



Province of the
EASTERN CAPE
DEPARTMENT OF EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 12

ENGINEERING GRAPHICS AND DESIGN P2

SEPTEMBER 2024

**PREPARATORY EXAMINATION
MARKING GUIDELINE**

MARKS: 200

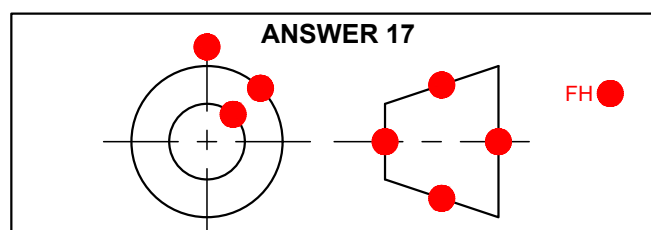
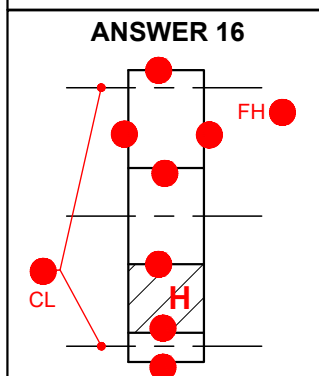
TIME: 3 hours

This marking guideline consists of 7 pages.

