



# basic education

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

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 12**

**ENGINEERING GRAPHICS AND DESIGN P2**

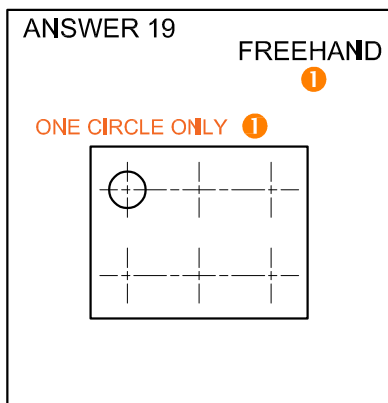
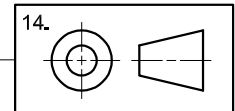
**NOVEMBER 2022**

**MARKING GUIDELINES**

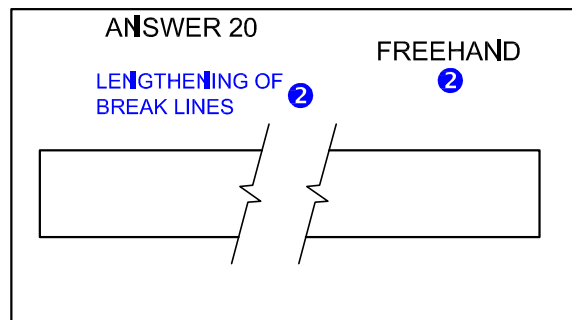
**MARKS: 100**

**These marking guidelines consist of 7 pages.**

ANSWERS		
1	S.SMITH	1
2	3	1
3	MILD STEEL	1
4	6	1
5	SUCCESSIVE / REMOVED	1
6	3	1
7	BOTTOM VIEW	1
8	ACROSS FLATS	1
9	CSK	1
10	A: 126      B: Ø28      C: 10	3
11	2	1
12	3	1
13	40	1
14	LEFT	1
15	M34 x 3	1
16	8	1
17	16.98	2
18	MACHINING ALLOWANCE / TOLERANCE	1
	ROUGHNESS VALUE	1
	METHOD / TREATMENT / COATING / PROCESS	1
	DIRECTION OF LAY / CIRCULAR / PATTERN	1
19	See below	3
20		3
<b>TOTAL</b>		<b>30</b>



