Cambridge Lower Secondary Checkpoint

CANDIDATE NAME

SCIENCE **1113/01**

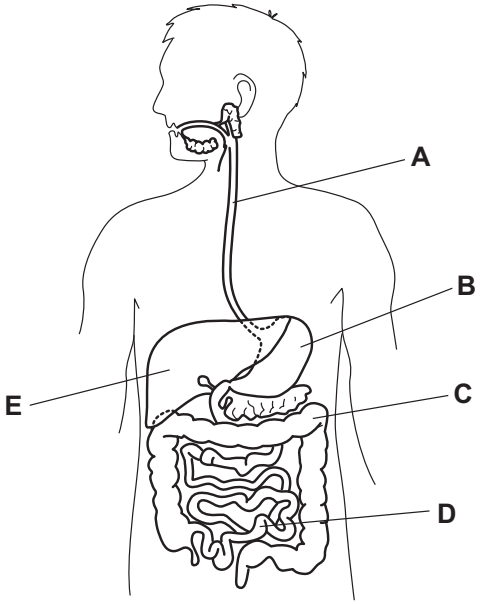
Paper 1 **April 2021**

45 minutes

Candidates answer on the Question Paper.

Additional Materials: Pen, Pencil, Ruler, Calculator

1 Look at the diagram. It shows part of the alimentary canal.



(a) Where is acid added to the alimentary canal?

Circle the correct answer.

A **B** **C** **D** **E** [1]

(b) Where is digested food absorbed from the alimentary canal into the blood?

Circle the correct answer.

A **B** **C** **D** **E** [1]

(c) Look at the part labelled **A** on the diagram.

Write down the names of the **two** parts of the alimentary canal that part **A** connects.

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

2 Look at the descriptions of three rocks, **A**, **B** and **C**.

Rock **A** is formed in layers. It is soft and contains fossils.

Rock **B** is made when molten rock cools. It is hard and contains crystals.

Rock **C** is very hard. It contains distorted fossils due to high temperatures and high pressures.

(a) Complete the sentences to name each **type** of rock.

Choose from the list.

igneous **metamorphic** **sedimentary**

Rock **A** is ..... rock.

Rock **B** is ..... rock.

Rock **C** is ..... rock.

[2]

(b) Describe how **sedimentary** rock is formed.

.....

.....

..... [2]

3 Some objects in the Universe are seen because they **emit** light.

Other objects are seen because they **reflect** light.

(a) Tick (✓) the boxes next to the objects that **emit** light.

Jupiter	
Mars	
the Sun	
North Star	
the Earth's Moon	

[2]

(b) Which scientist first suggested that the planets in our Solar System orbit the Sun?

Circle the correct answer.

Copernicus **Darwin** **Galileo** **Rutherford** [1]

(c) Which of these planets is closest to the Sun?

Circle the correct answer.

Earth **Jupiter** **Neptune** **Venus** [1]

4 The diagram shows the shells of five molluscs labelled **A**, **B**, **C**, **D** and **E**.

A **B** **C** **D** **E**

NOT TO SCALE

Use the key to identify the scientific names of the five molluscs.

1	shell consists of one single part	go to **2**
	shell consists of two parts	go to **3**
2	shell is spiral-shaped	mollusc is *Buccinum*
	shell is **not** spiral-shaped	mollusc is *Patella*
3	shell is long and thin	mollusc is *Ensis*
	shell is **not** long and thin	go to **4**
4	shell has a small tuft of hairs	mollusc is *Mytilus*
	shell does **not** have a small tuft of hairs	mollusc is *Ostrea*

Write your answers in the table.

scientific name	letter
Buccinum	
Ensis	
Mytilus	
Ostrea	
Patella	

[2]

