



## Senior Questions

1. A right cone is a cone whose apex lies exactly above the centre of the base. The volume of a right cone is  $\frac{1}{3}bh$  where  $b$  is the area of the base, and  $h$  the perpendicular height of the cone. An oblique cone is a cone whose apex does not lie exactly above the centre of the base. Show that the volume of an oblique cone has the same formula as a right cone.
2. A glass in the shape of an inverted, truncated, right cone (i.e. frustrum) contains some water. The top of the glass has radius  $R$ , the bottom has radius  $r$ ,  $r < R$ , and the glass is  $h$  tall. When tilted, the surface of the water can be made to reach from the tip