HORIZONTAL CLs without CIRCLES 2 x 0.5  
 VERTICAL CLs without CIRCLES 2 x 0.5



PARALLEL BREAK LINES 2 x 0.5  
 ZIG ZAG 2 x 0.5

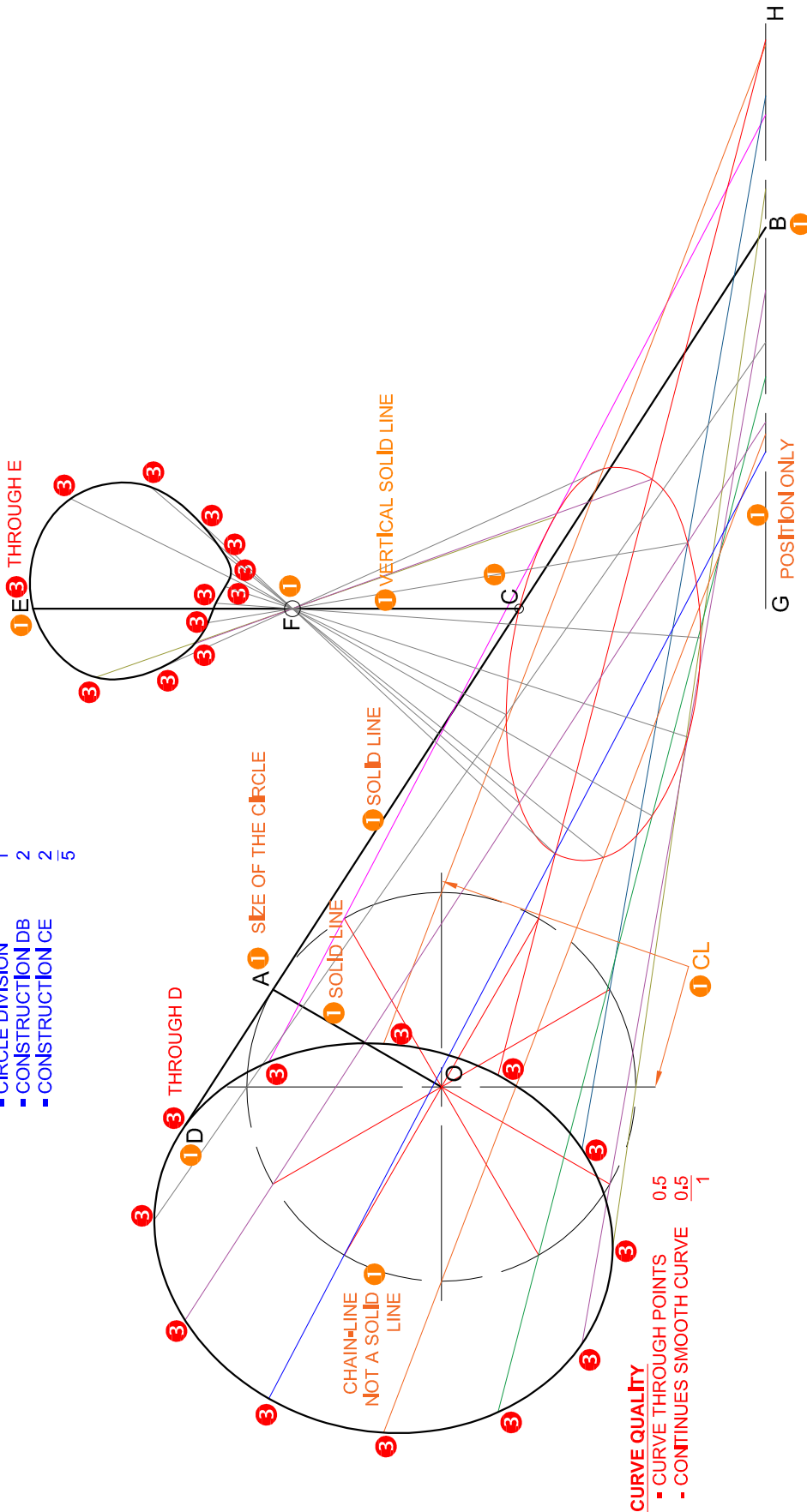
NOTE: BREAKLINES CAN BE ALIGNED  
 or VERTICAL