5 The diagram shows part of the Periodic Table.

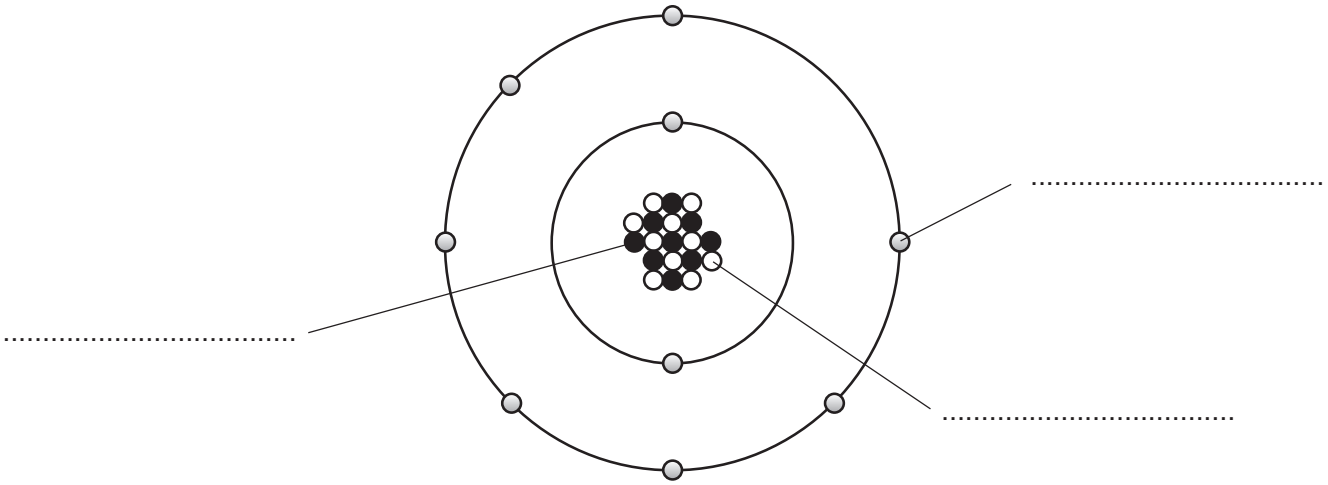
1 H							2 He
3 Li	4 Be	5 B	6 C	7 N	8 O	9 F	10 Ne
11 Na	12 Mg	13 A*l*	14 Si	15 P	16 S	17 C*l*	18 Ar
19 K	20 Ca						

The number above each chemical symbol shows the number of protons in the atom.

(a) How many **protons** are there in an atom of sodium? ..... [1]

(b) How many **electrons** are there in an atom of oxygen? ..... [1]

(c) Look at the diagram of an atom.



(i) Write down the chemical symbol for this atom.

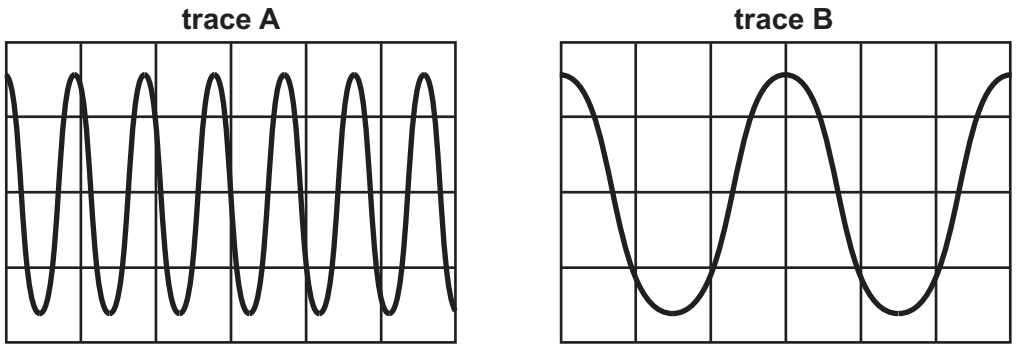
..... [1]

(ii) Label the diagram.

Choose from the list.

electron **neutron** **proton** [1]

6 Blessy has two sound wave oscilloscope traces.



(a) Circle the correct answers.

Which trace has the higher pitch?

trace A **trace B** **they have the same pitch**

Which trace has the lower frequency?

trace A **trace B** **they have the same frequency**

Which trace is louder?

trace A **trace B** **they have the same loudness**

Which trace has the lower amplitude?

trace A **trace B** **they have the same amplitude**

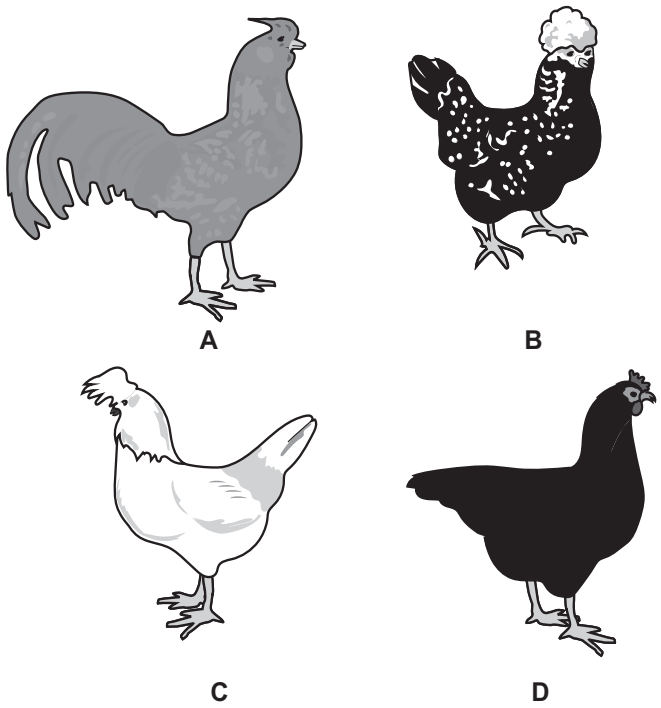
[3]

