Cambridge Secondary 1 Progression Test
Question paper

Cambridge Secondary 1

45 minutes

Science Paper 2

Stage 8

3486393834

Name .....

Additional materials: Ruler
Calculator

READ THESE INSTRUCTIONS FIRST

Answer **all** questions in the spaces provided on the question paper.

You should show all your working on the question paper.

The number of marks is given in brackets [ ] at the end of each question or part question.

The total number of marks for this paper is 50.

For Teacher's Use	
Page	**Mark**
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
Total	

89368/7RP

CAMBRIDGE
International Examinations

1 Anastasia trains to run a 1 km race.

She measures her breathing rate while running.

Here are her results.

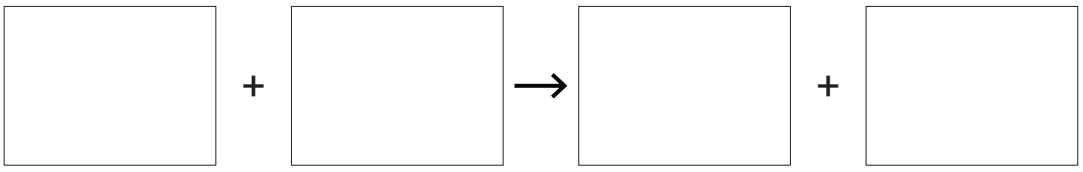
time in minutes	breathing rate in breaths per minute
0	
1	20
2	25
3	30
4	35
5	40
6	40
7	40
8	40

(a) Use the table to predict Anastasia's breathing rate at 0 minutes.

..... breaths per minute [1]

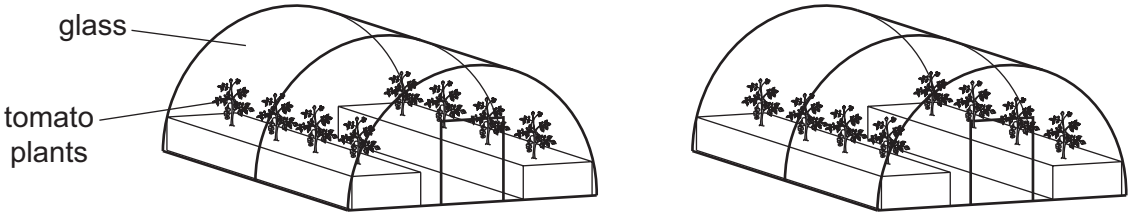
(b) Anastasia's muscles were respiring aerobically.

Complete the **word** equation for aerobic respiration.



[2]

2 Marta grows tomato plants in her greenhouses.



(a) Name the process plants use to make their own food.

.....[1]

(b) Marta adds more carbon dioxide gas into the greenhouses.

Explain why.

.....

.....

.....[2]

(c) Marta has two different greenhouses.

After two weeks she compares the size of the tomato plants in the two different greenhouses.

Write down two things she could **measure** to compare the size of the tomato plants.

1.....

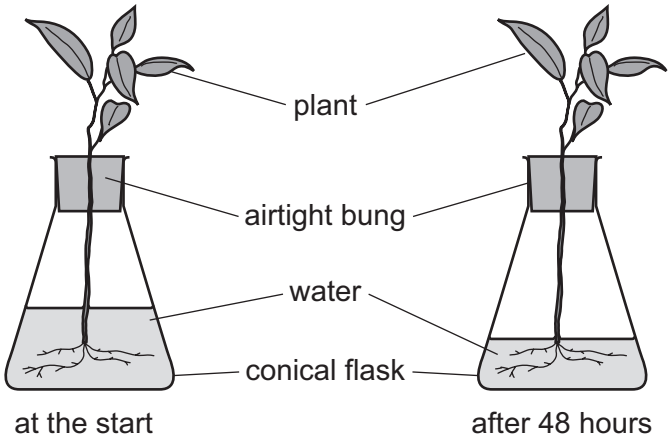
2.....[2]

[Turn over

For Teacher's Use

3 Themba investigates how plants take up water.

Here is the equipment he uses.



(a) Which part of the plant takes in water?

.....[1]

(b) Describe how a plant takes in water.

.....[1]

(c) Describe what happens to the water after it is taken in by a plant.

.....

.....

.....

.....[3]

4 Elements react to form compounds.

Complete the three word equations.

For Teacher's Use

elements				compound
	+	oxygen	→	magnesium oxide
lead	+		→	lead sulfide
copper	+	chlorine	→	

[3]

For Teacher's Use

5 Vinegar contains a substance with the formula $C_2H_4O_2$.

Name the **three** elements in vinegar.

