

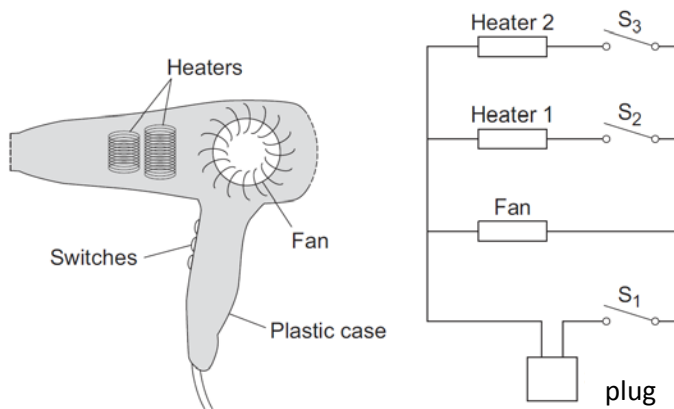
Year 10 Practice Examination 2015

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	TOTAL
4	4	4	6	6	6	5	5	5	5	50

Answer all questions in the spaces provided

Question One: [4 marks]

The diagrams show a hairdryer and the circuit diagram showing how the heaters and fan of the hairdryer are connected to a plug.

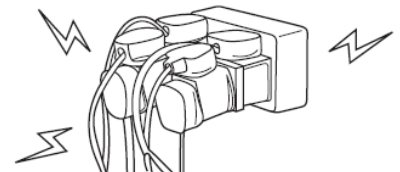


All the switches are shown in the open (off) position.

- (a) Which switch or switches have to be closed (on position) to make:
- (i) only the fan work _____
 - (ii) both heaters work? _____

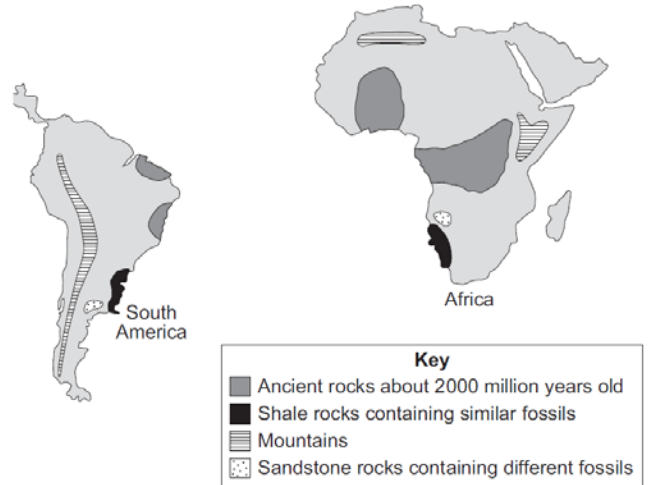
(b) Explain why the heaters can only work if the fan is also switched on.

(c) **“Never overload an electrical socket”** is an important electrical safety rule. Why is this rule important? Be specific and don’t just say “so you don’t get electrocuted!”



Question Two: [4 marks]

The scientist Alfred Wegener studied the continents. He suggested that all the continents had once been connected and that they drifted apart later on.

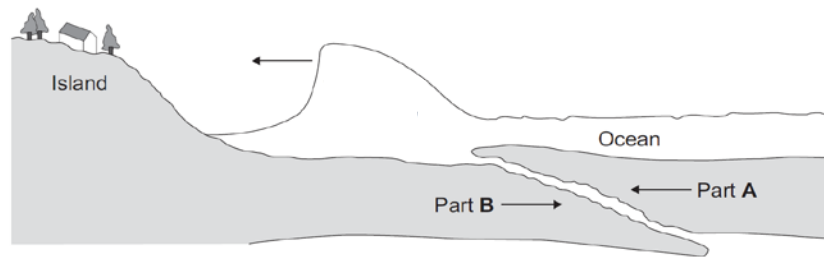


(a) One piece of evidence that Wegener observed was that the two continents (Circle your answer).

