

QUESTION 1: SOLID GEOMETRY

Given:

- The front view and top view of a right regular hexagonal pyramid attached to a separate tight hexagonal prism.
- A complete front view.

Specifications

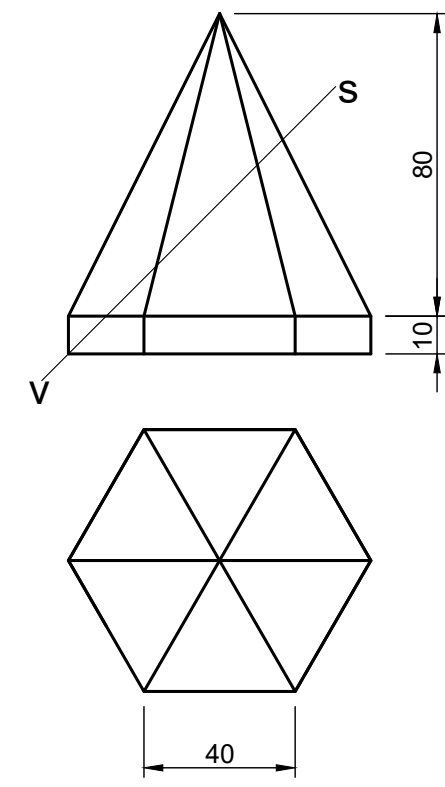
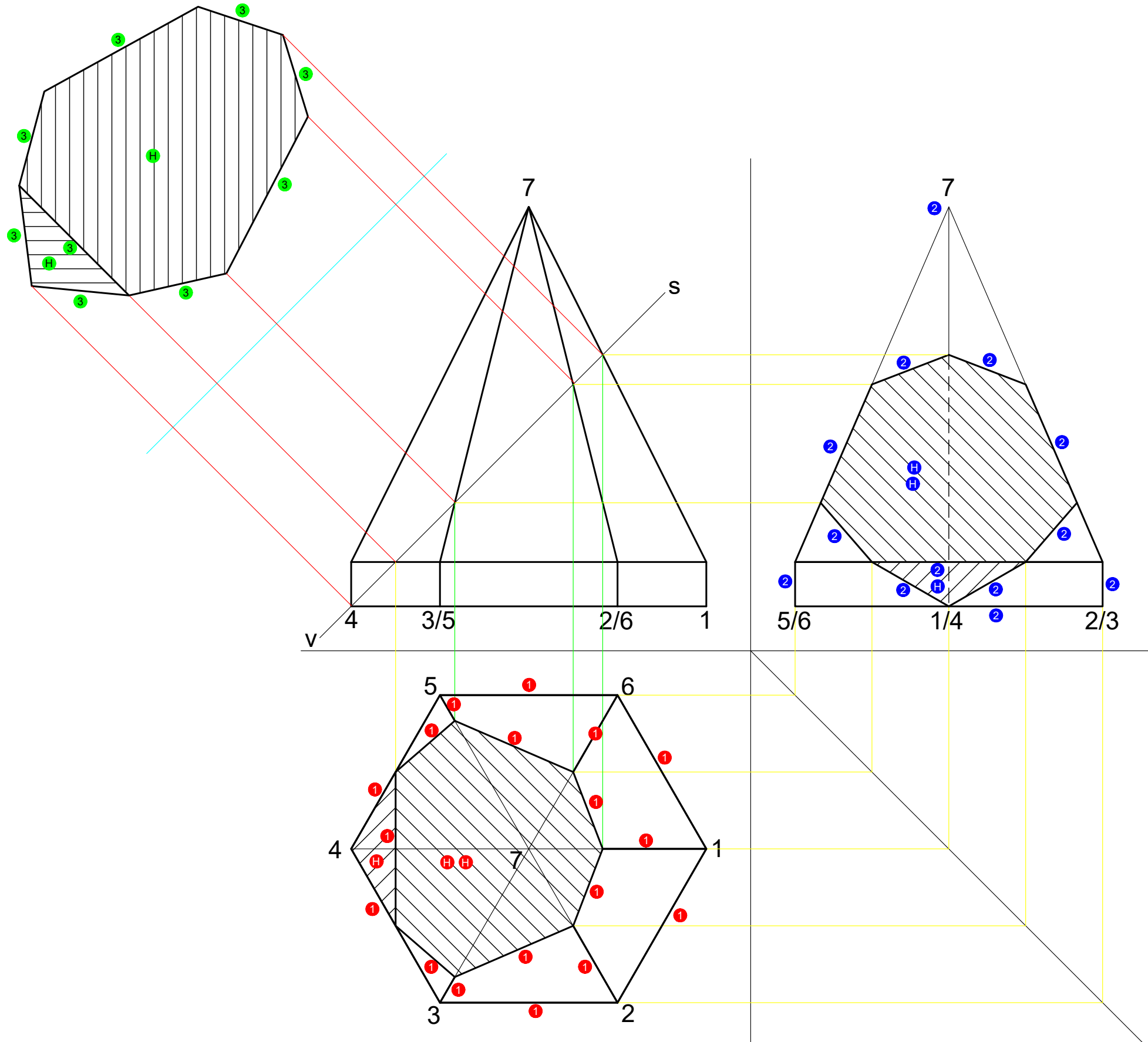
- The two solids are sectioned by section line VS.

