

Name.....

School:.....

ALDENHAM SCHOOL



13+ Sample Paper

PHYSICS 2011

ANSWER ALL QUESTIONS

TIME ALLOWED – 20 MINUTES

25 Marks

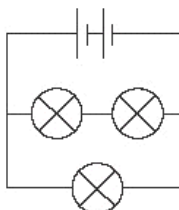
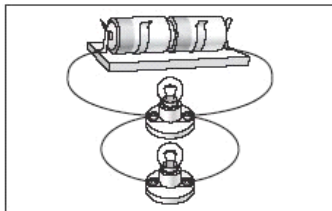
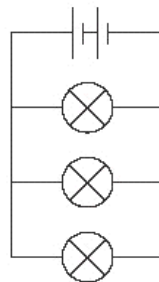
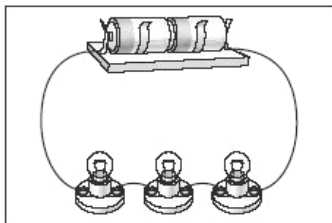
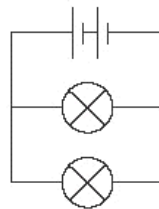
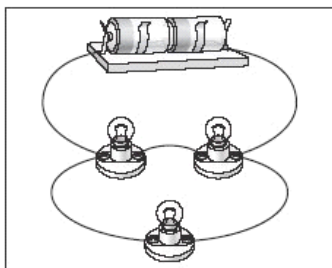
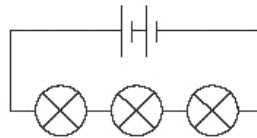
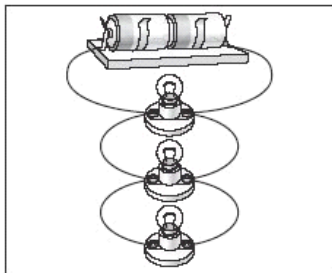
1. The diagram below shows a four different circuits .

a. Draw a line from each electrical circuit to the correct circuit diagram.

Draw only **four** lines.

electrical circuit

circuit diagram



[1]

(b) State the word that describes the flow of electrons around a circuit.

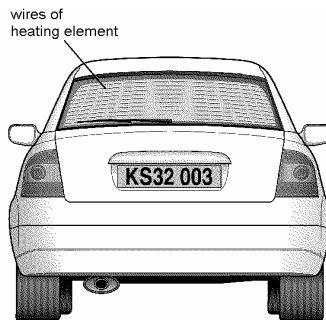
..... [1]

(c) Give the name of the part that provides energy for each circuit.

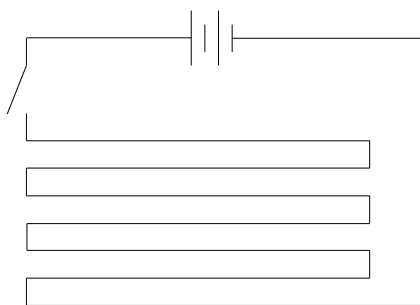
..... [1]

2. The back window of this car contains a heating element.

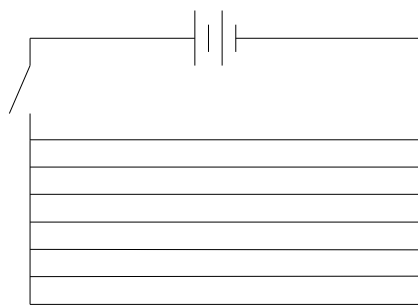
The heating element is part of an electrical circuit connected to the battery of the car.



The diagrams below show **two** ways of connecting the circuit of a heating element.



circuit A



circuit B

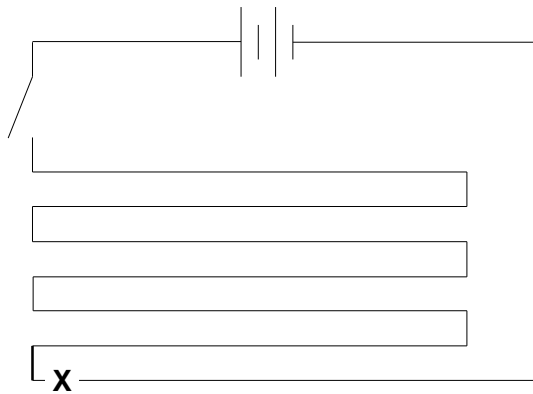
(a) Give the name of each type of circuit:

circuit A

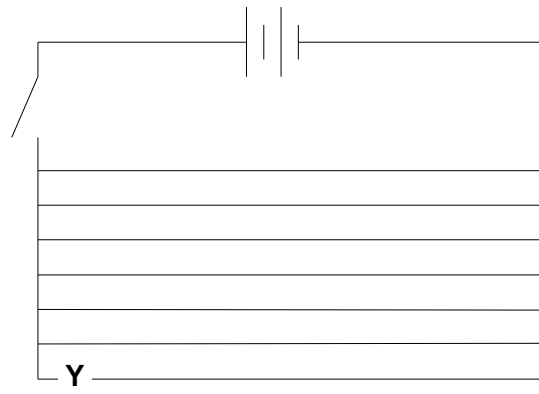
circuit B

[1]

