

- 4 (a) Distinguish between gravitational potential energy and elastic potential energy.

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.....[2]

- (b) A ball of mass 65g is thrown vertically upwards from ground level with a speed of 16 m s^{-1} . Air resistance is negligible.

- (i) Calculate, for the ball,

1. the initial kinetic energy,

kinetic energy = J [2]

2. the maximum height reached.

maximum height = m [2]

- (ii) The ball takes time t to reach maximum height. time $\frac{t}{2}$ after the ball has been thrown, calculate the ratio

$$\frac{\text{potential energy of ball}}{\text{kinetic energy of ball}}.$$

ratio = [3]

- (iii) State and explain the effect of air resistance on the time taken for the ball to reach maximum height.

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.....[1]