6

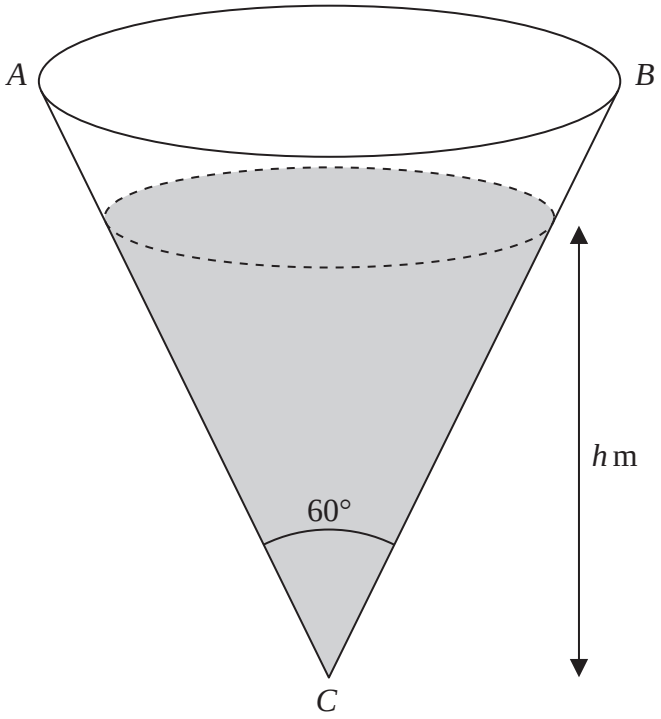

Diagram **NOT** accurately drawn

Figure 2

Figure 2 shows a water tank in the shape of a hollow right circular cone fixed with its axis of symmetry vertical. A diameter of the circular rim of the cone is AB. The vertex, C, of the cone is below AB such that $\angle ACB = 60°$

Initially, the tank is empty and water flows into the tank at a constant rate of $0.03\,m^3/s$. At time t seconds after the water starts to flow into the tank, the height of the surface of the water in the tank above C is h metres.

Find, in m/s to 3 significant figures, the rate of change of the height of the surface of the water above C at the instant when $h = 1.5$

(6)

Question 6 continued

(Total for Question 6 is 6 marks)