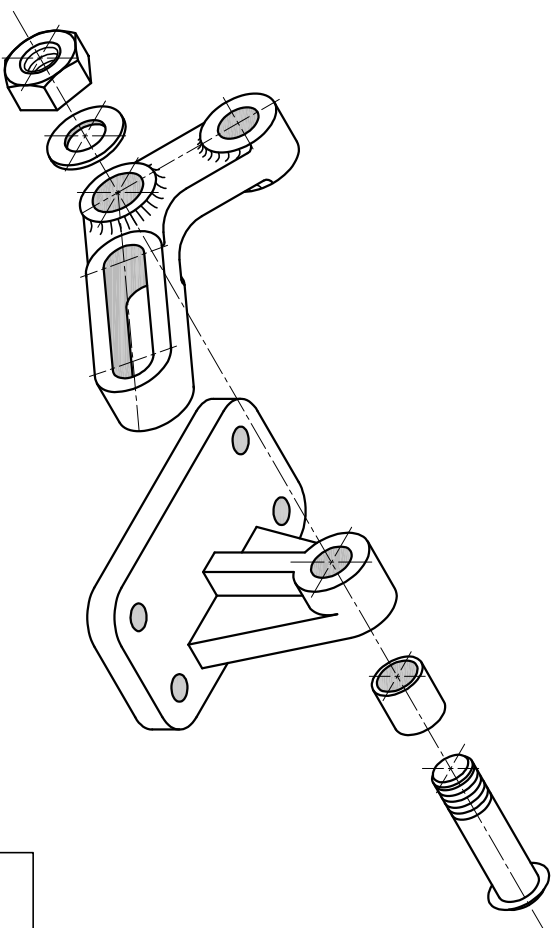
ASSESSMENT CRITERIA			
1. START + END	4		
2. HELICS	7		
3. CONSTRUCTION	2		
SUB TOTAL 2.1	13		

ASSESSMENT CRITERIA			
1. LABELS	2		
2. SCALE + HEIGHT	1		
3. DIAGRAM	6		
SUB TOTAL 2.2	9		
TOTAL	22		
EXAMINATION NUMBER			
EXAMINATION NUMBER			
EXAMINATION NUMBER			
3			



FRONT VIEW

EXPLODED ISOMETRIC



- QUESTION 4: MECHANICAL ASSEMBLY**
- Given:**
- The exploded isometric drawing of the parts of a lever bracket, showing the position of each part relative to all the others.
 - Orthographic views of each of the parts of the lever bracket.
 - An incomplete front view of the assembled parts of the lever bracket on page 6.

Instructions:

- Answer this question on page 6.
- Draw, to scale 1 : 1 and in third-angle orthographic projection, the following views of the assembled parts of the lever bracket assembly:

4.1 Complete the **front view**, as seen from the direction of the arrow shown on the exploded isometric drawing.

4.2 A sectional left view, on cutting plane A-A. The cutting plane is shown on the front view of the base (part 3).

- ALL drawings must comply with the guidelines contained in the SABS 0171.

NOTE:

- No hidden detail is required.
- Show three faces of the M16 nut in the sectional left view.

