

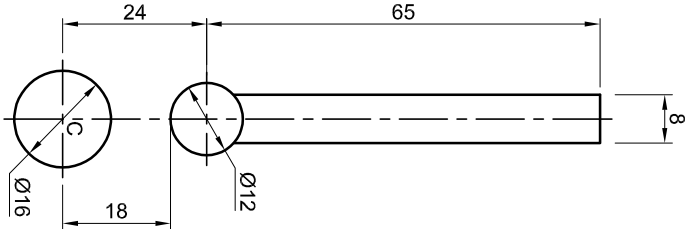
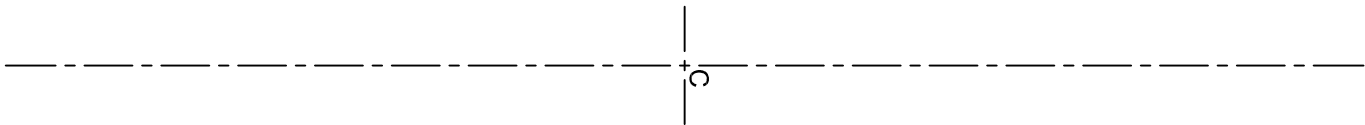


- QUESTION 2: CAM**
- Given:**
- The detail of the camshaft and a roller-ended follower in its lowest point.
 - The vertical centre line of the cam profile.

- 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

- Motion:**
- 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° = 7 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. [37]



| 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 | | | |
| | | | |
| NAME | | | 3 |