1 .....

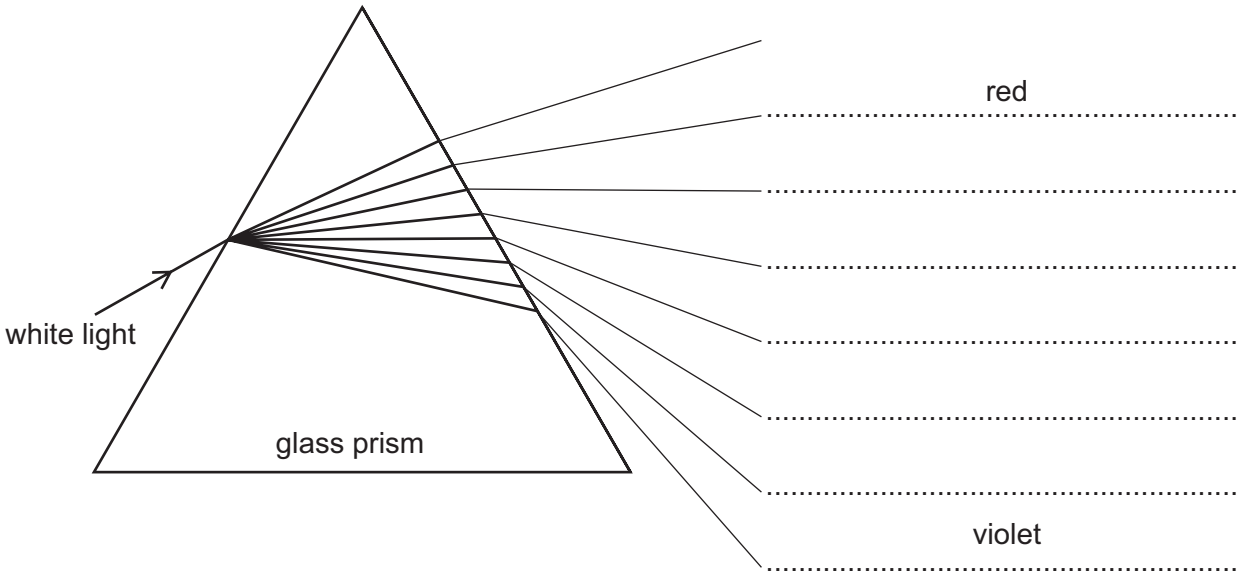
2 .....

3 .....[3]

6 Emily uses a prism to investigate the colours in white light.

Emily draws a diagram but only writes the names of the first and the last of the seven colours.

Fill in the **five** missing colours in the correct order.

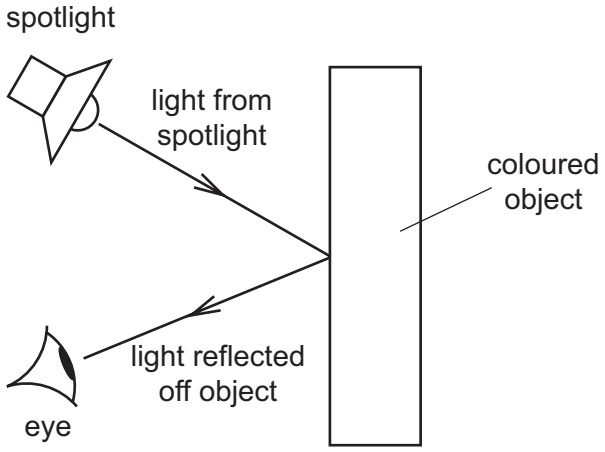


[3]

7 Aziz tests different coloured spotlights.

For Teacher's Use

Here is the equipment he uses.



He records his results in a table.

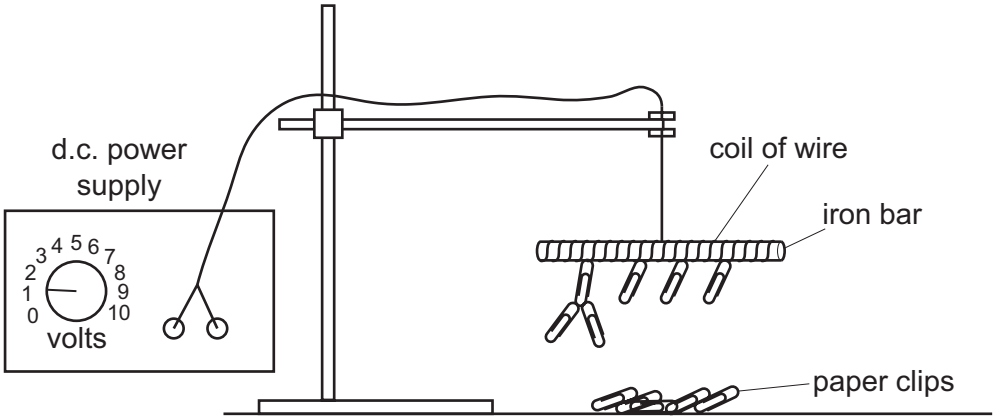
Complete the results table by filling in the **five** gaps.