Draw the following views of the solids:

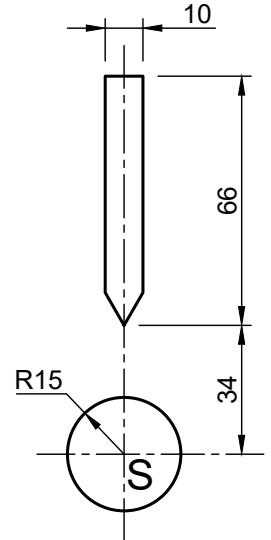
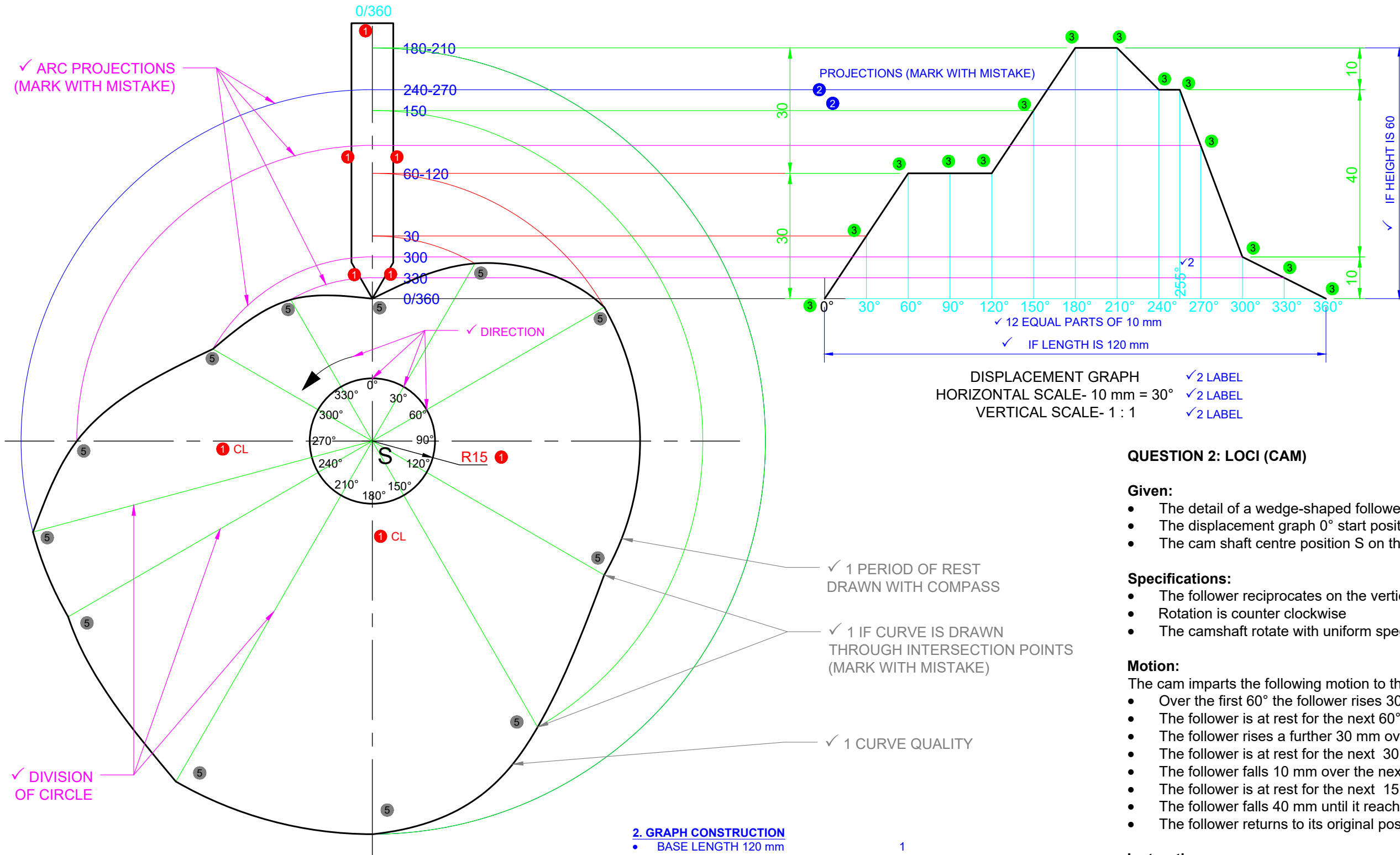
- A sectional front view.
- A sectional left view.
- The true shape of the sectioned area.

