1 **(a)** State what is meant by upthrust.

.....

.....[1]

(b) When ice (made from fresh water) melts completely in a cup of fresh water, the water level remains unchanged. If saltwater is used instead in the cup, state and explain if there would be any changes to the final water level after the ice (made from fresh water) has completely melted.

.....

.....

.....

.....

.....[3]

(c) A 1.0 kg beaker containing 2.0 kg of oil (density of oil is 916 kg m^{-3}) rests on a weighing scale. A 2.5 kg block of iron of density 7860 kg m^{-3} is suspended from a spring balance and completely submerged in the oil, as shown in Fig. 1.1.

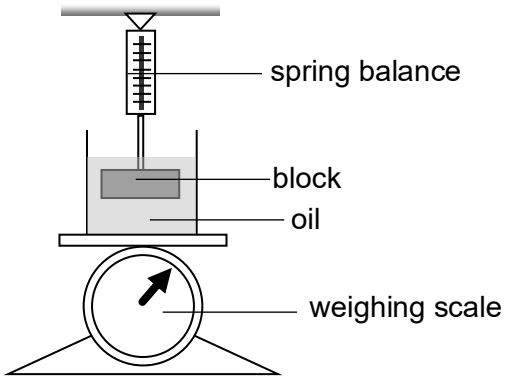

Fig. 1.1

(i) Calculate the upthrust acting on the block of iron.

upthrust = ... N [2]

(ii) Calculate the reading of the spring balance.

spring balance reading = ... N [2]

(iii) Calculate the reading on the weighing scale.

weighing scale reading = ... N [2]