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**NATIONAL SENIOR CERTIFICATE**

**GRADE 12**

**ENGINEERING GRAPHICS AND DESIGN P2**

**SEPTEMBER 2024**

**PREPARATORY EXAMINATION  
MARKING GUIDELINE**

**MARKS: 200**

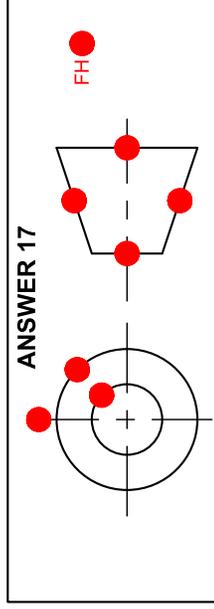
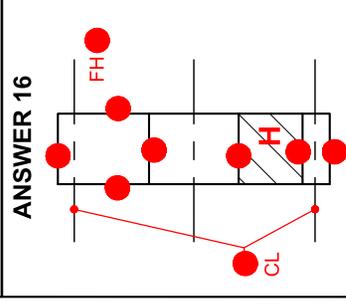
**TIME: 3 hours**

**This marking guideline consists of 7 pages.**

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**QUESTION 1: ANALYTICAL (MECHANICAL)**

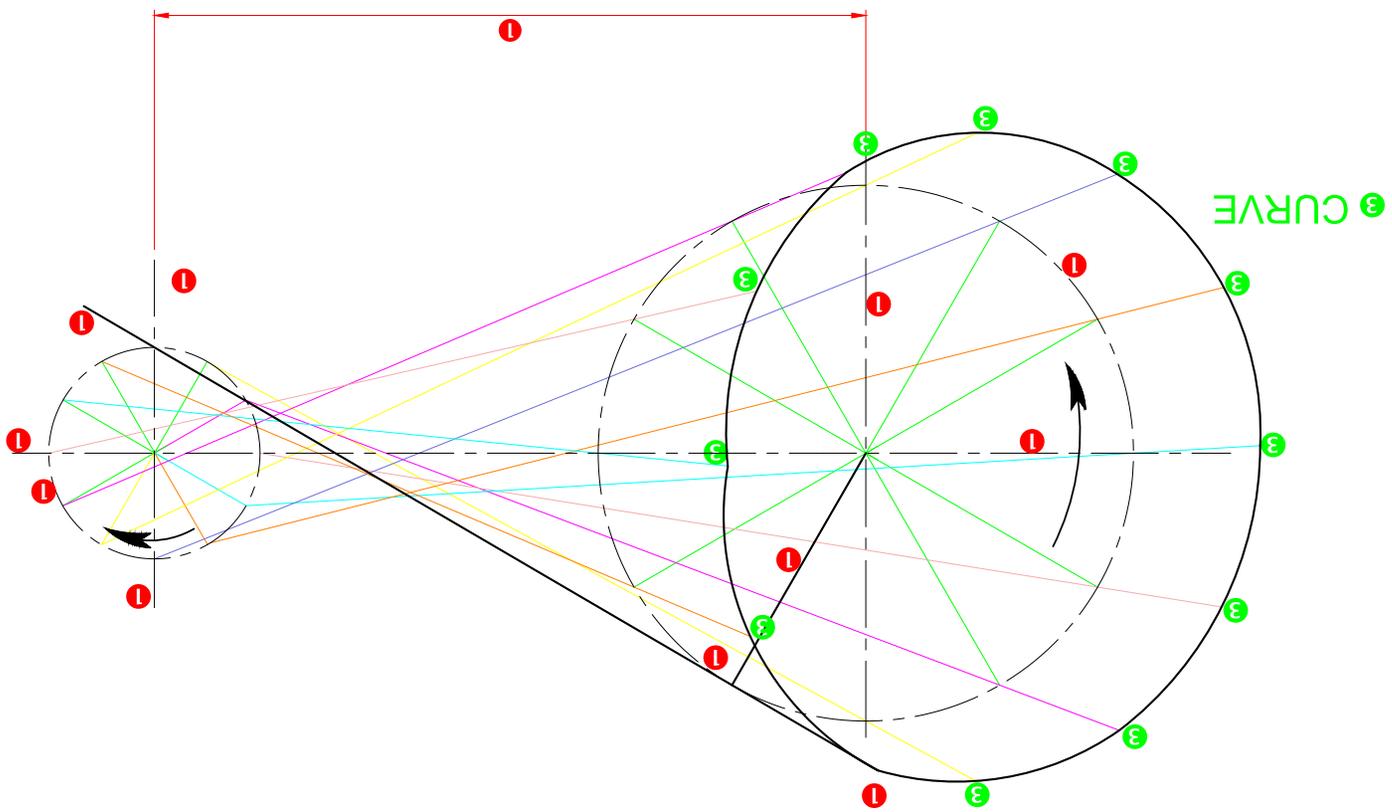
ANSWERS		
1	SAM	1
2	ONE	1
3	AUTOCAD 2023	1
4	12	1
5	CAST IRON	1
6	SPOTFACE	1
7	EXTERNAL SCREW THREAD	1
8	RIGHT VIEW	2
9	OIL HOLE	1
10	CLEARANCE OR TOLERANCE	1
11	4	1
12	A = 16 mm , B = 5 mm , C = 329 mm	3
13	mm	1
14	5	1
15	$106+0.25 = 106.25$ AND $106-0.03 = 105.97$	4
16	SEE BELOW	5
17	SEE BELOW	4
<b>TOTAL</b>		<b>30</b>