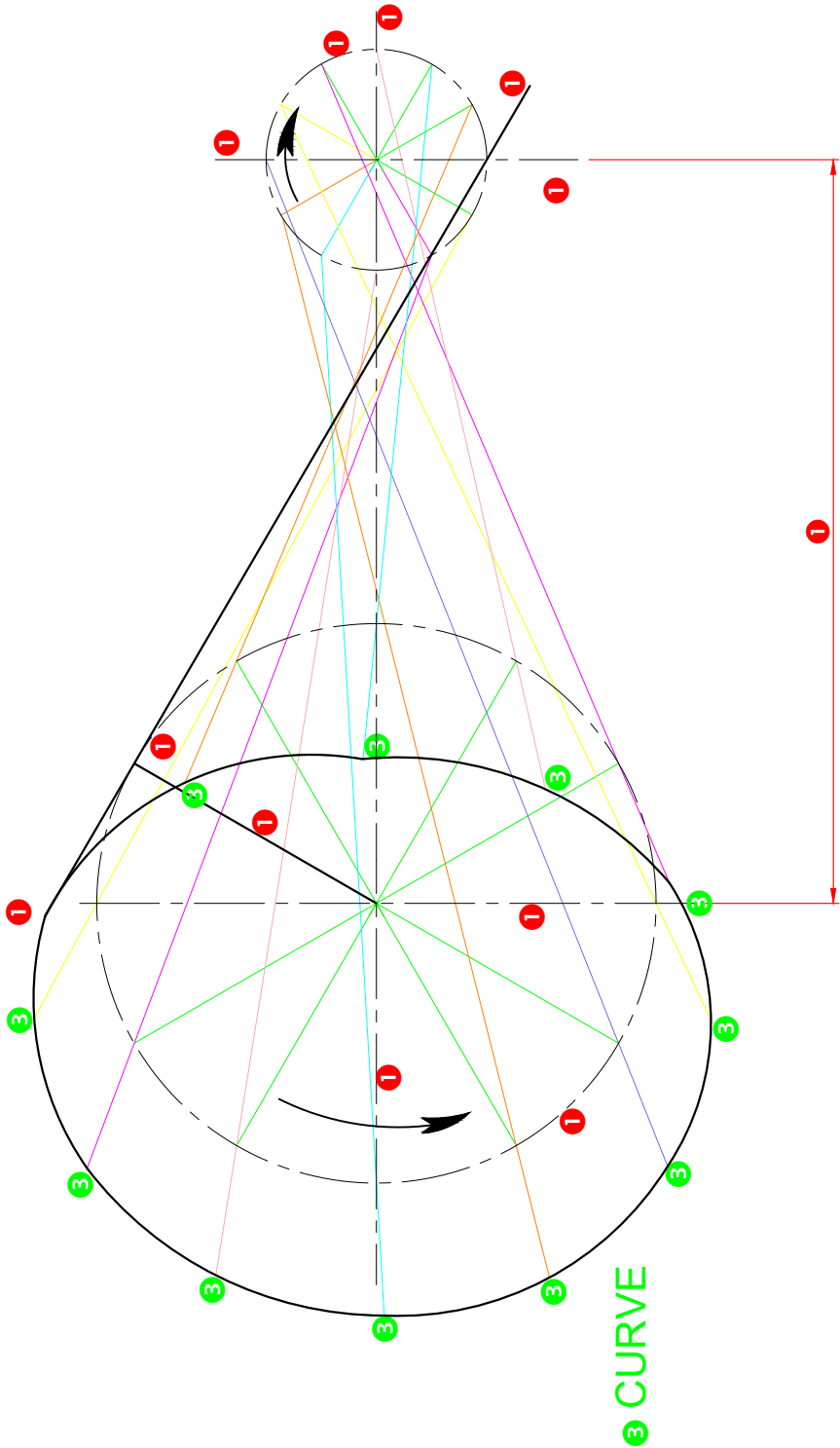
Copyright reserved

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
TOTAL		30



QUESTION 2.1: LOCI (MECHANISM)



2. CONSTRUCTION OF DIAGRAM

• CIRCLE DIVISIONS	2
• CONSTRUCTIONS AC	2
• CURVE QUALITY	2
TOTAL	6

ASSESSMENT CRITERIA	
1	GIVEN
2	CONSTRUCTION OF DIAGRAM
3	CONSTRUCTION OF LOCI
TOTAL	
18	

3

QUESTION 2.2: LOCI (CAM)