colour of object	colour of light from spotlight	colour of light reflected
.....	red	red
	blue	blue
	green	green
red	red	red
	blue	.....
	green	black
blue	red	.....
	blue	.....
	green	black
.....	red	red
	blue	black
	green	green

[5]

8 Foram sets up the equipment as shown in the diagram.

For Teacher's Use



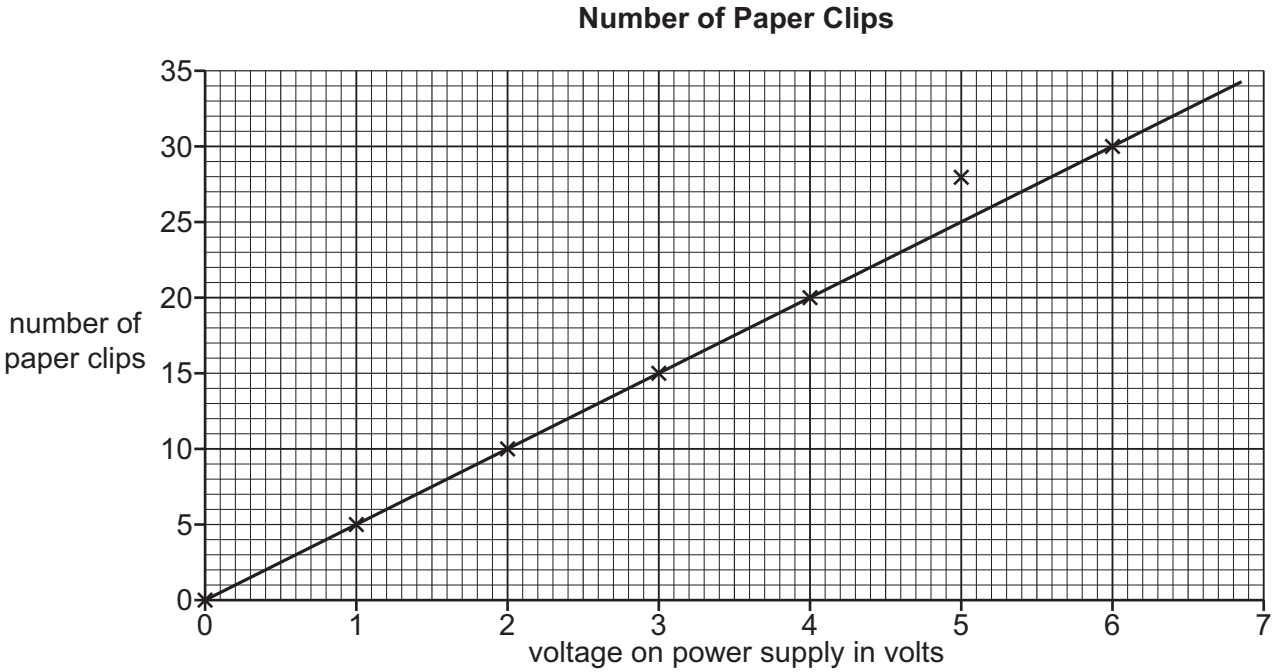
The iron bar attracts steel paper clips when the power supply is switched on.

The iron bar and the coil of wire is an electromagnet.

Foram changes the voltage on the power supply.

He records the number of paper clips attracted each time.

(a) Here are Foram's results.



On the graph, circle the result that is an anomaly. [1]

(b) Foram repeats this experiment using new paper clips made from a different metal.

The equipment was working but did not pick up any of the new paper clips.

Suggest **one** reason for this.

.....

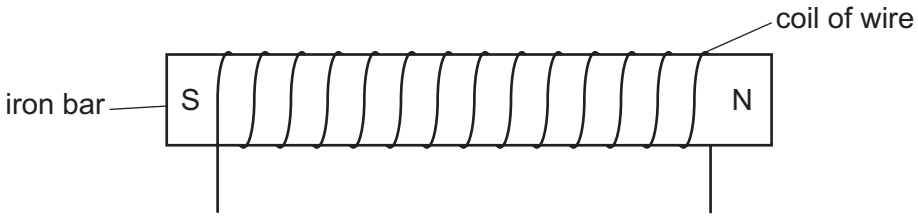
.....[1]

(c) Foram discovers that the electromagnet creates a magnetic field like a bar magnet.