Show all necessary constructions and hidden detail.

[24]



ASSESSMENT CRITERIA			
1	TOP VIEW	10,5	
2	LEFT VIEW	8	
3	TRUE SHAPE	5,5	
PENALIZING (-)			
TOTAL		24	
NAME & SURNAME			



DISPLACEMENT GRAPH ✓ 2 LABEL
 HORIZONTAL SCALE- 10 mm = 30° ✓ 2 LABEL
 VERTICAL SCALE- 1 : 1 ✓ 2 LABEL

QUESTION 2: LOCI (CAM)

Given:

- The detail of a wedge-shaped follower and the camshaft
- The displacement graph 0° start position on the drawing sheet
- The cam shaft centre position S on the drawing sheet

Specifications:

- The follower reciprocates on the vertical centre line of the camshaft
- Rotation is counter clockwise
- The camshaft rotate with uniform speed

Motion:

The cam imparts the following motion to the follower:

- Over the first 60° the follower rises 30 mm.
- The follower is at rest for the next 60°.
- The follower rises a further 30 mm over the next 60°.
- The follower is at rest for the next 30°.
- The follower falls 10 mm over the next 30°.
- The follower is at rest for the next 15°.
- The follower falls 40 mm until it reach 300°.
- The follower returns to its original position over the final 60°.

Instructions:

- Draw, to scale 1 : 1, the given camshaft and the wedge-shaped follower at the minimum distance
- Draw to a rotational scale of 30° equal to 10 mm and a displacement scale of 1 : 1, the complete displacement graph of the required motion
- Project and draw the cam profile from the displacement graph
- Label the displacement graph and include both the scales
- Show the direction of rotation on the cam profile
- Show all construction and projection lines

[31]

