Question Number	Answer		Mark
15(a)(i)	• The sphere will be <u>accelerating</u> (in the oil) initially **Or** Sphere needs time/distance to <u>accelerate</u> • The sphere falls a distance (through the oil) before reaching constant/terminal <u>velocity</u> **Or** Sphere needs to reach terminal <u>velocity</u> before timing begins	(1) (1)	**2**
15(a)(ii)	**Either** • Adding a rubber band enables more than one distance to be timed (for the sphere to fall) • An average/mean value for the time/speed can then be calculated **Or** • Can compare times/velocities for more than one distance • To detemine whether terminal velocity achieved	(1) (1) (1) (1)	**2**
15(b)(i)	Weight of (solid) sphere	(1)	**1**
15(b)(ii)	Weight of oil displaced (by the sphere) **Or** upthrust	(1)	**1**
15(b)(iii)	<u>Viscous</u> drag or <u>viscous</u> force	(1)	**1**
15(b)(iv)	The temperature (of the oil) was greater than 24 °C/had increased - do not accept temperature of the room. **Or** the measured diameter of the sphere was less than true value **Or** the time measured (to determine the terminal velocity) was less than true value **Or** the meaured distance between bands was greater than true value Do not accept sphere too close to the edge of cylinder or the flow around the sphere is turbulent or densities used were incorrect	(1)	**1**
	Total for question 15		**8**