1. GRAPH CONSTRUCTION

- ✓ Base length 132 mm
- ✓ 12 division @ 11 mm

1
1

SIMPLE HARMONIC MOTION

- ✓ Semi circle
- ✓ Circle division
- ✓ Projection

1
1
1

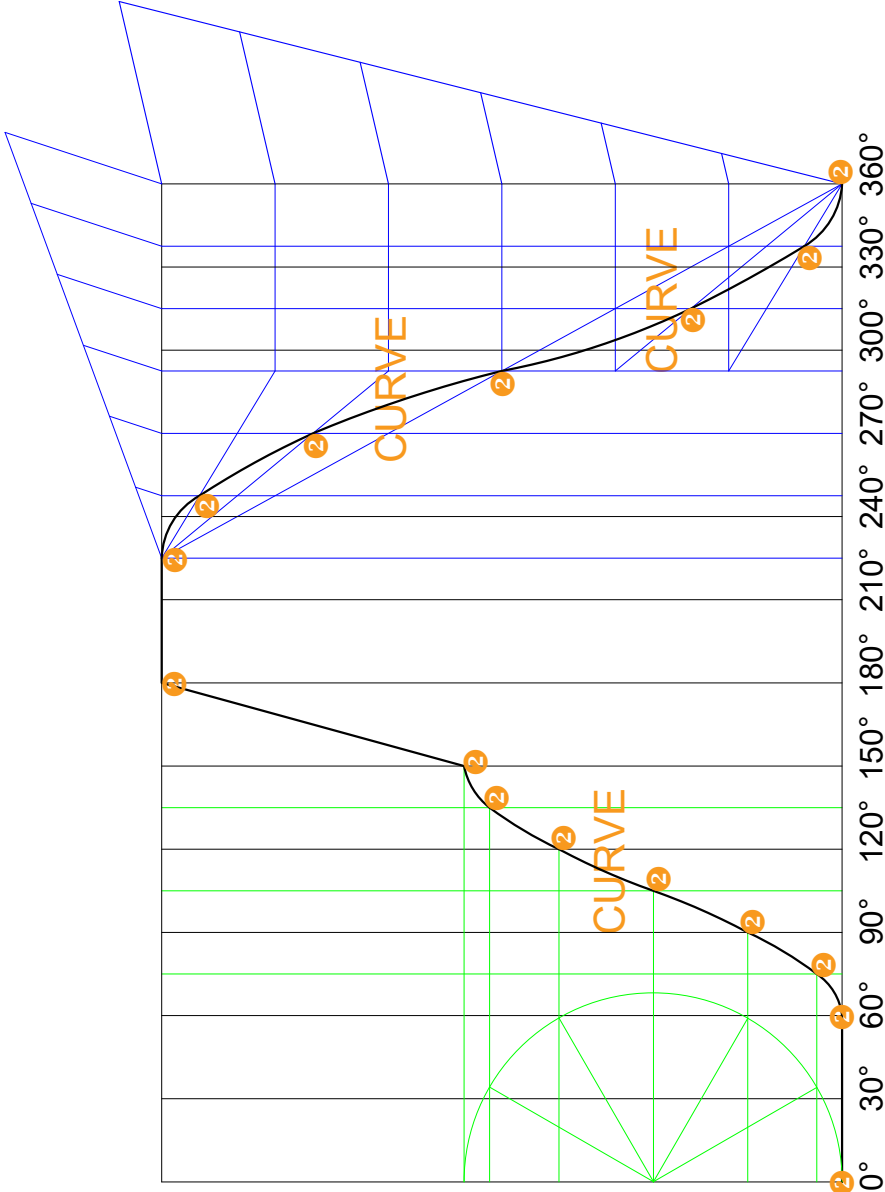
UNIFORM ACCELERATION + RETARDATION

- ✓ Height 90 mm
- ✓ Line division (50 mm) 6 equal parts
- ✓ Vertical division (90 mm) 6 equal parts
- ✓ First half construction
- ✓ Second half construction

