

2 (a) (i) Define pressure.

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..... [1]

(ii) Explain how hydrostatic pressure results in an upthrust force acting on a solid object immersed in a liquid.

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.....
.....
..... [2]

(ii) Determine the SI base units of η .

base units [2]

(c) The oil in (b) has a density of 920 kg m^{-3} and a viscosity of 4.7 in SI units.

The steel ball has a mass of $2.4 \times 10^{-3} \text{ kg}$ and a radius of $4.2 \times 10^{-3} \text{ m}$.

(i) Show that the upthrust force acting on the ball is $2.8 \times 10^{-3} \text{ N}$.

[1]

(ii) Determine the terminal speed v of the ball.

$v = \dots \text{ ms}^{-1}$ [3]

[Total: 12]