- A are a short distance apart.
- B are of a similar shape and similar size.
- C have a similar climate.
- D have coastlines that could fit together.

(b) Give another piece of evidence (from the diagram) that suggest Africa and South America were once joined.

(c)

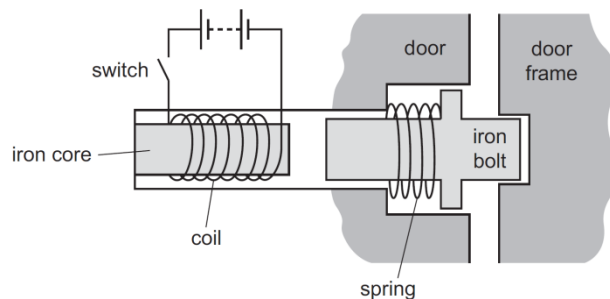


(i) What event is occurring in the diagram?

(ii) Explain how the event occurring in the diagram was caused.

Question Three: [4 marks]

The diagram shows an electromagnet being used in a door lock.



(a) The iron bolt moves to the left when the switch is closed. Explain why.

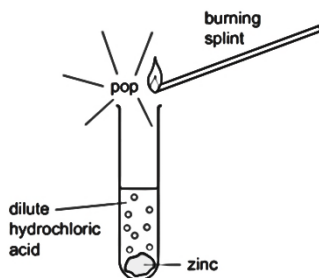
(b) Would this door lock work if the bolt was made of aluminium? Explain your answer.

(c) Write down one way that the strength of the electromagnet could be increased.

--

Question Four: [6 marks]

A student tested the gas given off when zinc was added to dilute hydrochloric acid.



(a) What is the gas produced?

--

(b) The colour of Universal Indicator at different pH values is given below. Fill in the three missing colours.

Colour	red		yellow		Green-blue	Dark blue	
pH	1	3	5	7	9	11	13

(c) Use the information in (b) to fill in the table below.

Sample	Colour of universal indicator	pH	Acidic, alkaline or neutral
A		1	
B	Dark blue		alkaline
C	Orange-yellow		acidic
D	Dark purple	14	

(d) Most acid-base indicators are made from plants. Describe how you would obtain an indicator from red cabbage.

(e) Select a substance from the list with a pH less than 7 and one with a pH greater than 7:

orange juice, rain water, toothpaste, vinegar, sour milk, milk of magnesia, washing soda.

pH less than 7 = _____

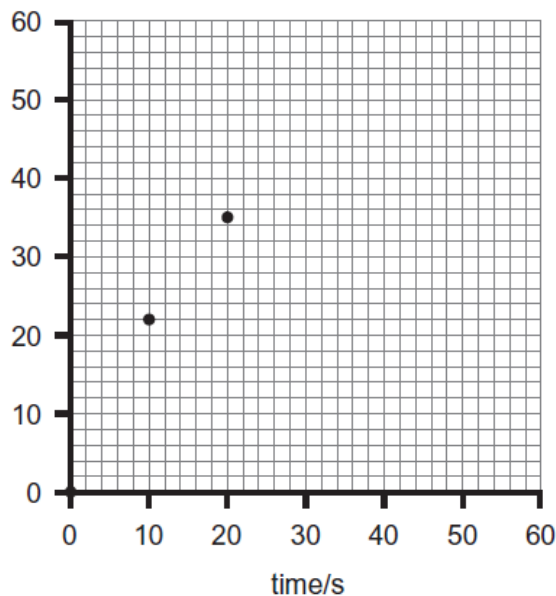
pH greater than 7 = _____

Question Five: [6 marks]

Stephanie carried out an investigation into the volume of carbon dioxide given off when baking powder is added to acid. Her results are shown below.

Time/s	0	10	20	30	40	50	60
Volume/mL	0	22	35	42	48	50	50

(a) On the grid below plot the rest of the points and draw a curve of best fit.

