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# basic education

Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 12**

**ENGINEERING GRAPHICS AND DESIGN P2**

**NOVEMBER 2019**

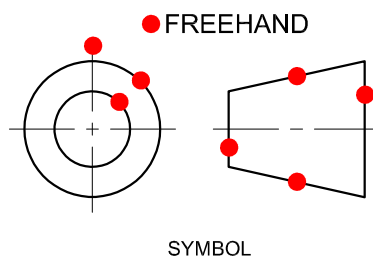
**MARKING GUIDELINES**

**MARKS: 100**

**These marking guidelines consist of 6 pages.**

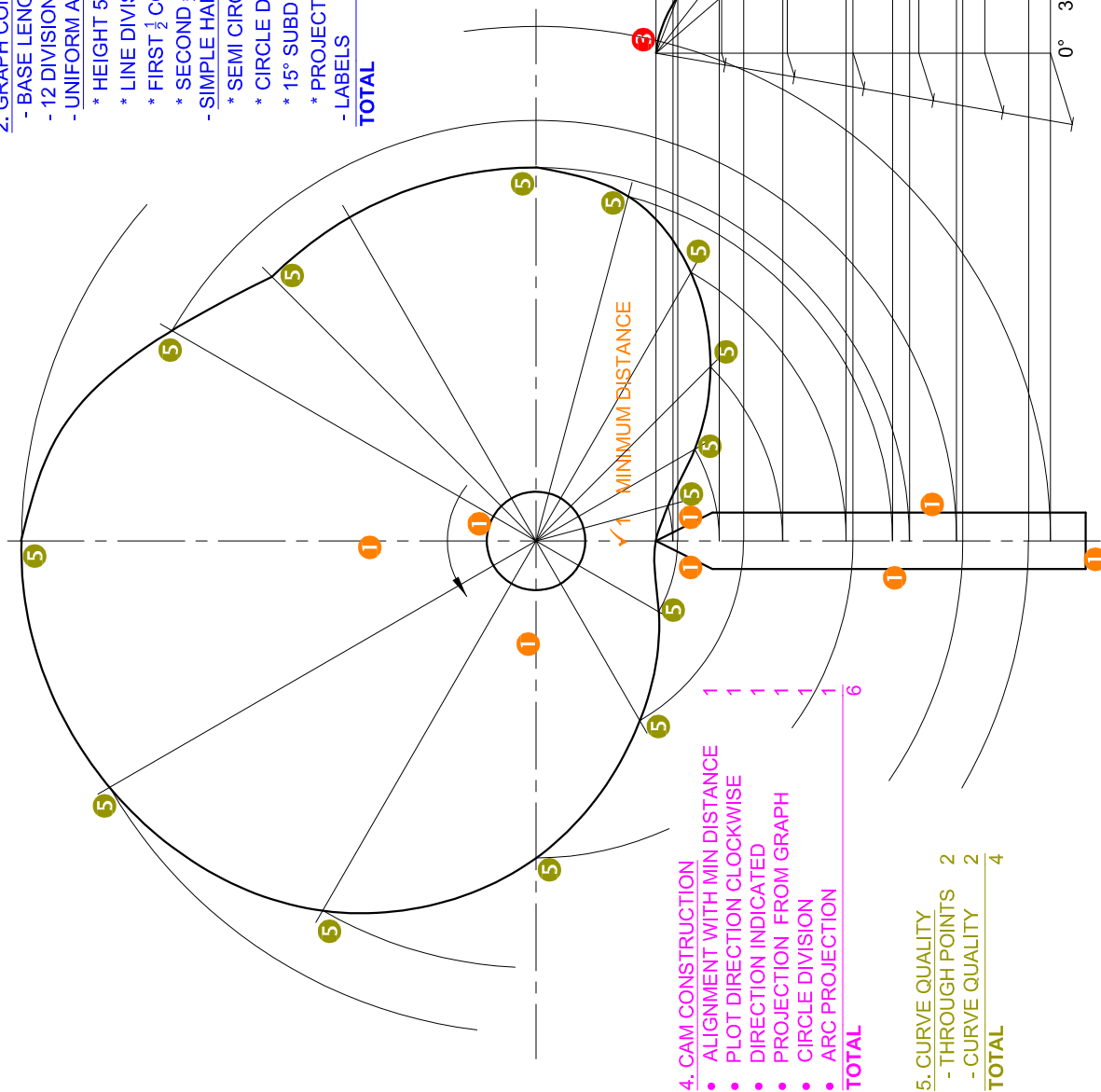
ANSWERS		
1	TO CHECK THE DRAWING	1
2	www.foundry.co.za	1
3	MJIG-12-V5	1
4	JR MANUFACTURES	1
5	30	1
6	SECTIONAL FRONT VIEW ON T-T	2
7	REMOVED SECTION	1
8	OFFSET or MULTI-PLANE	1
9	A: R4 B: 15 C: 12 D: 84 E: Ø7	5
10	199	1
11	WEB or RIB	1
12	18 mm	1
13	COUNTER BORE	1
14	8	1
15	HATCHING IN OPPOSITE DIRECTIONS	2
16	30.85	1
17	DIRECTION OF LAY	d
	ROUGHNESS VALUE	a
	SAMPLING LENGTH	c
	MACHINING ALLOWANCE	e
18	See below	4
TOTAL		30

