A cylindrical container is open at the top. The curved surface and the circular base of the container are both made from the same thin uniform material. The container has radius 0.2 m and height 0.9 m.

(i) Show that the centre of mass of the container is 0.405 m from the base. [3]

The container is placed with its base on a rough inclined plane. The container is in equilibrium on the point of slipping down the plane and also on the point of toppling.

(ii) Find the coefficient of friction between the container and the plane. [3]