

$$b. KE = \frac{1}{2} mv^2$$

Here,  $m = 2g = 2/1000 = 0.002 \text{ kg}$ ,  $v = 400 \text{ m/s}$

$$KE = \frac{1}{2} \times 0.002 \times 400^2$$
$$= 160 \text{ Joules}$$

$$c. KE = \frac{1}{2} mv^2$$

$$= \frac{1}{2} \times 500 \times 20^2$$

$$= 100000 \text{ J}$$

$$(v = 72 \text{ km/h}$$

$$= 72000 \text{ m} / 3600 \text{ s}$$

$$= 20 \text{ m/s})$$

$$2. a. KE = \frac{1}{2} mv^2$$

$$200 = v^2 / 2$$

$$400 = v^2$$

$$v^2 = 400$$

$$v = 20 \text{ m/s}$$

$$b. i. PE = mgh$$

$$= 5 \times 10 \times 3$$

$$= 150 \text{ J}$$

$$ii. PE = mgh$$

$$= 5 \times 6 \times 10$$

$$= 300 \text{ J}$$

$$3. a. PE = mgh$$

$$= 100 \times 10 \times 1.8$$

$$= 1.8 \text{ J}$$

$$b. KE = 1.8 \text{ J}$$