



QUESTION 2: CAM

Given:

- The detail of the camshaft and a roller-ended follower in its lowest point.
- The vertical centre line of the cam profile.

Specifications:

- The follower reciprocates on the vertical centre line of the camshaft.
 - Minimum distance from the cam profile to the centre of the camshaft = 18 mm.
- Rotation = clockwise

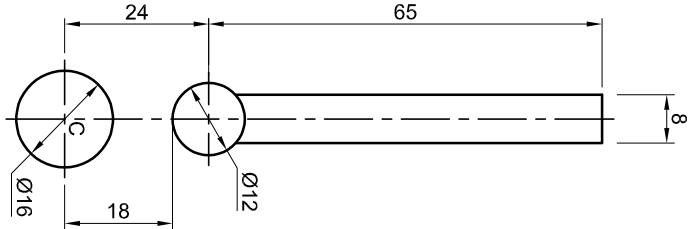
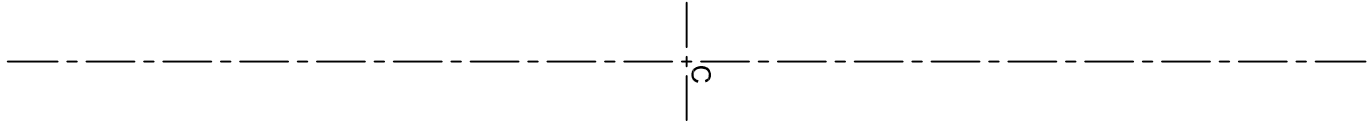
Motions:

The cam imparts the following motion to the follower:

- It rises 42 mm with uniform acceleration and retardation over the first 120°.
- There is a dwell period for the next 30°.
- It rises 21 mm with uniform motion over the next 30°.
- It returns to the original position with simple harmonic motion over the rest of the rotation.

Instructions:

- Draw the camshaft and the follower detail.
 - Use an arrow to indicating the direction of rotation.
 - Draw, with a vertical scale of 1 : 1 and a horizontal scale of $30^\circ = 7 \text{ mm}$, the complete displacement graph for the required motion.
 - Label the graph and indicate the scale.
 - Project and draw the cam profile that would generate the given motion.
 - Show ALL necessary construction.
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ASSESSMENT CRITERIA				
1	GIVEN + MINIMUM DISTANCE + CL	4½		
2	GRAPH CONSTRUCTION	2½		
3	UNIFORM ACCEL. AND RETARDATION MOTION	7½		
4	DWELL + UNIFORM MOTION	1		
5	SIMPLE HARMONIC MOTION	4½		
6	GRAPH LABEL + SCALE	1		
7	CAM CONSTRUCTION	6		
8	CAM + CURVE QUALITY	10		
	TOTAL	37		
NAME				
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