ASSESSMENT CRITERIA

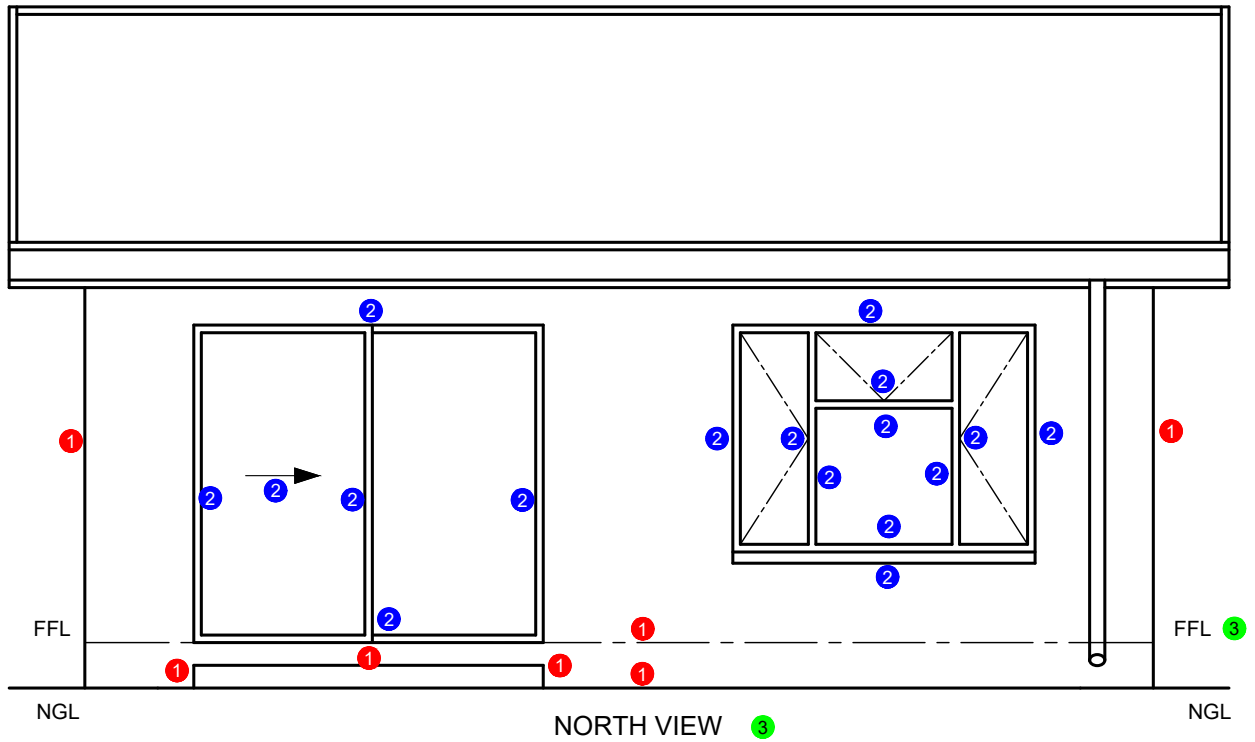
1	START POSITION + GIVEN + CENTRE LINES	4		
2	GRAPH CONSTRUCTION	8		
3	DISPLACEMENT GRAPH	7		
4	CAM CONSTRUCTION	3		
5	CAM + CURVE QUALITY	9		
PENALIZE (-)				
TOTAL		31		

- 2. GRAPH CONSTRUCTION**
- BASE LENGTH 120 mm 1
 - 12 INCREMENTS @ 10 mm 1
 - TOTAL HEIGHT 60 mm 1
 - SUB DIVISION (15°) 1
 - PROJECTION SHOWN 1
 - LABEL GRAPH AND SCALES 3
 - TOTAL 8**