Draw the magnetic field pattern for this electromagnet on the diagram below.

Include:

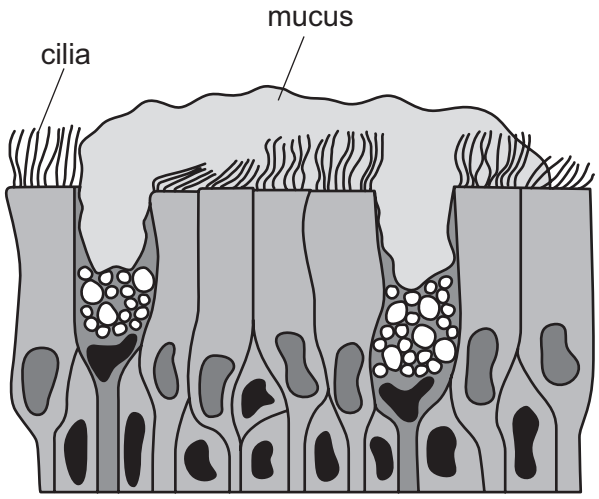
- at least **two** field lines
- a direction arrow on at least **one** field line.



[2]

9 The diagram shows some of the cells from the lining of the windpipe (trachea).

For Teacher's Use



(a) Write down the function of the cilia.

.....

.....[1]

(b) What effect does cigarette smoke have on cilia?

.....

.....[1]

(c) Name the addictive substance in cigarette smoke.

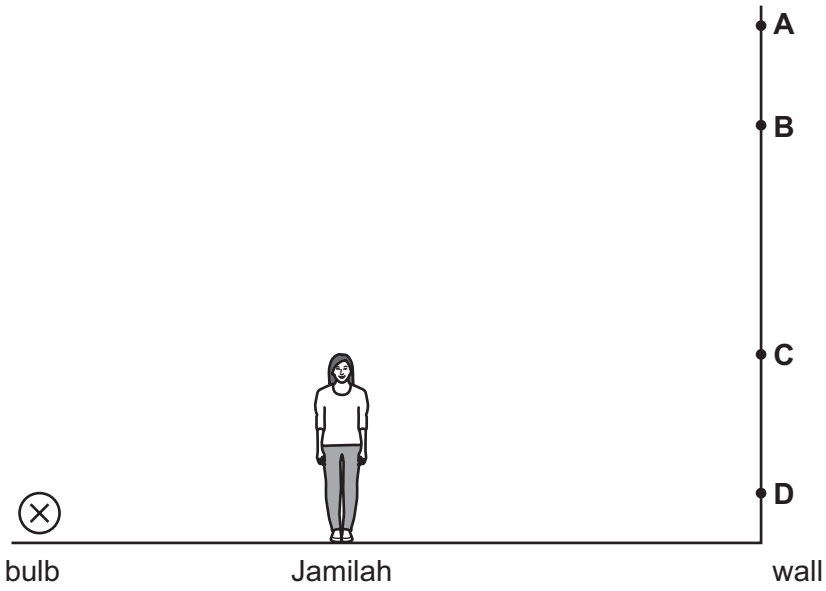
.....

.....[1]

10 This is a question about light.

For Teacher's Use

(a) Jamilah stands between a lamp and a wall.



Where on the wall is the top of Jamilah's shadow?

Choose from the letters **A**, **B**, **C** or **D.**

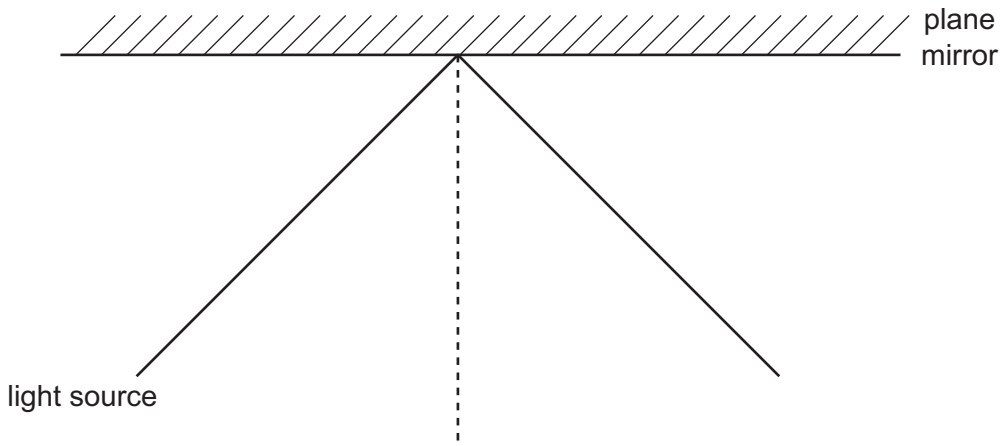
……..