PAPER 2 QUESTION 1  
 GRADE 12  
 NOVEMBER 2022  
 MARKING GUIDELINE

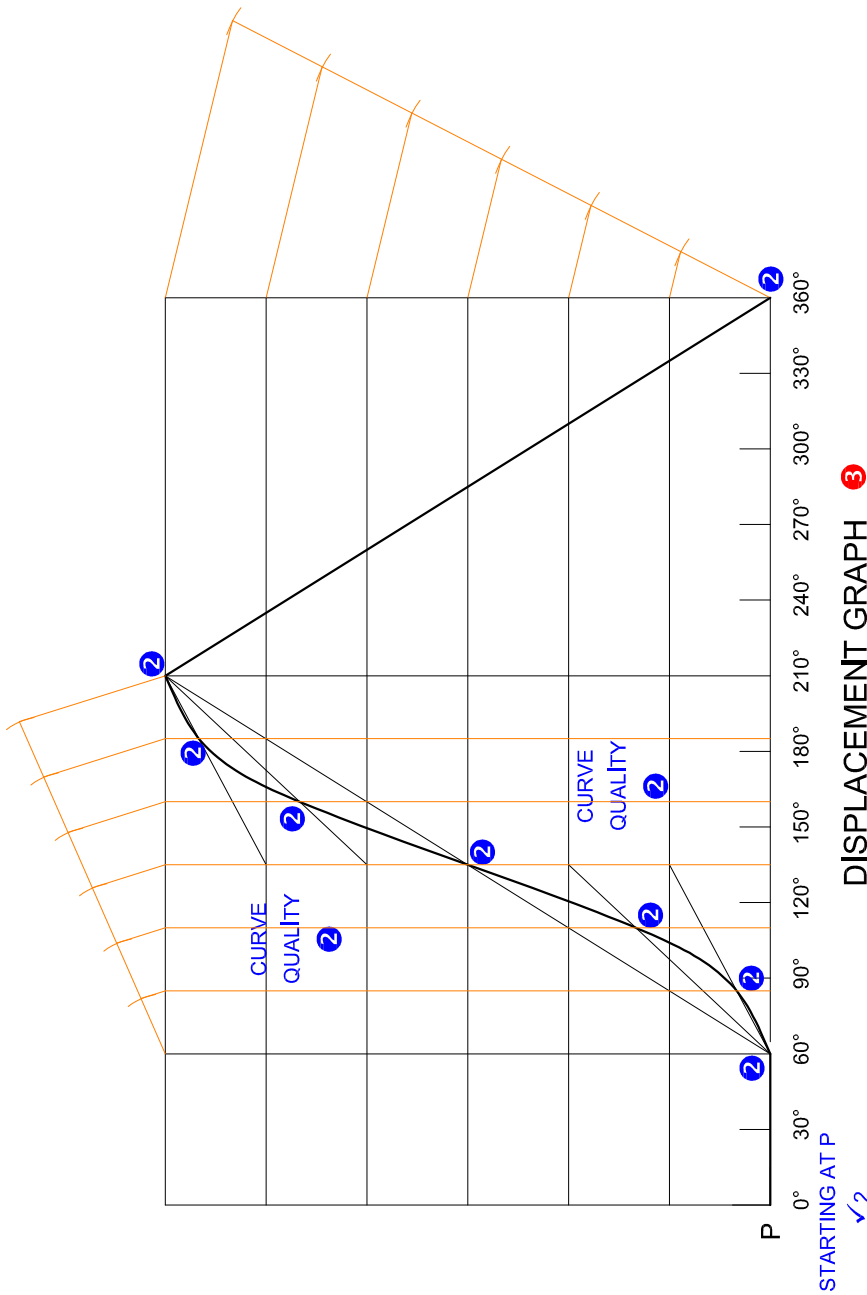
ASSESSMENT CRITERIA 2.1	
1	GIVEN + LABELS + CL 6
2	CONSTRUCTION 5
3	LOC OF D + E 14
<b>SUBTOTAL 2.1 25</b>	