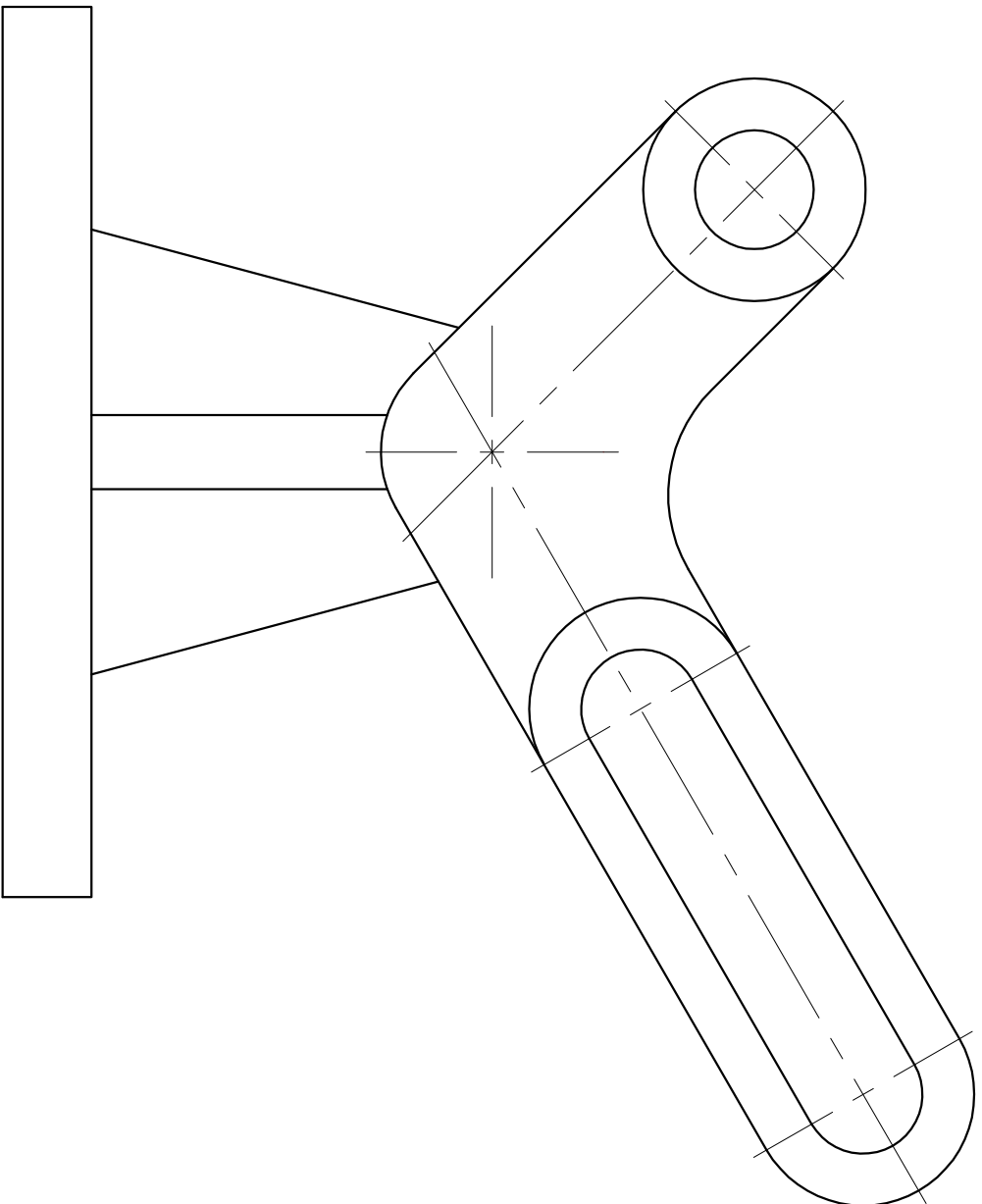
[43]

PARTS LIST		
PART	QUANTITY	MATERIAL
1. SHAFT	1	HARDENED STEEL
2. BUSH	1	BRONZE
3. BASE	1	CAST IRON
4. LEVER	1	CAST IRON
5. WASHER	1	MILD STEEL
6. M16 NUT	1	MILD STEEL

ALL DIMENSIONS ARE IN MILLIMETRES.	DRAWN BY: KETHI	DATE: 25/06/2012	CHECKED BY: JONES
ALL UNSPECIFIED RADII ARE R3.	DATE: 09/07/2012	APPROVED BY: SUSAN	
DRAWING PROGRAM: CAD 2012	SCALE 1 : 2		
<p>MACRO STEEL</p> <p>MANUFACTURING</p>		<p>NAPIER STREET</p> <p>GRAAFF-REINET</p> <p>6280</p> <p>www.macrosteel.co.za</p>	
<p>LEVER BRACKET</p>			
<p>EASTERN CAPE</p> <p>DEPARTMENT BASIC EDUCATION</p> <p>GRADE 11 November 2012</p>			



STAPLE



ASSESSMENT CRITERIA			
SECTIONAL LEFT VIEW			
	POSSIBLE	OBTAINED	SIGN MODERATE
1. SHAFT	9		
2. BUSH	1		
3. BASE	5½		
4. LEVER	8		
5. WASHER	1½		
6. M16 NUT	5		
7. CENTRE LINES	1		
8. HATCHING	6		
SUB TOTAL	37		
FRONT VIEW			
	POSSIBLE	OBTAINED	SIGN MODERATE
1. WASHER	1		
2. M16 NUT	5		
SUB TOTAL	6		
TOTAL	43		

EXAMINATION NUMBER	
EXAMINATION NUMBER	6