(b) Sound waves are produced by a vibrating object.

What does the vibrating object do to the air particles around it?

..... [1]

7 Look at the diagram of four different varieties of the same species of chicken.



A farmer uses selective breeding to produce a new variety of chicken.

This new variety of chicken must be black with white spots and have a large tail.

Describe **two** stages in the production of this new variety of chicken.

1 .....

.....

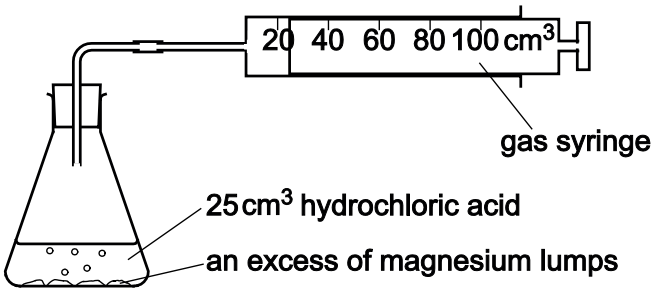
2 .....

.....

[2]

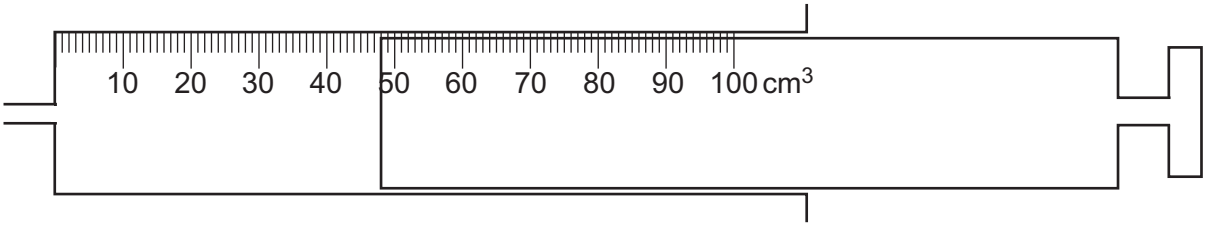
8 Carlos investigates the reaction between magnesium and hydrochloric acid.

Look at the diagram. It shows the apparatus he uses.



Carlos measures the total volume of gas made every 30 seconds.

(a) Look at the diagram of the gas syringe below.



What is the volume of gas in the gas syringe?

..... cm^3 [1]

(b) Carlos decides to repeat his experiment.

Suggest why it is a good idea to repeat the experiment.

..... [1]

(c) The hydrochloric acid in the experiment is corrosive.

Describe how Carlos controls this safety risk.

..... [1]

(d) Look at his results.

time in seconds	total volume of gas in cm^3
0	0
30	20
60	35
90	44
120	50
150	50

Circle the best way for Carlos to present his results.

bar graph **line graph** **pie chart** **scatter graph** [1]

(e) The total volume of gas made depends on the concentration of acid.

Carlos wants to do an experiment that makes about 100 cm^3 of gas.

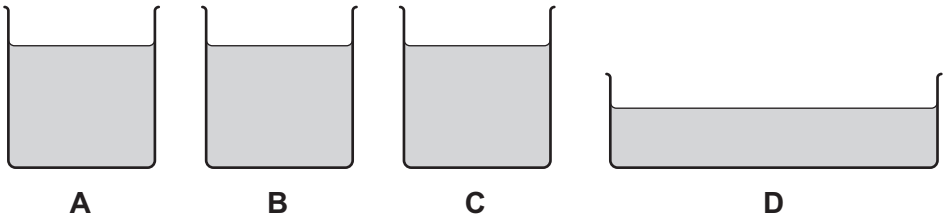
Describe how he decides the correct concentration of acid to use.

..... [1]

9 Mike has four copper containers.

He puts water into each container.