1
1
1
1
1

TOTAL

10

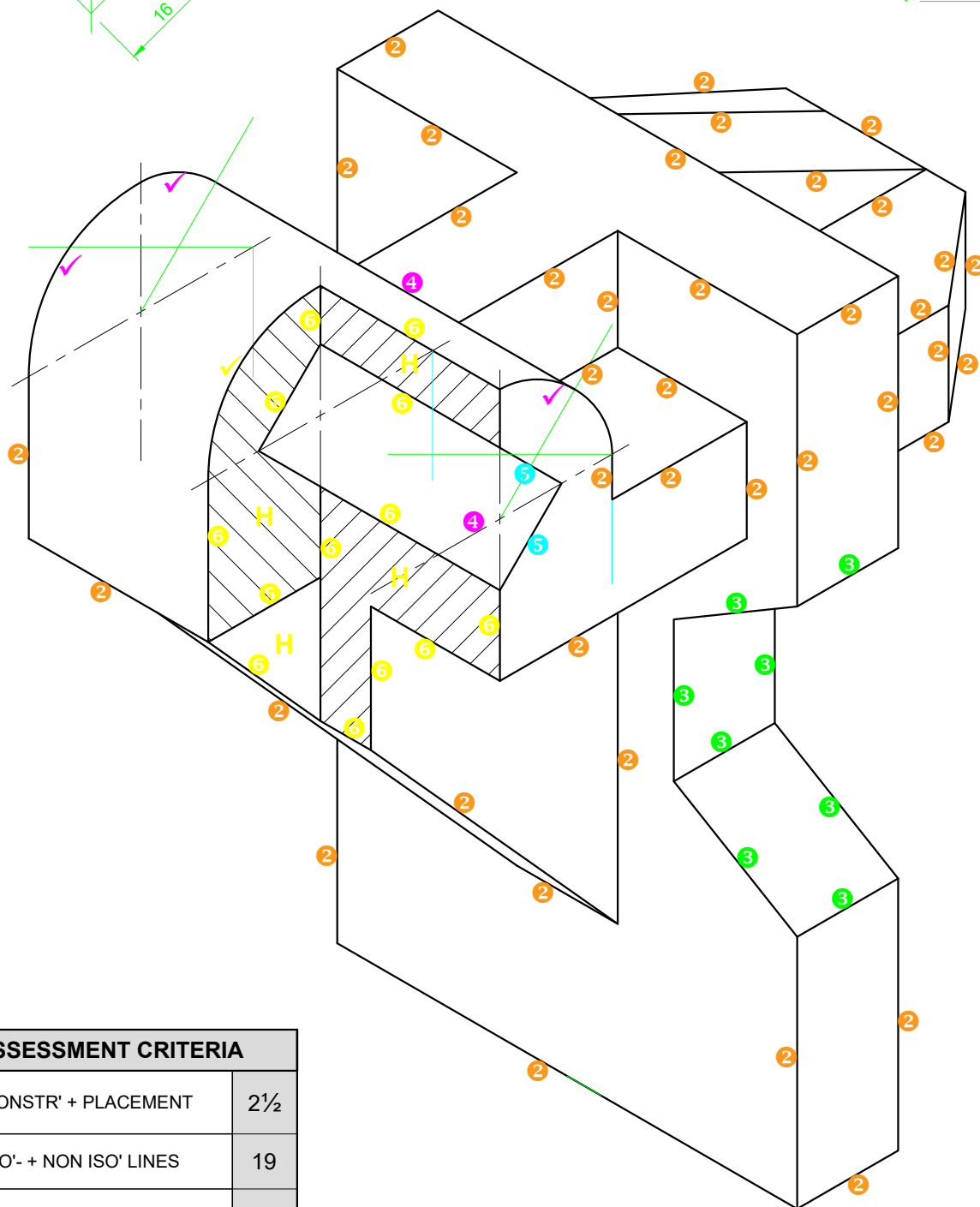
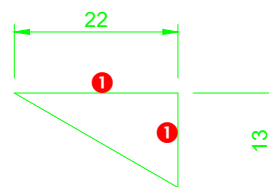
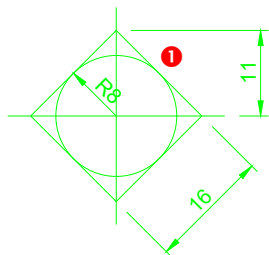


DISPLACEMENT GRAPH ✓
SCALE 30° = 11 mm ✓

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

4

QUESTION 3: ISOMETRIC



ASSESSMENT CRITERIA		
1	CONSTR' + PLACEMENT	2½
2	ISO'- + NON ISO' LINES	19
3	HALF HEXAGON	4
4	HALF CIRCLE + CL'S	4
5	SQUARE	1
6	SECTION A-A	9½
TOTAL		40