## ANSWER 18



ASSESSMENT CRITERIA		
1	GIVEN + MINIMUM DISTANCE + CENTRE LINES	5
2	GRAPH CONSTRUCTION	7
3	DISPLACEMENT GRAPH	9
4	CAM CONSTRUCTION	6
5	CAM + CURVE QUALITY	11
TOTAL		38

2. GRAPH CONSTRUCTION	
- BASE LENGTH 96 mm	1
- 12 DIVISIONS @ 8 mm	1
- UNIFORM ACCELERATION + RETARDATION	
* HEIGHT 56 mm	1
* LINE DIVISION	1
* FIRST $\frac{1}{2}$ CONSTRUCTION	1
* SECOND $\frac{1}{2}$ CONSTRUCTION	1
- SIMPLE HARMONIC MOTION	
* SEMI CIRCLE	1
* CIRCLE DIVISION	1
* 15° SUBDIVISIONS	1
* PROJECTION	1
- LABELS	1
<b>TOTAL</b>	<b>7</b>



DISPLACEMENT GRAPH  
SCALE  $30^\circ = 8 \text{ mm}$

PAPER 2 QUESTION 2  
GRADE 12  
NSC 2019  
MARKING GUIDELINES

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Please turn over

The diagram shows an isometric view of a mechanical component. It features a base plate with a rectangular cutout and a central vertical section. The component has various rectangular features, including a large rectangular block on the left and a smaller one on the right. A circular feature is visible on the right side, with construction lines indicating its center and radius. Marking points are indicated by red circles with numbers (3) and blue circles with numbers (2). Two small triangles in the top left corner are marked with orange checkmarks and the number 1. A letter 'P' is placed near the bottom center of the component.