Explain your answer.

.....

.....[2]

(b) Khalid shines a light beam onto a mirror.



On the diagram:

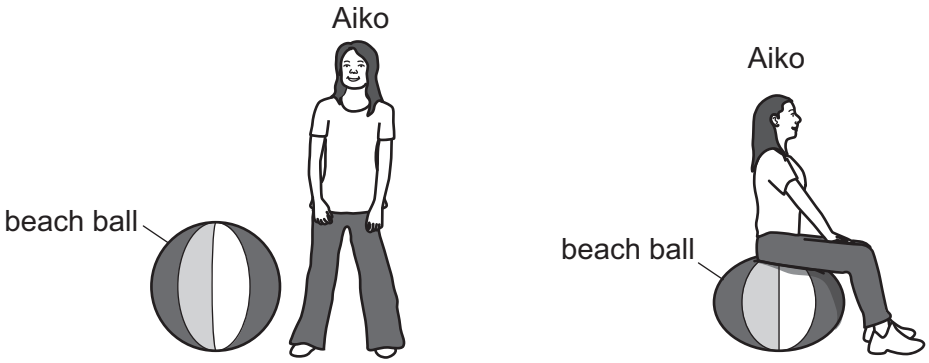
- show the direction of the light beam by adding an arrow
- label the angle of incidence with the letter **i**
- label the normal with the letter **N**
- label the reflected ray with the letter **R**. [3]

For Teacher's Use

11 Aiko has a beach ball which is filled with air.

She sits on the ball and compresses it.

No air comes out of the ball.



Complete the sentences to describe the changes to the air inside the ball.

Choose from the word list.

Each word can be used once, more than once or not at all.

increases **decreases** **stays the same**

When she sits on the ball the mass of air inside it ..... .

When she sits on the ball the pressure inside it ..... .

When she sits on the ball the volume of air inside it ..... . [3]

12 Samuel sprays some perfume into the air in a closed room.

Five minutes later Jackie who is five metres away smells the perfume.

(a) Name the process that describes how the perfume particles spread throughout the room.

.....[1]

(b) Explain why this process is faster in a **warmer** room.

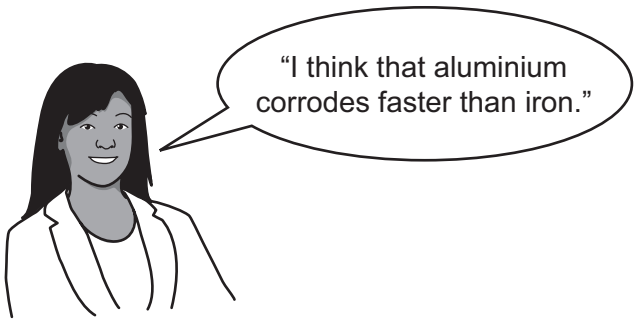
.....[1]

For Teacher's Use

13 Rusting is a type of corrosion.

Zeki investigates the corrosion of metals.

She makes a prediction.



Zeki finds this information table from the internet.

metal	**speed of corrosion (0 = does not corrode, 1= very slow and 10 = very fast)**			
	in dry air	**in sea water**	**in acid rain**	**in distilled water**
aluminium	0	1	2	1
copper	1	2	3	2
iron	1	9	10	6
zinc	1	3	6	2
lead	1	2	3	2

(a) Does the evidence in the table support Zeki's prediction?

.....

Explain your answer. Use information from the table.

.....

.....[2]

(b) Zeki cannot decide whether copper or lead corrodes faster.

Explain why. Use information from the table.

.....

.....[1]

(c) What conclusion can Zeki make about the corrosion of metals in sea water compared to in acid rain?

For Teacher's Use

.....

.....[1]

(d) Zeki decides to check the results by doing some experiments herself.

She knows that acid rain contains sulfuric acid.

- She puts a small piece of copper in a test-tube.
- She adds some sulfuric acid to the test-tube.
- She puts a stopper on the test-tube and leaves it for two weeks.

Write down two **safety precautions** Zeki needs to take to reduce the risks to herself.

1.....

.....

2.....

.....[2]

BLANK PAGE