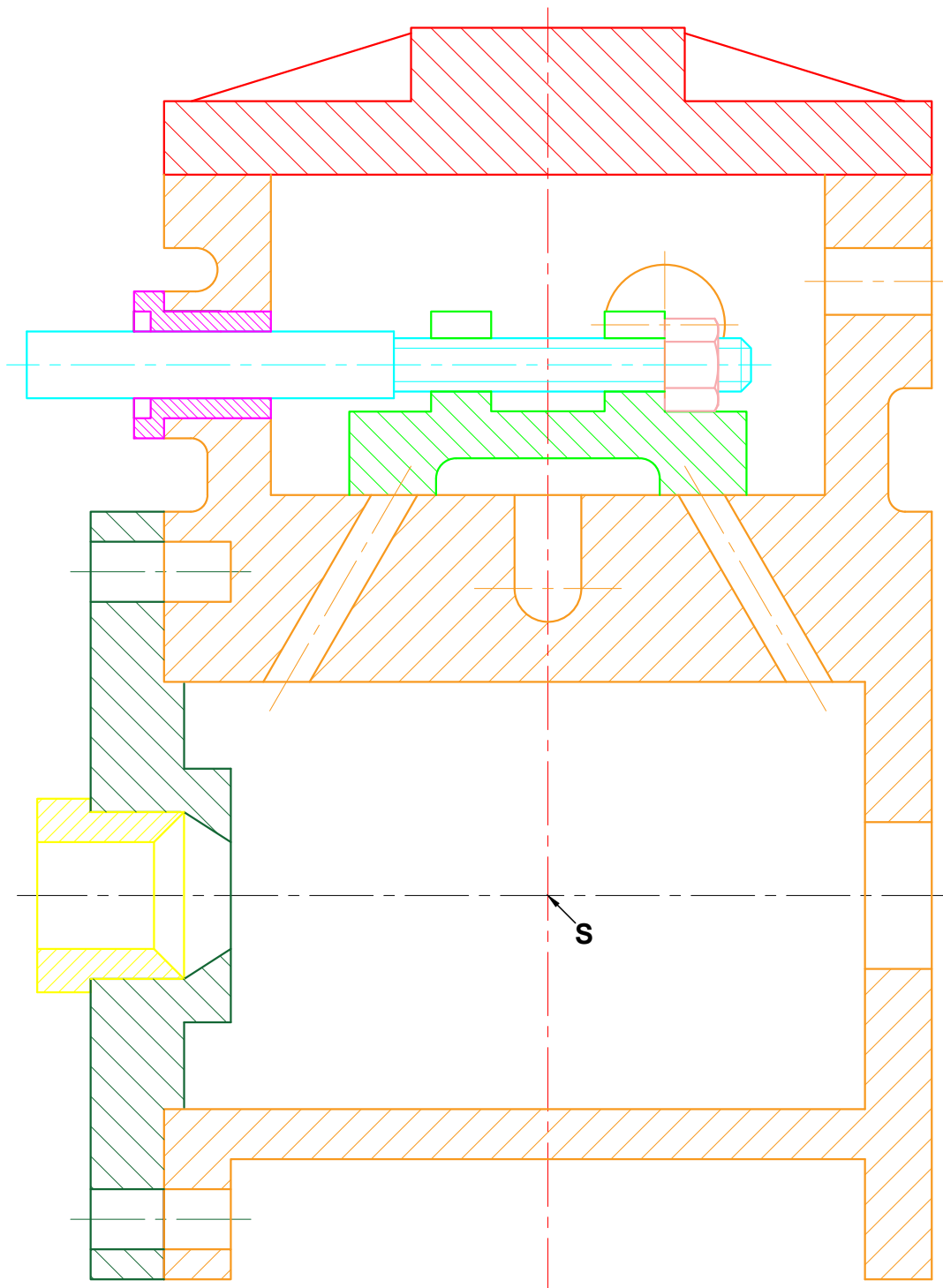


 S

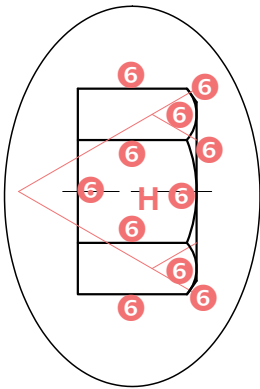
QUESTION 4: MECHANICAL ASSEMBLY

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

ASSESSMENT CRITERIA		
GENERAL		
1	CENTRELINES: CHAINLINE = 1 1 - 4 LINES = 1 OR 5 - 10 LINES = 2	3
2	ASSEMBLY	8
SUB-TOTAL		11



QUESTION 4: MECHANICAL ASSEMBLY



SECTIONAL FRONT VIEW

1	COVER	6
2	HOUSING	32
3	VALVE	9½
4	GLAND	4½
5	AXLE	6½
6	M18 NUT	6½
7	FLANGE	12
8	FLANGE GLAND	5
SUB-TOTAL		81