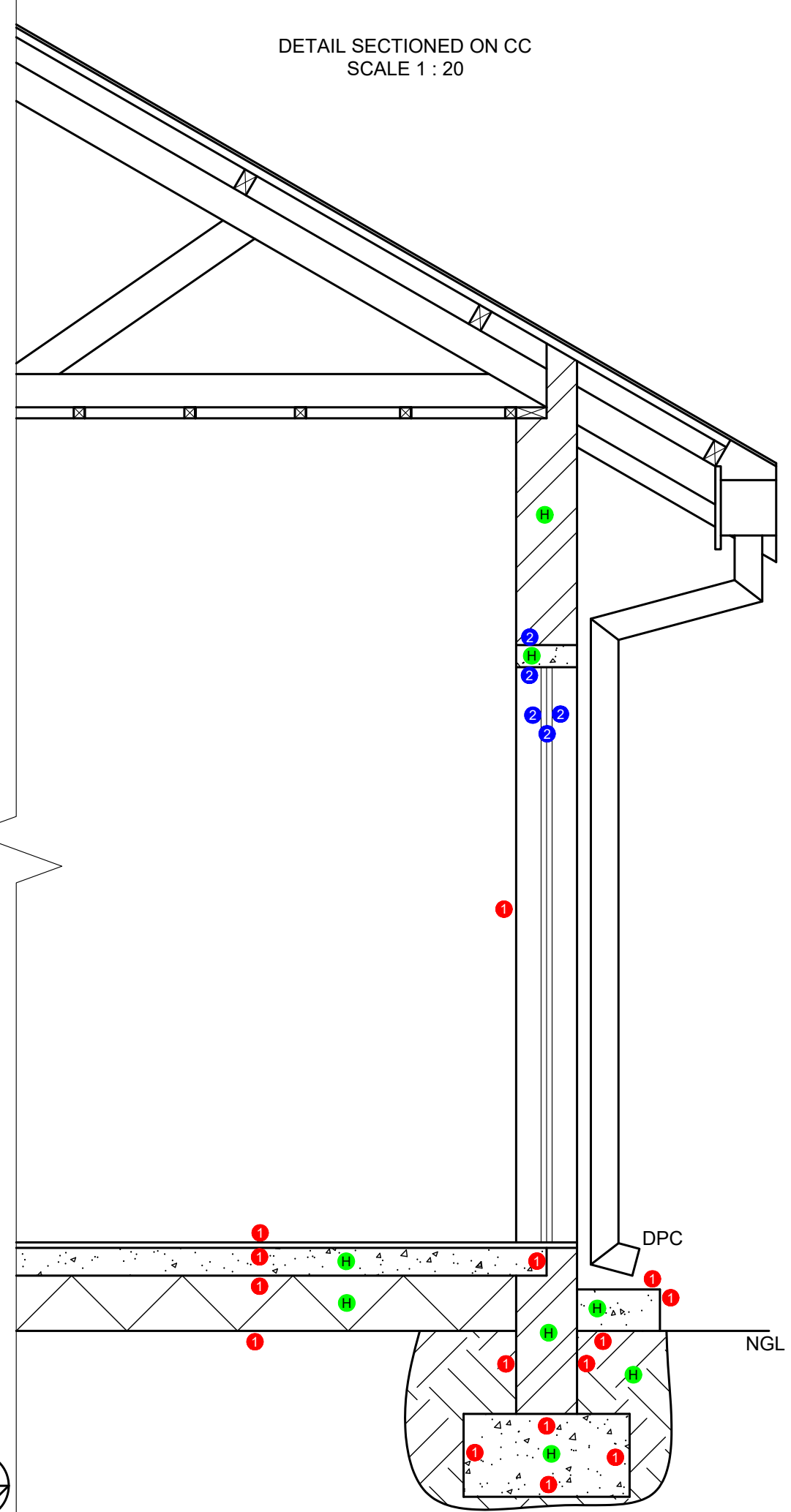
- 4. CAM CONSTRUCTION**
- DIVISION OF CIRCLE 1
 - DIRECTION: DEGREES AND ARROW 1
 - ARC PROJECTIONS 1
 - TOTAL 3**

- 5. CAM + CURVE QUALITY**
- PROFILE THROUGH EACH INTERSECTION 1
 - REST PERIOD DRAWN WITH COMPASS 1
 - CURVE QUALITY 1
 - TOTAL 3**

