Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: Energy (High Demand)

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

Name of the Student:_____

Max. **Marks : 22 Marks**	**Time : 22 Minutes**

Mark Schemes

Q1.

(a) the measurement will be more accurate
allow parallax error is reduced

1

because (in position B) the eye is level with (the maximum height of) the toy

1

(b) 64 cm = 0.64 m

1

0.049 = m × 9.8 × 0.64
allow a correct substitution using an incorrectly / not converted height

1

$$m = \frac{0.049}{9.8 \times 0.64}$$

allow a correct rearrangement using their incorrectly / not converted height

1

m = 0.0078125 (kg)
allow an answer consistent with their incorrectly / not converted height

1

m = 0.0078 (kg)
this mark can only be scored if the equation $E_p = m\,g\,h$ has been used

1

(c) energy from the toy is dissipated (to the surroundings / air)
allow energy from the toy is transferred to the surroundings / air

1

(but) in a closed system the total energy remains constant

1

[9]

Q2.

(a) (air) particles move faster
or

(air) particles have increased kinetic energy

1

(so air) particles collide more frequently with the wall / chamber
or
(so air) particles collide with more force with the wall / chamber

1

(so) the pressure increases
  dependent on MP1 or MP2

1

(b) (metals) have a high(er) thermal conductivity
  allow metals are good/better (thermal) conductors

1

which allows a greater rate of (thermal) energy transfer
  allow (thermal) energy is transferred more quickly

1

(c) (a low) specific heat capacity

1

(d) any **one** from:
  • lubrication
    allow oil the device/wheel
  • use hotter coffee
  • decrease the temperature of the surroundings

1

(e) $$1.1 \times 10^3 = \frac{mass}{1.9 \times 10^{-4}}$$

1

mass = 0.209 (kg)
  allow m = 1.9 × 10^{-4} × 1.1 × 10^3
  the equation density = $\frac{mass}{volume}$ must have been used to score subsequent marks

1

15 000 = 0.209 × 4200 × Δθ
  allow a correct substitution using their calculated value of mass

1

$$\Delta\theta = \frac{15\,000}{0.209 \times 4200}$$
  allow a correct re-arrangement using their value of mass and/or an incorrectly / not converted energy value

1

Δθ = 17(.088...)
  allow a correct calculation using their value of mass and / or an incorrectly / not converted energy value

1

final temperature
(= 76 - 17.088) = 59 (°C)

allow 58.9... (°C)

allow an answer consistent with their value of mass and / or
an incorrectly / not converted energy value

1

[13]