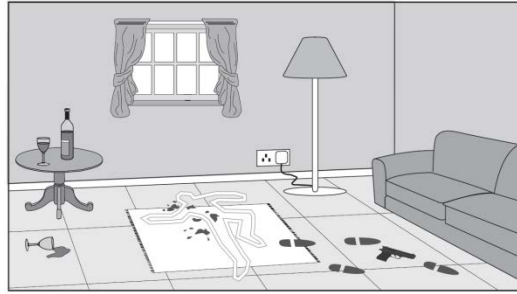


(b) Label the y-axis.



(c) Use your graph to find how long it took to produce 30 mL of gas. _____

(d) Describe the chemical test used to identify carbon dioxide and include the result you would expect.

Question Six: [6 marks]



(a) Give **two** ways in which a forensic examiner would avoid contaminating evidence at a crime scene.

(b) Identify these finger print patterns (i)  _____ (ii)  _____

(c) How could you find and “lift” a fingerprint found on a piece of smooth white plastic?

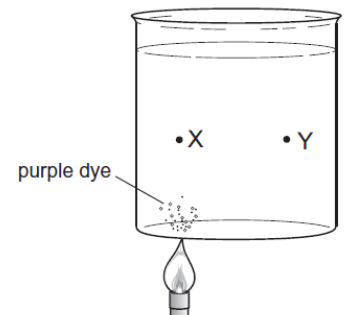
(d) Which suspect matches this fingerprint found at the scene of a crime?
Circle your answer.



Question Seven: [5 marks]

Purple dye may be used to trace heat transfer in water, heated with a Bunsen burner.

(a) Draw two arrows, one at X and one at Y, to show the direction of heat flow in the water.



(b) Name the main process by which heat travels through the water.

--

(c) Describe what you would see occurring in the beaker and explain why this occurs.

Question Eight: [5 marks]

A student investigated the effect of light on leaves. Two plants of the same species were used.

- Leaf A had been removed from a plant that had been in strong light for a period of 24 hours.
- Leaf B had been removed from a plant that had been kept in the dark for 48 hours.

The student held leaf A (with tweezers) in very hot water for 30 seconds. He placed the leaf in a boiling tube. He covered with leaf with alcohol (ethanol) and placed the tube in a very hot water bath for 5 minutes. He removed the tubes from the water bath and poured off the alcohol into a beaker. He carried out the same procedure for leaf B.

(a) What safety precaution should the student take when using ethanol?

(b) The alcohol that he poured off had turned green in colour and the leaves were now white in colour.

Name the substance from the leaf that had dissolved in the alcohol.

--

Leaves A and B were softened with hot water and put into separate petri dishes, and covered with iodine solution.

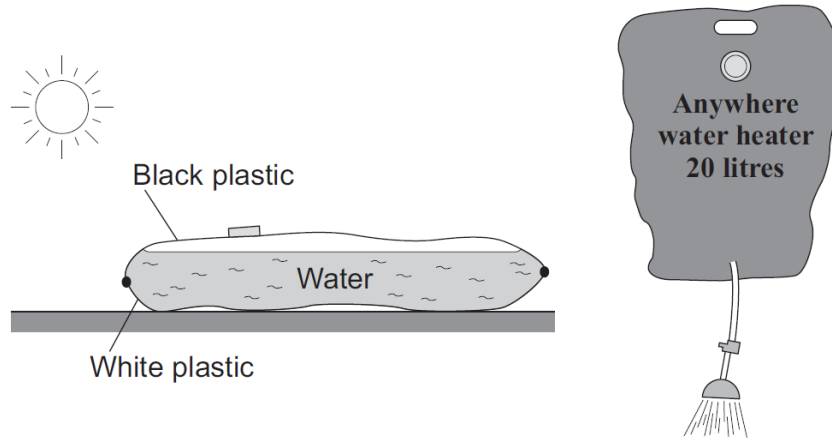
(c) (i) Suggest, and record in the table, the colour of the leaves after they had been tested with iodine solution.

(ii) For each leaf, what conclusion can you make from your suggested colours?