2. CONSTRUCTION OF DIAGRAM

- CIRCLE DIVISIONS 2
- CONSTRUCTIONS AC 2
- CURVE QUALITY 2

TOTAL 6



**QUESTION 2.1: LOCI (MECHANISM)**

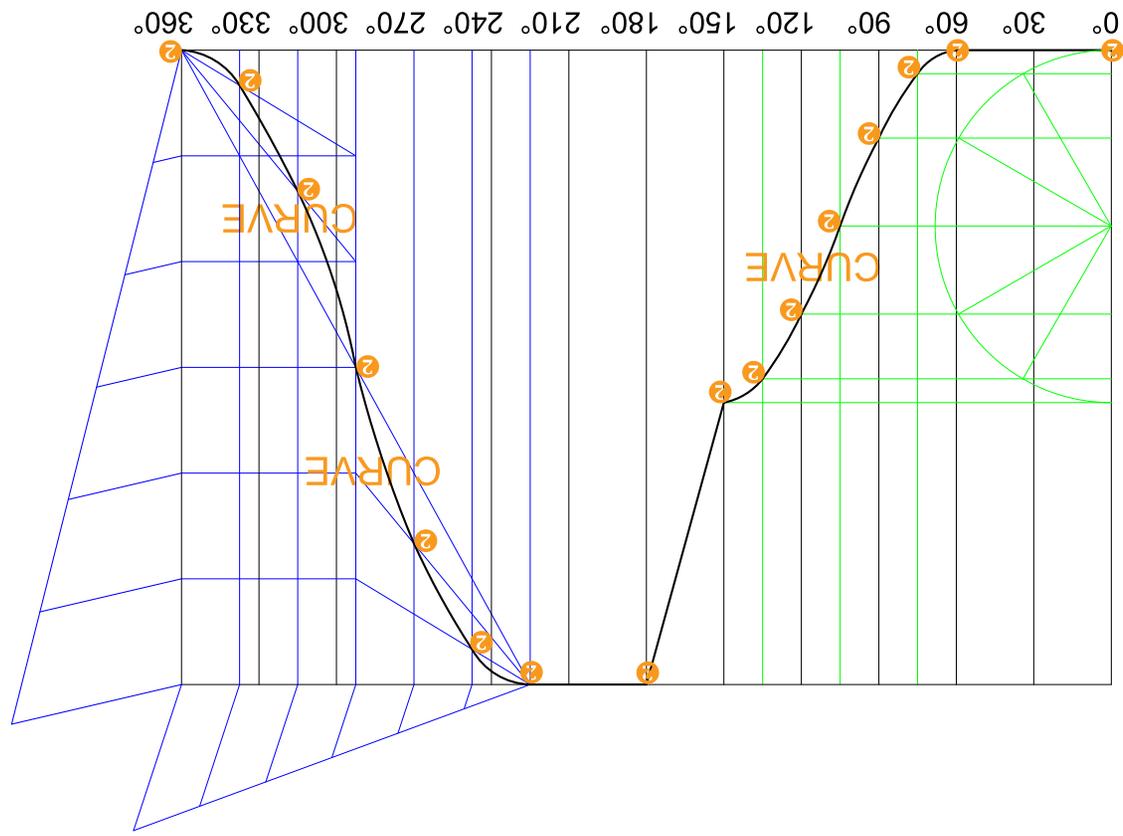
ASSESSMENT CRITERIA		
1	GIVEN	6
2	CONSTRUCTION OF DIAGRAM	6
3	CONSTRUCTION OF LOCI	6
<b>TOTAL</b>		<b>18</b>