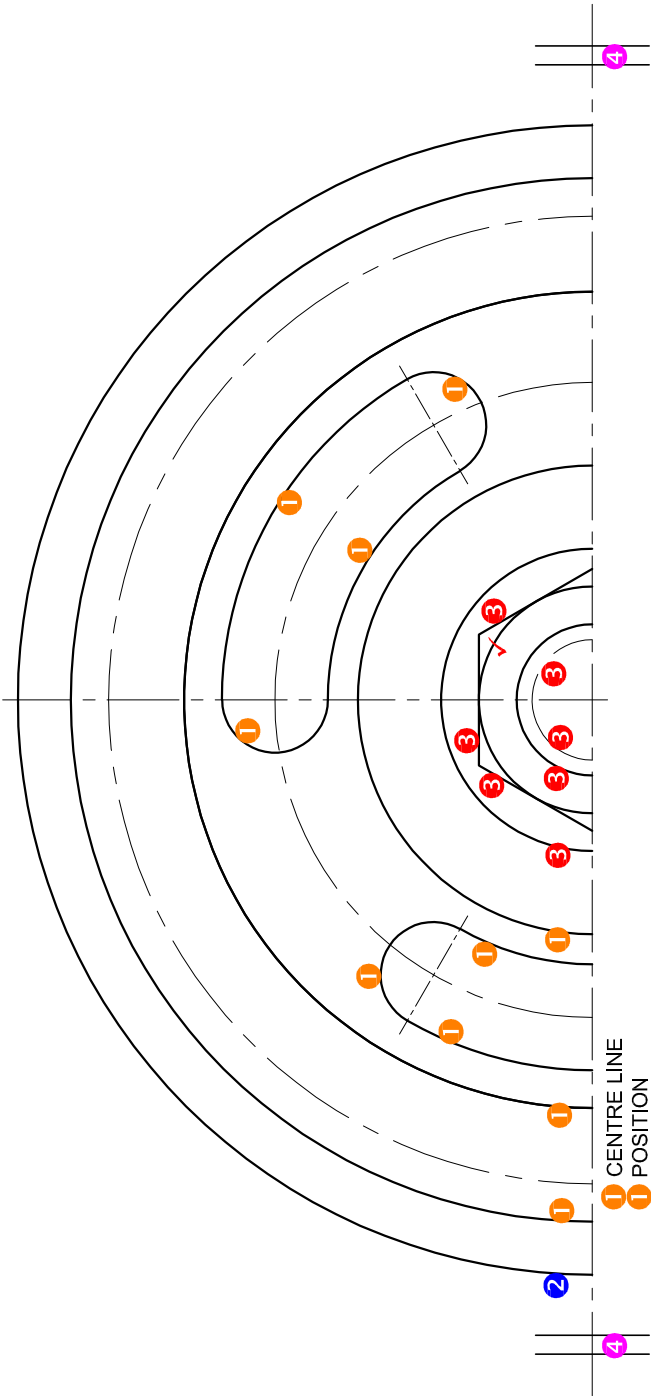
✓1 CORRECT PLACEMENT

✓4 CIRCLE CONSTRUCTION  
✓4 CENTRE LINES

P

PAPER 2 QUESTION 3  
GRADE 12  
NSC 2019  
MARKING GUIDELINES

ASSESSMENT CRITERIA		
1	PLACEMENT + AUX. VIEW	3
2	FRONT PORTION	11
3	BACK PORTION	21 $\frac{1}{2}$
4	CIRCLE + CIRCLE CONSTRUCTION + CL	5 $\frac{1}{2}$
<b>TOTAL</b>		<b>41</b>



ASSESSMENT CRITERIA			
TOP VIEW			
1	GEAR	6	
2	COLLAR PLATE	$\frac{1}{2}$	
3	M20 NUT + WASHER	$4\frac{1}{2}$	
4	SYMMETRY	1	
SUBTOTAL		12	

PAPER 2 QUESTION 4  
GRADE 12  
NSC 2019  
MARKING GUIDELINES

HEIGHT 8

CONVENTION CL 7

CONVENTION CL 7

NUT + WASHER 8H NOT HATCHED

SHAFT NOT HATCHED 6H

CENTRE LINE/ NOT SOLID LINE

6H SCREW NOT HATCHED

PLUG NOT HATCHED 2H

MARKING GUIDELINES

PAPER 2 QUESTION 4  
GRADE 12  
NSC 2019

CENTRE LINE MARK ALLOCATION

SANS COMPLIANT	1
8 CENTRE LINES	2
TOTAL	3

ASSESSMENT CRITERIA	
SECTIONAL FRONT VIEW	
1	SUMP
2	PLUG
3	COLLAR PLATE
4	BUSH
5	COLLAR + PIN
6	SHAFT
7	GEAR
8	M20 NUT + WASHER
9	M8 SCREW
SUBTOTAL	
68	