(b) A wire gets broken at point X on circuit A and at point Y on circuit B.



circuit A



circuit B

When the switch is closed, how does the broken wire affect the heating element in:

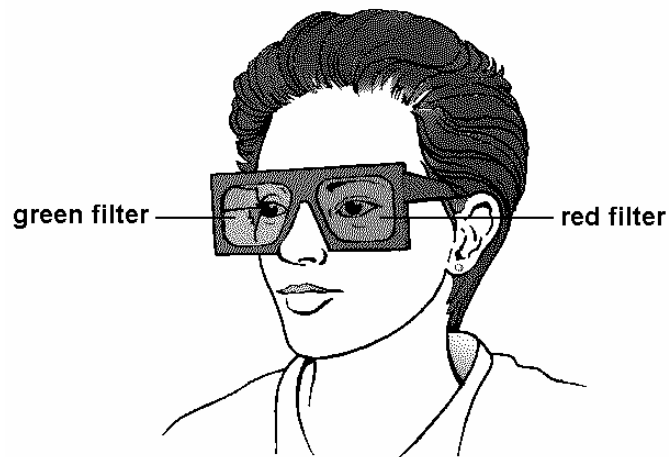
(i) circuit A?

..... [1]

(ii) circuit B?

..... [1]

3. Sarah puts on a pair of special glasses as shown below. The glasses have coloured filters in them.



- (a) Sarah looks at a lamp through the green filter. The lamp gives out white light, but appears to be green.
Explain how this is possible.

.....
.....
.....

[2]

- (b) Sarah looks at a red lamp.

- (i) What colour will the lamp appear to Sarah, if she looks at it through the red filter?

.....

Explain your answer.

.....
.....

[1]

- (ii) What colour will the lamp appear to Sarah, if she looks at it through the green filter?

.....

Explain your answer.

.....
.....

[2]

4. (a) The table below shows the order of some of the planets in our solar system.

Complete the table to show the positions of the Earth, Neptune and the Sun .

[1]

	Mercury	Venus		Mars	Jupiter	Saturn	Uranus	
--	---------	-------	--	------	---------	--------	--------	--

- (b) Sita made a model of three parts of the solar system, the Sun, Earth and Moon. She used a marble, a torch and a tennis ball.

Draw a line from each part of the solar system to the object she used.

part of the solar system

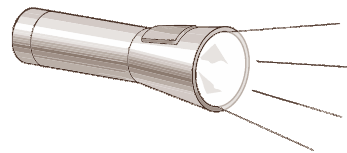
object

Sun



marble

Earth



torch

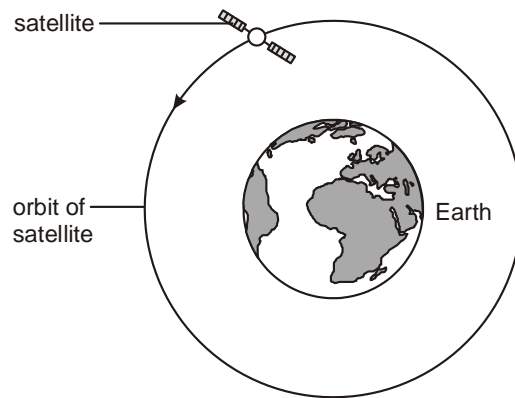
Moon



tennis ball

[1]

(c) The diagram shows a satellite in orbit around the Earth.



not to scale

(i) Give **one** use of a satellite.

.....

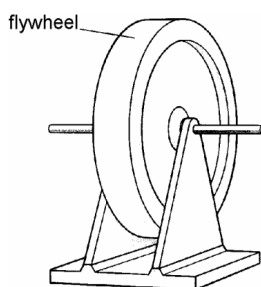
..... [1]

(ii) Which force keeps the satellite in orbit around the Earth?
Tick the correct box.

gravity	<input type="checkbox"/>	friction	<input type="checkbox"/>
air resistance	<input type="checkbox"/>	magnetism	<input type="checkbox"/>

[1]

5. A flywheel is a rotating wheel which is used to store energy.



(a) Energy must be transferred to a flywheel to make it rotate. How is the energy in the rotating flywheel classified?

Tick the correct box.