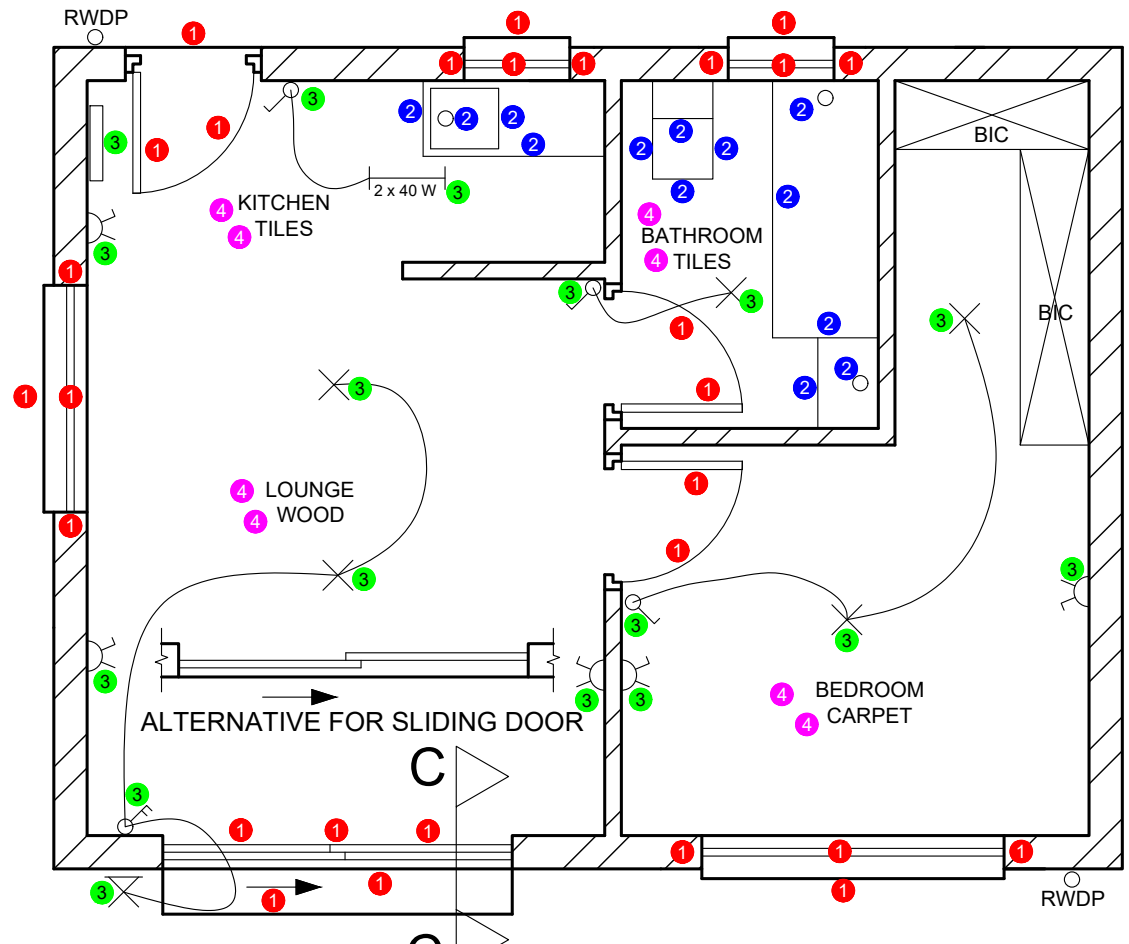
NAME & SURNAME



NORTH VIEW 3



DETAIL SECTIONED ON CC
SCALE 1 : 20



FLOOR PLAN
SCALE 1:50

4. HATCHING
SANS COMPLIANT 2
CORRECT APPLIED 2
TOTAL 4

PENALIZING FOR OFFICE USE ONLY	
INCORRECT SCALE(S) USED	-2
NON-ALIGNMENT OF VIEWS	-2
VIEW(S) ROTATED	-2
SECTION VIEWED INCORRECTLY	-2
INCORRECT LETTERING	-1
TOTAL	

ASSESSMENT CRITERIA			
FLOOR PLAN			
1	DOORS + WINDOWS	14	
2	FIXTURES	6.5	
3	ELECTRICAL FEATURES	8.5	
	HATCHING	4	
5	LABELS	5	
SUB TOTAL 1		38	
NORTH ELEVATION			
1	WALLS + FFL + STEP	3.5	
2	DOOR + WINDOW	8.5	
3	LABELS	1	
SUB TOTAL 2		13	
DETAILED SECTION			
1	FOUNDATION + WALL + SLAB	7.5	
2	SLIDING DOOR + LINTEL	2.5	
3	HATCHING	4	
SUB TOTAL 3		14	
TOTAL		65	
TOTAL PENALTIES (-)			
GRAND TOTAL			
NAME & SURNAME			