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

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**Name of the Student**:_____
**Max. Marks : 22 Marks** **Time : 22 Minutes**

Mark Schemes

## Q1.

(a) (i) 2.1

*correct answer only*

**1**

(ii) 3.15
**or**
their (a)(i) × 1.5 correctly calculated

*allow **1** mark for correct substitution*
*ie 2.1 × 1.5*
***or***
*their (a)(i) × 1.5*

**2**

kilowatt-hour

*accept kWh*
***or***
*a substitution 2100 × 5400 scores **1** mark*
*2100 × 5400 incorrectly calculated with answer in joules scores **2** marks*
*an answer of 11 340 000 scores **2** marks*
*an answer of 11 340 000 J scores **3** marks*

**1**

(iii) most (input) energy is usefully transformed

*accept does not waste a lot of energy*
*accept most of the output / energy is useful*
*do **not** accept it does not waste energy*

**1**

(b) the room is losing energy / heat

**1**

at the same rate as the heater supplies it

*this mark only scores if the first is scored*
*do **not** accept heater reaches same temperature as room / surroundings*
*rate of heat gain = rate of heat loss scores both marks*

**1**

**[7]**

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## Q2.

(a) 32,400,00 J

*allow **1** mark for correct substitution*
*$3.24 \times 10^{\wedge 7}$ J*

**2**

(b) (3kW) fan heater

*accept 3kW*
*accept the middle one*

**1**

(c)

*features common to more than one heater, treat as neutral*

<u>oil-filled</u>

low level heat

cannot be knocked over / space saving / no trailing wires
*do **not** accept just wall-mounted*

**or** more control over heat output
*do **not** accept just 3 heat settings*

**1**

<u>fan</u>

warms (office) rapidly **or** can be used to cool air (in summer)
*accept can be used as a fan*
*accept cool air fan (setting)*
*accept 'it has a cool air setting in case it gets too hot'*
*do **not** accept a specific reference to cooling the heater*

**1**

<u>ceramic</u>

can be switched on for set periods of time
*do **not** accept just has a timer*

**or** can be switched on before office is used / switched off automatically at night

**1**

**[6]**

## Q3.

(a) 1/25 **or** 1:25 **or** 0.04

*accept 4 % or* $\frac{15}{375}$ *or* $\frac{3}{75}$ *or 1 in 25 for both marks*

*allow **1** mark for total of 375*
*allow **1** mark for a clearly correct method using a clearly incorrect total*
*do **not** accept 1:26*

**2**

(b) (i) **B**

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*do **not** credit reason if **B** is not chosen*

**1**

(only) burning fossil fuels produces carbon dioxide / carbon (emissions)
**or** nuclear fuels don't produce carbon dioxide

*insufficient – smallest amount of fossil fuels*
*accept less carbon dioxide*

**1**

(ii) accept anything reasonable eg

increased level of insulation

use energy efficient light bulbs

do not leave appliances on standby

switch thermostats down (1°C)

generate own electricity

install solar panels

*accept insulate*
*accept specific examples eg loft*

**1**

(c) (i) any **three** from:

- no power output until wind speed exceeds 4m/s
- output rises rapidly after 4m/s
- output begins to level out / rises less rapidly at / after 13m/s
- output peaks at 21 / 22m/s
- output constant between 21 / 22 and 25 / 26 m/s
- output falls (rapidly) after 25 / 26m/s

*accept for **1** mark goes up then comes down*

**3**

(ii) any **one** from:

- unreliable energy source
- dilute energy source
- take up too much land

*accept wind does not always blow*
*accept need thousands / lots of turbines*
*ignore reference to visual / noise pollution*
*ignore reference to kill birds*

**1**

**[9]**

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