**CURVE QUALITY**  
 - CURVE THROUGH POINTS 0.5  
 - CONTINUES SMOOTH CURVE 0.5  
 1

**2. CONSTRUCTION**  
 - CIRCLE DIVISION 1  
 - CONSTRUCTION DB 2  
 - CONSTRUCTION CE 2  
 5



PAPER 2 QUESTION 2  
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 NOVEMBER 2022  
 MARKING GUIDELINE



**DISPLACEMENT GRAPH** 3  
**SCALE 10 mm = 30°** 3

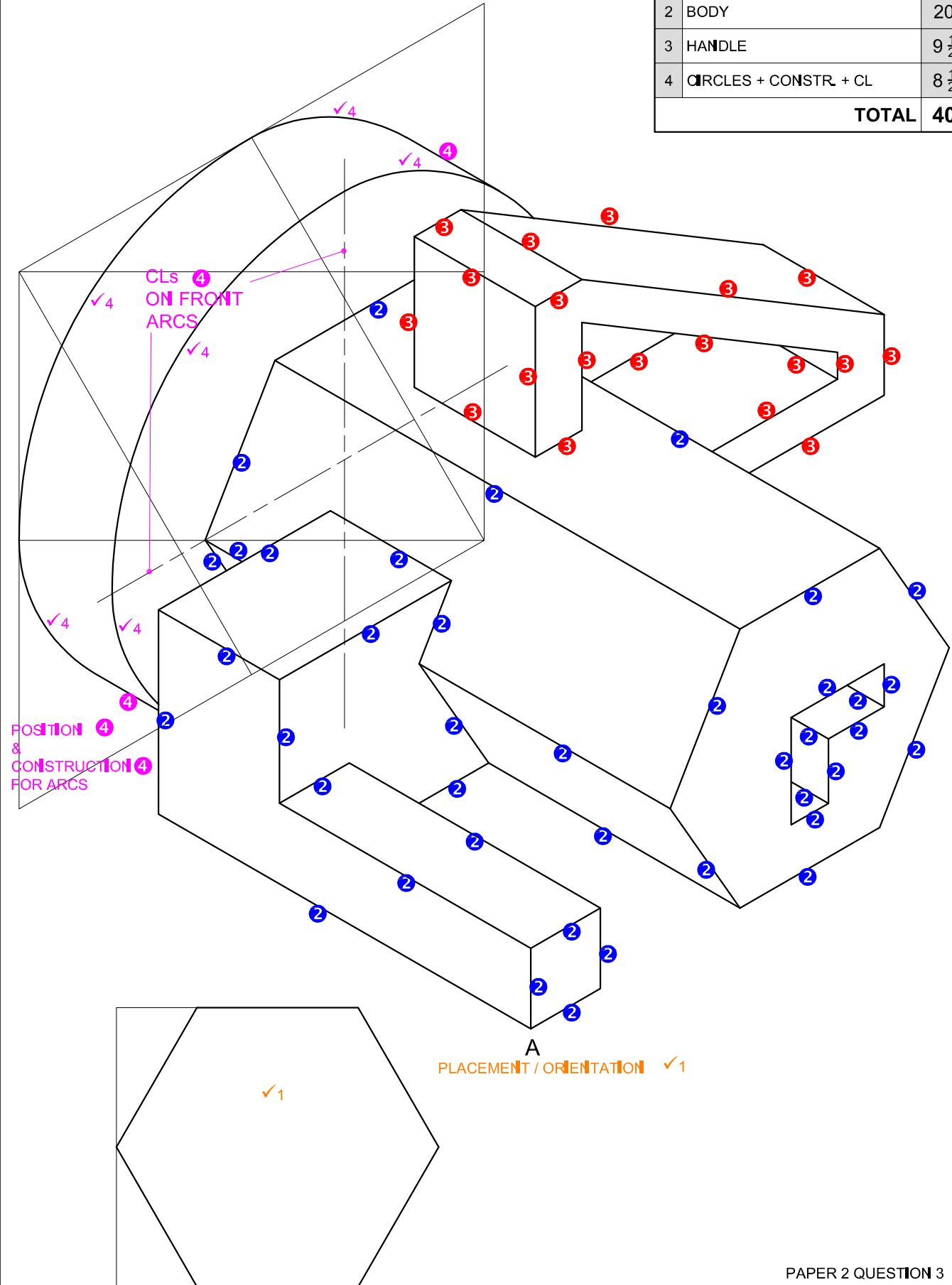
1. CONSTRUCTION
- LENGTH 120 + LINE DIVISIONS (1 + 1/2) 1
  - 150° HORIZONTAL LINE DIVISION for UAR 1
  - VERTICAL DIVISIONS for UAR (hor / vert. division number must be equal) 1
  - FIRST HALF CONSTRUCTION for UAR 1
  - SECOND HALF CONSTRUCTION for UAR 5