4

ASSESSMENT CRITERIA	
1	DISPLACEMENT GRAPH
2	CURVE CONSTRUCTION
3	LABEL AND SCALE
TOTAL 20	

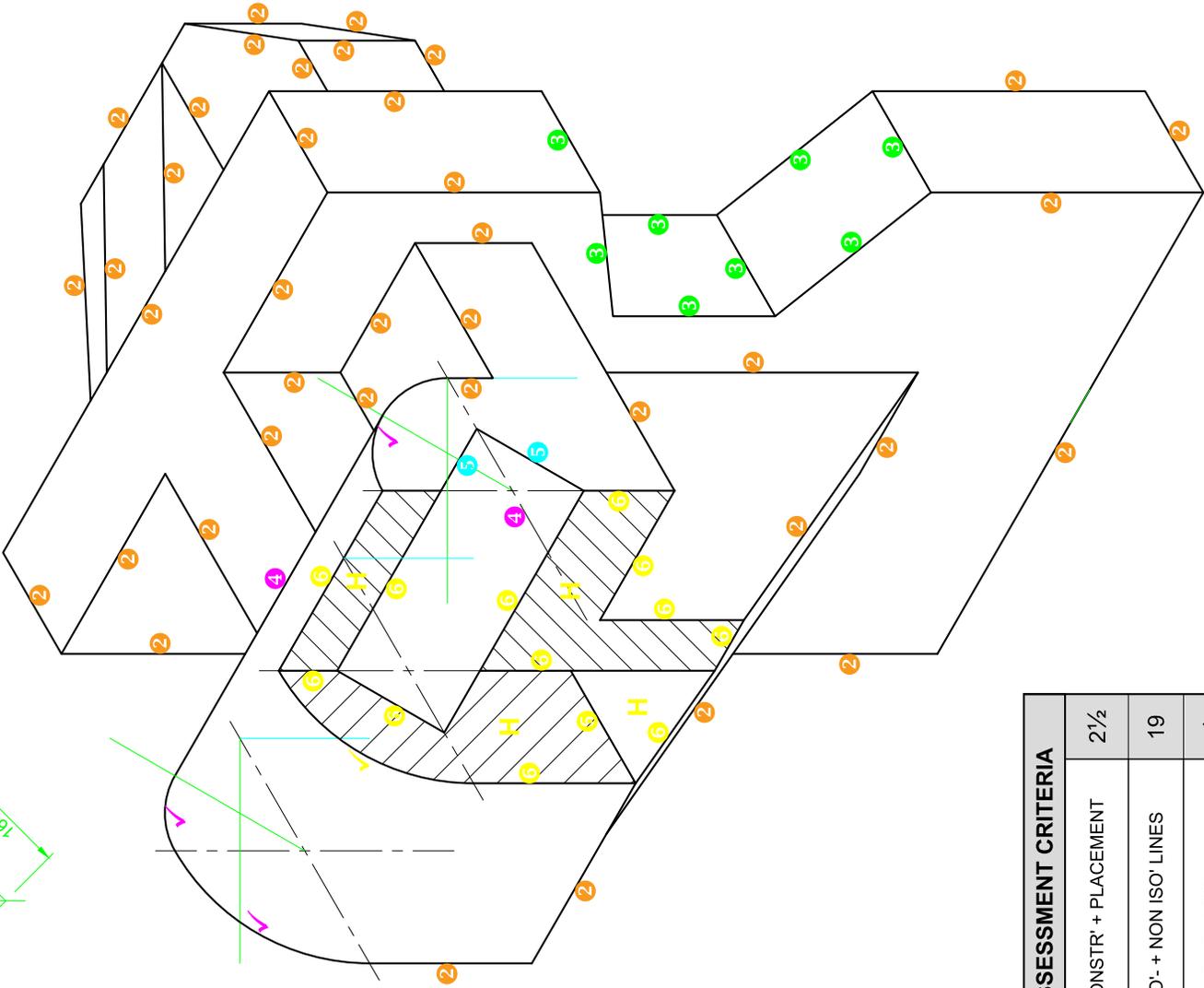
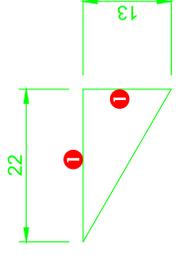
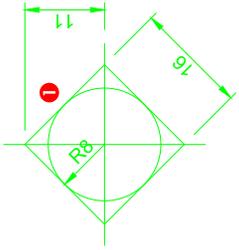
1. GRAPH CONSTRUCTION
- Base length 132 mm
  - 12 division @ 11 mm
- SIMPLE HARMONIC MOTION
- Semi circle
  - Circle division
  - Projection
- UNIFORM ACCELERATION + RETARDATION
- Height 90 mm
  - Line division (50 mm) 6 equal parts
  - Vertical division (90 mm) 6 equal parts
  - First half construction
  - Second half construction
- TOTAL 10

QUESTION 2.2: LOCI (CAM)