	Leaf A	Leaf B
Colour of leaf after testing with iodine solution		
Conclusion		

Question Nine: [5 marks]

The diagram shows a simple type of portable shower. To warm the water, the bag is placed on the ground in direct sunlight, with the black side facing the Sun.

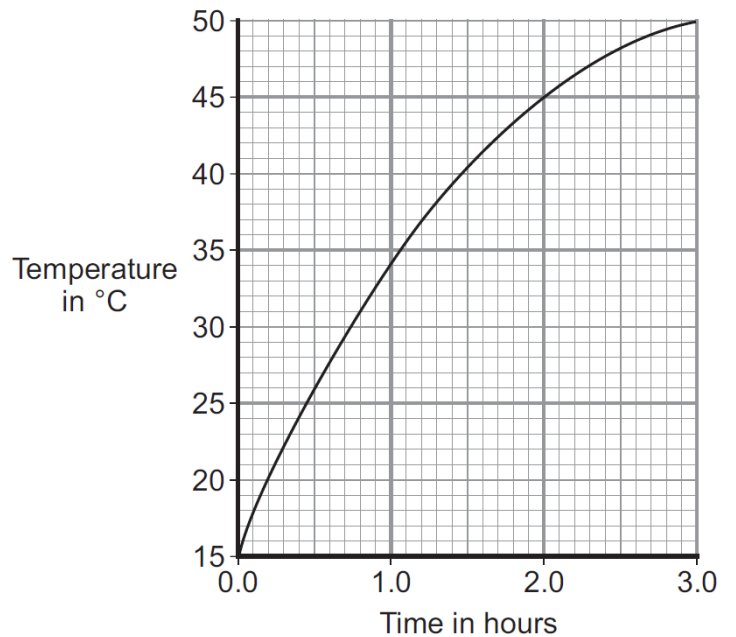


(a) Name the process by which heat is transferred from the Sun to the outside of the bag.

(b) Explain why the black side of the bag and not the white side should face the Sun.

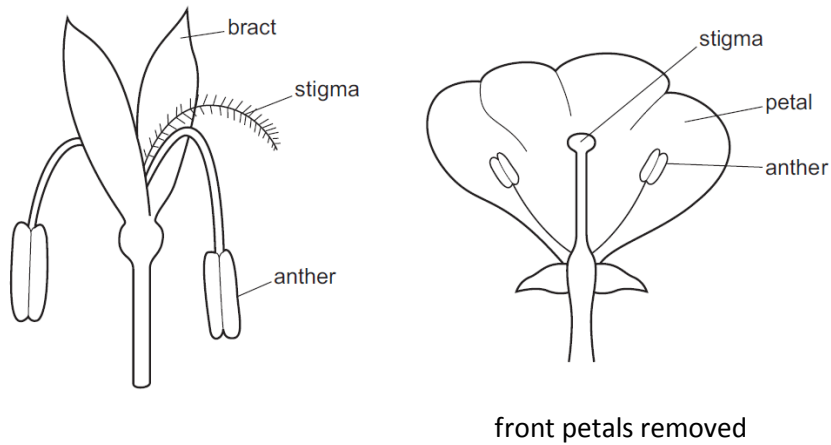
(c) The graph shows how the temperature of the water inside a full bag increases after the bag is placed outside on a sunny day.

How long does it take for the water to heat up from 20 °C to 37 °C? Show your working.



Question Ten: [5 marks]

A student has drawn two flowers as part of an investigation to compare an insect-pollinated with a wind-pollinated flower.



- (a) Complete the table to compare the features, *visible in the diagrams*, of the two flowers. Your table should include **two features** of the flowers.

feature	wind-pollinated flower	insect-pollinated flower

- (b) Mark the position of a nectary (with an X) on the appropriate flower diagram.

- (c) Why is dispersal of seeds important to a species of plant? Give two reasons.

- (d) Select any seed from the diagrams below that is dispersed by an animal. Describe how the dispersal occurs.