**NOTE ON CURVE QUALITY**  
 MUST BE THROUGH DETERMINED POINTS, & CURVE MUST BE CONTINUOUS AND SMOOTH

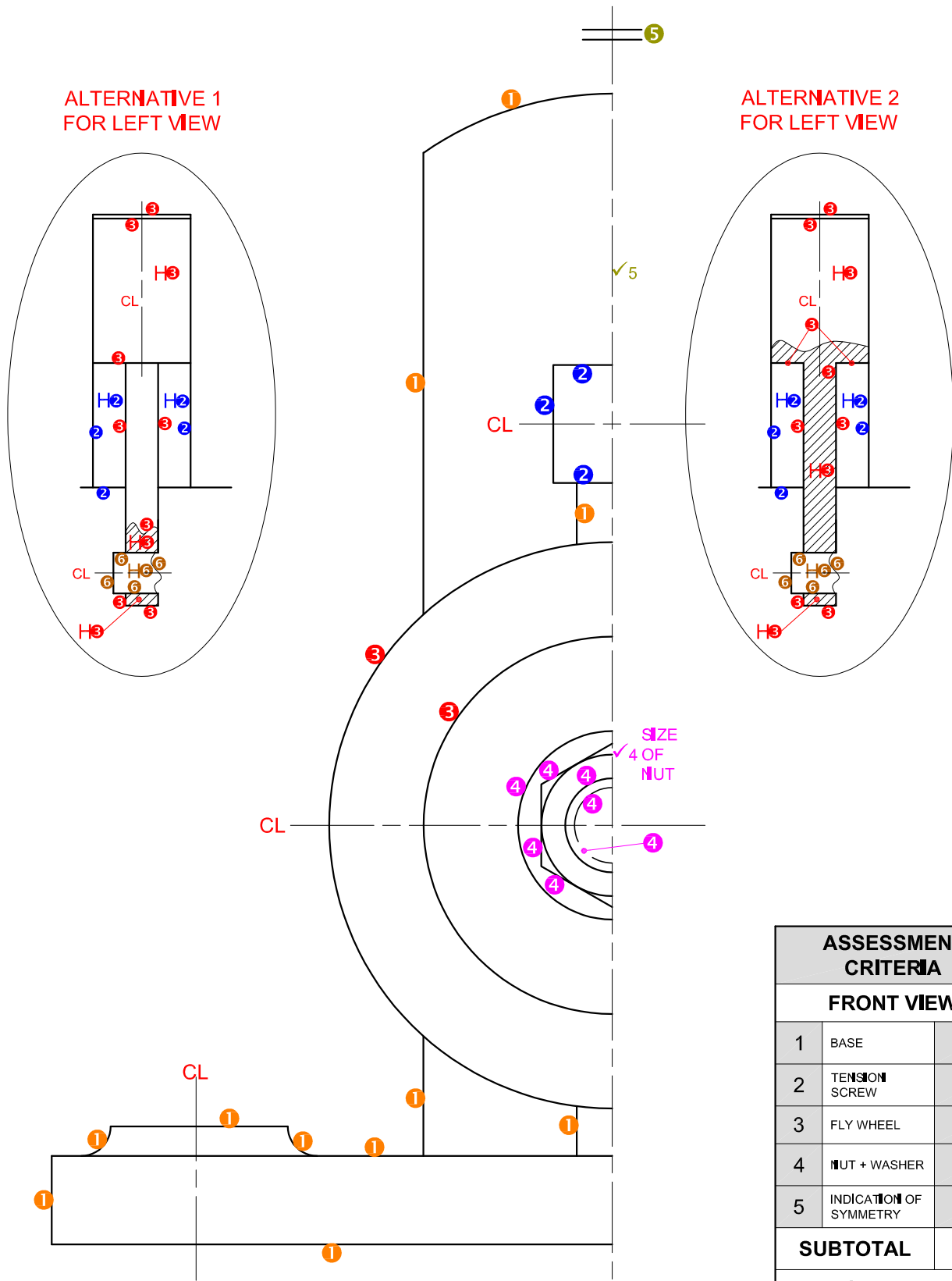
ASSESSMENT CRITERIA 2.2	
1	GRAPH CONSTRUCTION 5
2	POINTS + CURVE 6
3	LABELS 1
<b>SUBTOTAL 2.2 12</b>	

