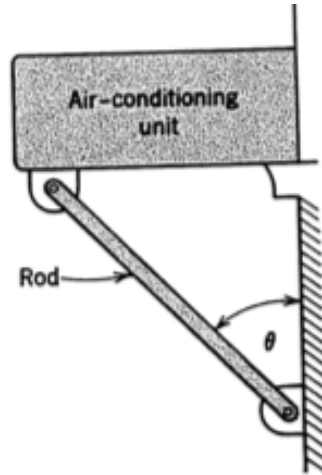


Name: \_\_\_\_\_ Roll no. \_\_\_\_\_

Department of Aerospace Engineering, Indian Institute of Technology, Madras.

**AS 2010: Basic strength of materials. Quiz 2**

1. A window air-conditioning unit is supported by a rod of circular cross-section, as shown. The unit rests on the window sill, so that the window sill exerts no moment on the unit. For what value of  $\theta$  will the volume of the supporting rod be minimised. **50% weightage for correct and useful free body diagrams.**



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**AS 2010: Basic strength of materials. Quiz 2**

2. A triangular frame supports a load of 20 kN, as shown. Determine the horizontal and vertical components of the displacement of point D due to the 20 kN load carried by the frame. Assume that the modulus of steel is  $E_{\text{steel}} = 200 \text{ GPa}$ . **50% weightage for correct and useful free body diagrams.**

