Practice Question Set For GCSE
**Subject : Physics**
**Paper-1 Topic: Electricity (Standard demand)**

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**Name of the Student**:_____
**Max. Marks : 23 Marks** **Time : 23 Minutes**

Mark Schemes

## Q1.

(a) cell and bulb / light correctly labelled
*for 1 mark <u>each</u>*

**2**

(b) ordinary cell has higher voltage (normally / at start)
*for 1 mark*

**or**
ordinary cell 1.3V nicad 1.2V (normally / at start)

voltage of ordinary cell falls more slowly (*accept* lasts longer)
*gains 1 mark*

**but**
as above with relevant quantification e.g. falls to zero in 60 seconds compared to 6 seconds e.g. falls to zero in 70 seconds compared to 16 seconds – from time zero
**or**
nicad falls to zero 10 times as fast
*gains 2 marks*

**3**

(c) (i) answer in range 32-34 (seconds) (inclusive)
*gains 1 mark*

**but**
answer in range 22-24 (seconds) (inclusive)
*gains 2 marks*

(ii) 12 (seconds)
*gains 1 mark*

**but**
2 (seconds)
units not required in (c)
*gains 2 marks*

**4**

**[9]**

## Q2.

(a) VAWT generates electricity at (wind) speeds lower than HAWT do

*ignore quoted figures without comparative statements*
*accept for **2** marks generates electricity over a greater range of (wind)speeds*

**1**

VAWT generates electricity at higher (wind)speeds

**1**

VAWT can generate electricity over a longer time period
*allow VAWT generates more electricity (over a given time period)*
*allow VAWT doesn't need to turn (into the wind)*
*(ignore the converse)*
*ignore the wind can come from any direction*

**1**

(b) any **two** from:
*if no reference to power / output allow max **1** mark*
*if cause and effect are the wrong way round allow max **1** mark*

- very little power / output until 2 (m/s)
  *allow no power / output until 2 (m/s)*
  *allow a value between 1.5 – 2 (m/s)*
- as wind speed increases, power / output increases . . .
- . . . at an increasing rate
  *allow figures to show this*

**2**

(c) (i) 150 (metres)
*allow any value in the range 141 – 159 (metres)*

**1**

(ii) (No, because) the sound level is 20dB less than 30dB / less than a whisper at a distance of 1000m (is worth 2 marks)
*allow at the nearest house for a distance of 1000m*
*allow **1** mark for reading the sound level at 1000m (20dB)*
***or***
*allow **1** mark for (no) the noise level will be very low (at 1000m)*
*allow **1** mark for (Yes)*
*no additional noise is justified in the country side / on the island*
***2** marks can be gained for a 'Yes' answer*
*allow **1** mark for (Yes)*
*we don't know how many wind turbines would be installed / many wind turbines create more noise*

**2**

(d) <u>reduces</u> energy loss (in cables)
*allow 'heat' for energy*
*allow power for energy*
*allow to <u>increase</u> efficiency (of power transmission)*
*ignore less electricity wasted*
*do **not** accept prevents or stops energy loss*

**1**

**[9]**

**Q3.**

(a) (i) step-up

**1**

(ii) increases voltage / decreases current

*ignore changes to power*

*ignore resistance*

*allow step-up for increasing*

**1**

decreased energy loss from power cables / wires

*allow heat for energy*

*ignore electricity / power loss*

*do **not** accept <u>no</u> energy loss*

**1**

(b) any **two** factors from:

- cost of electricity

  *ignore cost of fuel*
- amount of electricity / power produced
- disposal of waste (radioactive / fossil fuel)

  **or**

  radioactive waste has long half-life

  *ignore pollution unqualified*

  *accept waste could be be toxic*

  *ignore radiation unqualified*
- cost of commissioning
- cost of decommissioning

  *ignore demolishing*
- <u>availability</u> of uranium / plutonium / nuclear fuel / fossil fuels

  *ignore non-renewable / will run out*
- availability of sites to build nuclear power stations
- security hazard qualified / safety issue qualified

  *ignore dangerous unqualified*
- carbon emissions / global warming
- start-up time
- start-up time

*if no marks are given allow **1** mark for cost unqualified*

**2**

**[5]**