PAPER 2 QUESTION 2  
 GRADE 12  
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 MARKING GUIDELINE

ASSESSMENT CRITERIA		
1	PLACING + AUX. VIEW	2
2	BODY	20
3	HANDLE	9 1/2
4	CIRCLES + CONSTR. + CL	8 1/2
<b>TOTAL</b>		<b>40</b>



PAPER 2 QUESTION 3  
 GRADE 12  
 NOVEMBER 2022  
 MARKING GUIDELINE



ALTERNATIVE 1  
FOR LEFT VIEW

ALTERNATIVE 2  
FOR LEFT VIEW

1. CENTRE LINES  
SANS COMPLIANT  
1 - 4 = 0,5; 5 - 7 = 1

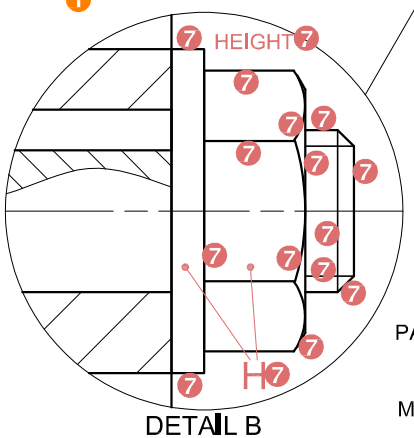
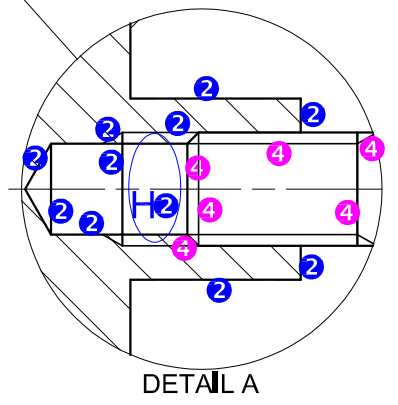
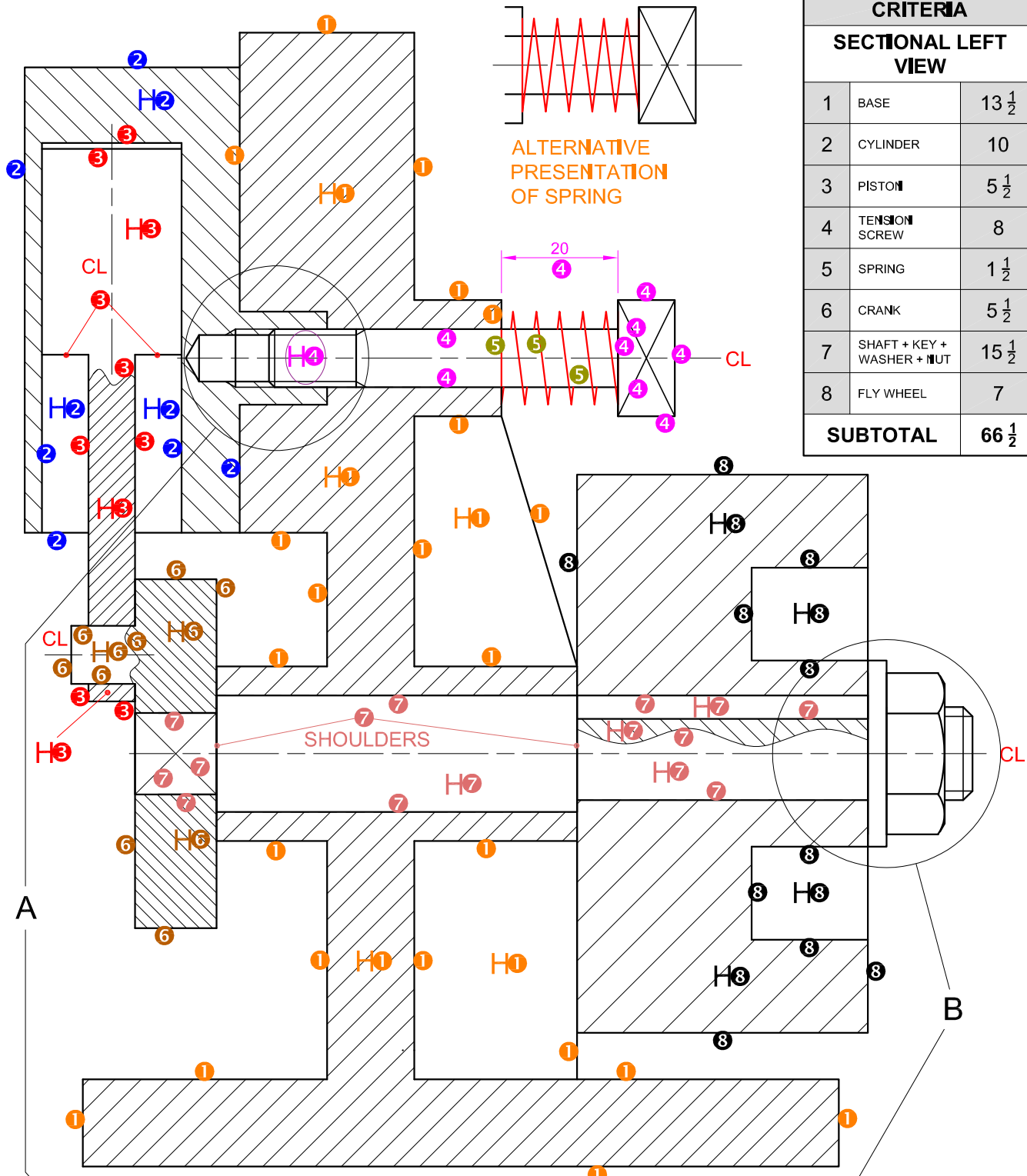
1  
1/2

2. ASSEMBLY  
1 MARK FOR EVERY COMPONENT  
CORRECTLY ASSEMBLED (11 PARTS - 1) = 10

ASSESSMENT CRITERIA		
FRONT VIEW		
1	BASE	5 1/2
2	TENSION SCREW	1 1/2
3	FLY WHEEL	1
4	NUT + WASHER	4 1/2
5	INDICATION OF SYMMETRY	2
<b>SUBTOTAL</b>		<b>14 1/2</b>
GENERAL		
1	CENTRE LINES	2
2	ASSEMBLY	10
<b>SUBTOTAL</b>		<b>12</b>

PAPER 2 QUESTION 4  
GRADE 12  
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MARKING GUIDELINE

ASSESSMENT CRITERIA		
SECTIONAL LEFT VIEW		
1	BASE	13 1/2
2	CYLINDER	10
3	PISTON	5 1/2
4	TENSION SCREW	8
5	SPRING	1 1/2
6	CRANK	5 1/2
7	SHAFT + KEY + WASHER + NUT	15 1/2
8	FLY WHEEL	7
<b>SUBTOTAL</b>		<b>66 1/2</b>



PAPER 2 QUESTION 4  
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