- as chemical energy
- as kinetic energy
- as potential energy
- as thermal energy

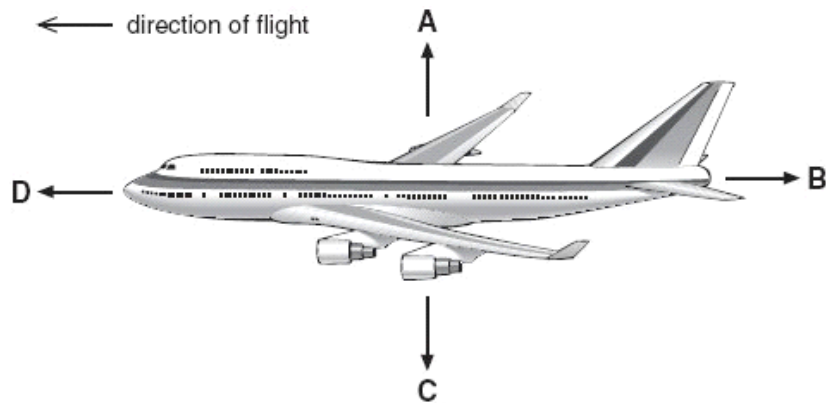
[1]

(b) A flywheel is rotating at a high speed. No energy is being supplied to it. The flywheel is used to turn a dynamo, and the energy from the dynamo is used to light a bulb.

(i) The bulb is left connected until the flywheel stops rotating. Not all the energy stored in the flywheel is transferred to the bulb. Some of it is lost. Give **one** place from which it is lost, and explain how it is lost.

.....
.....[1]

6. The diagram shows four forces acting on a plane in flight.



- (a) Which arrow represents air resistance?
Give the letter.

.....

[1]

- (b) (i) When the plane is flying at a constant height, which **two** forces must be balanced?
Give the letters.

..... and

[1]

- (ii) When the plane is flying at a constant speed in the direction shown, which **two** forces must be balanced?
Give the letters.

..... and

[1]

7. Russell investigated the relationship between mass and weight. He weighed five different masses using a force meter.

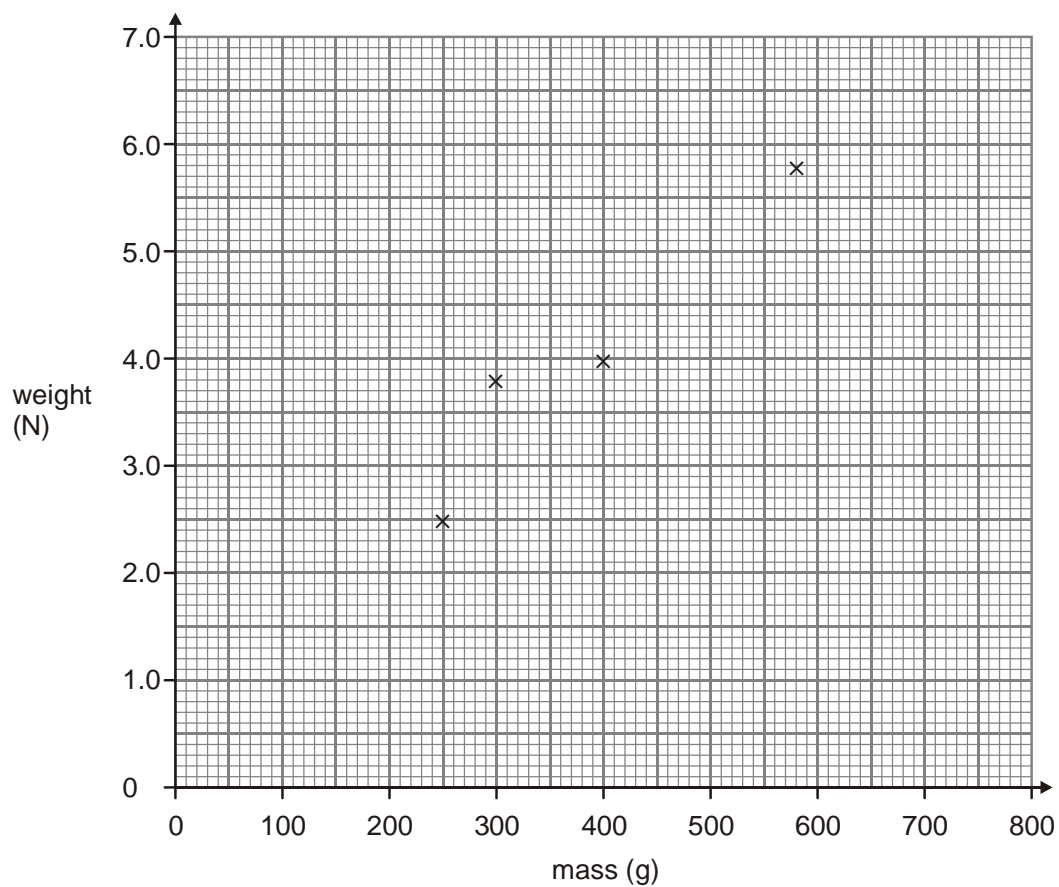
His results are shown in the table.

mass (g)	weight (N)
150	1.5
250	2.5
300	3.8
400	4.0
580	5.8

(a) He plotted four of his results on a grid as shown below,

(i) Plot the point for the 150 g mass on the graph. [1]

(ii) Draw a line of best fit. [1]



(b) One of the points Russell plotted does **not** fit the pattern.

Circle this point on the graph.

[1]

(c) Use your graph to predict:

(i) the mass of an object weighing 6.5 N;

..... g

[1]

(ii) the weight of an object of mass 50 g.

..... N

[1]

END OF TEST