DISPLACEMENT GRAPH  
SCALE 30° = 11 mm

### QUESTION 3: ISOMETRIC



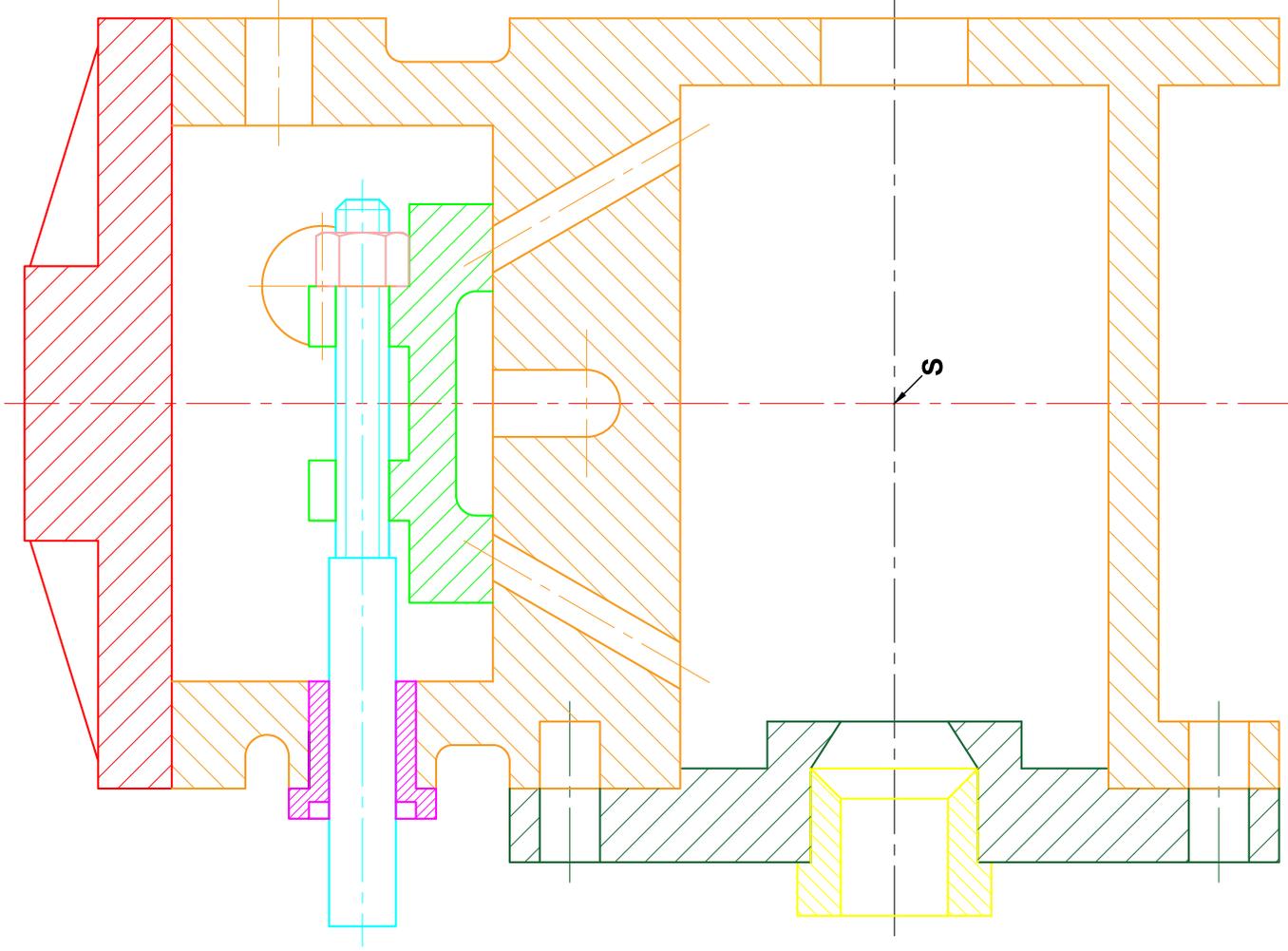
ASSESSMENT CRITERIA	
1	CONSTR' + PLACEMENT 2 1/2
2	ISO' - + NON ISO' LINES 19
3	HALF HEXAGON 4
4	HALF CIRCLE + CL'S 4
5	SQUARE 1
6	SECTION A-A 9 1/2
<b>TOTAL 40</b>	

5

**QUESTION 4: MECHANICAL ASSEMBLY**

PENALTIES	
1	WRONG SCALE -2
2	PARTS NOT ASSEMBLED (-1 PER PART) -8
3	WRONG HATCHING -2
<b>TOTAL PENALTIES (-)</b>	

ASSESSMENT CRITERIA	
<b>GENERAL</b>	
1	CENTRE LINES: = 1 CHAINLINE = 1 1-4 LINES = 1 OR 5-10 LINES = 2 3
2	ASSEMBLY 8
<b>SUB-TOTAL</b>	
<b>11</b>	



### QUESTION 4: MECHANICAL ASSEMBLY

SECTIONAL FRONT VIEW	
1	COVER
2	HOUSING
3	VALVE
4	GLAND
5	AXLE
6	M18 NUT
7	FLANGE
8	FLANGE GLAND
<b>SUB-TOTAL</b>	
	<b>81</b>

