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

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Name of the Student:_____
Max. Marks : 26 Marks **Time : 26 Minutes**

Mark Schemes

Q1.

(a) any **two** from:
- wood falls off ropes
- child falls off
- wood hits child standing at side.

accept any reasonable suggestion

2

(b) (i) 7.77

1

0.78

*0.777 or 0.77 gain **1** mark*
*their mean value / 10 gains **1** mark*

2

(ii) use longer lengths (so longer times)
or
do both with the same lengths (so comparison can be made)

timing more than 10 cycles is insufficient

1

(iii) **1** value of k from **table 4**
k values 3.969…
4.056…
4.05

$k = T^2 / l$
allow full credit for an equivalent correct method
eg. allow inverse of
$k = l / T^2 = 0.25$

1

1 value of k from **table 5**
k values 4
4.03…
4.046

allow if average time for 10 cycles used

1

conclusion that matches student's results

1

(c) 720 N

*180 = F × 0.25 gains **2** marks*

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*work done = maximum kinetic energy gains **1** mark*

3

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Q2.

(a) (i) infrared (radiation)

accept IR (radiation)

1

(ii) (heated) water turns to steam

ignore reference to fossil fuels

*do **not** accept water evaporates to steam*

1

steam turns a turbine

1

turbine turns a generator

accept turbine connected to a generator

1

(b) (i) (so the molten salts) can store large amounts of energy

accept there is a small temperature change for a large energy transfer

accept heat for energy

1

(ii) 16 (hours)

*an answer that rounds to 16 gains **2** marks eg 15.71*

*allow **1** mark for a correct substitution ie 2 200 000 = 140 000 × t*

3

(iii) the number of daylight hours varies

less sunlight is insufficient

1

the (mean) power (received from the Sun per square metre) varies

*accept an answer in terms of maximum possible electrical output only possible during Summer for **1** mark*

1

(c) (i) non-renewable power stations have higher Capacity Factors than renewable power stations

1

fuel (for non-renewable power stations) is always available

reference to non-renewable power stations operating all the time is insufficient

non-renewable energy sources are reliable is insufficient

1

(most) renewable energy sources are unpredictable / unreliable

accept (most) renewable energy sources depend on the weather

1

(ii) the (proportion of) time that solar storage power stations can generate electricity is greater (than for other renewable energy sources)

1

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