4 Fig. 4.1 shows the variation with time t of the height h above the ground of an object of mass 36 kg that is undergoing vertical simple harmonic motion.

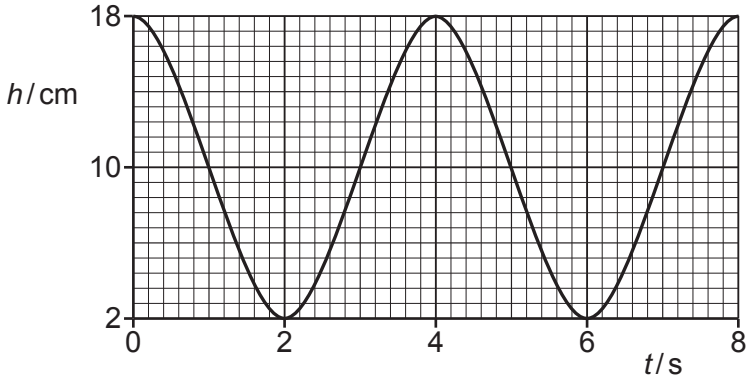

Fig. 4.1

(a) For the oscillations of the object:

(i) determine the amplitude x_0, in cm

x_0 = ... cm [1]

(ii) show that the angular frequency ω is 1.6 rad s^{-1}

[2]

(iii) determine the total energy E.

E = ... J [3]

(b) On Fig. 4.2, sketch the variation with h of the kinetic energy E_K of the object.

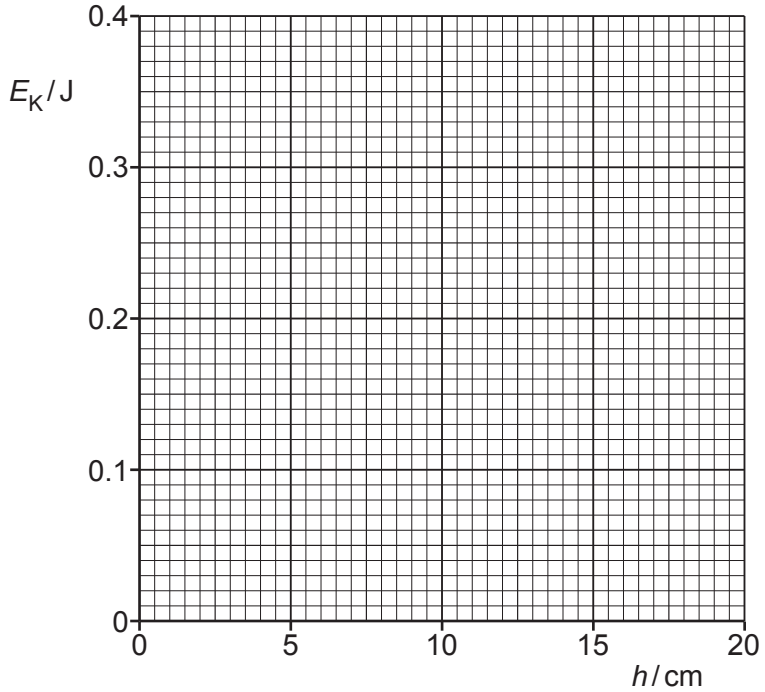

Fig. 4.2

[4]

[Total: 10]