He puts all the containers in a classroom at 20 °C for 10 minutes.



Mike draws this table about the containers.

container	outside surface of container	volume of water in cm^3	temperature of water at start in °C
A	dull	100	60
B	shiny	100	60
C	dull	100	70
D	dull	100	60

(a) Mike compares container **A** with container **B**.

The water cools faster in **A** than in **B**.

(i) Complete the sentence.

The difference between the two containers is .....

..... . [1]

(ii) Complete the sentence.

Choose from the list.

boiler **conductor** **freezer** **radiator**

The water cools faster in container **A** because the container is a better

..... . [1]

(b) Mike compares container **C** with container **A**.

The water cools faster in **C** than in **A**.

Why does the water cool faster in **C** than in **A**?

.....

..... [1]

(c) Mike compares container **D** with container **A**.

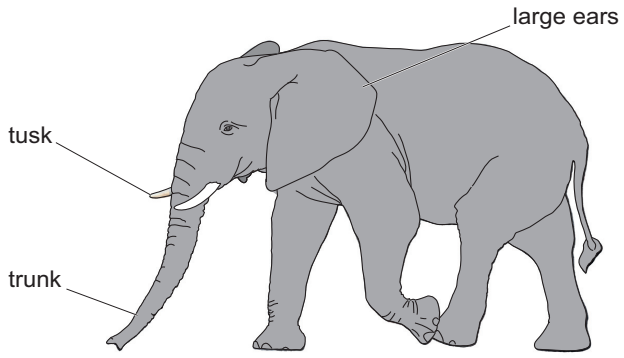
The water cools faster in **D** than in **A**.

Suggest why.

.....

..... [1]

10 Look at the picture of an elephant.



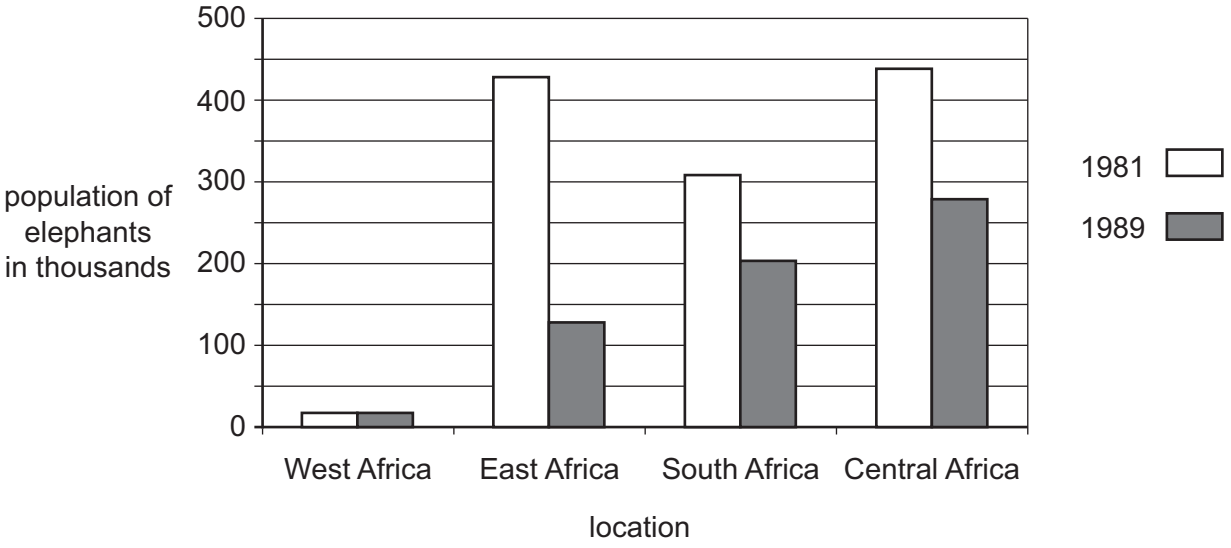
(a) Elephants are adapted to survive.

Draw a line to match each **adaptation** with the **reason** why it helps the elephant survive.

adaptation	**reason**
large ears	pull grass from ground
trunk	keep elephant cool
tusks	used to fight other elephants

[1]

(b) The chart shows the population of elephants in different parts of Africa in 1981 and 1989.



(i) In which part of Africa was the **largest** decrease in the population of elephants between 1981 and 1989?

.....

[1]

(ii) Humans caused the changes in elephant populations between 1981 and 1989.

Suggest **two** ways humans caused these changes.

1 .....

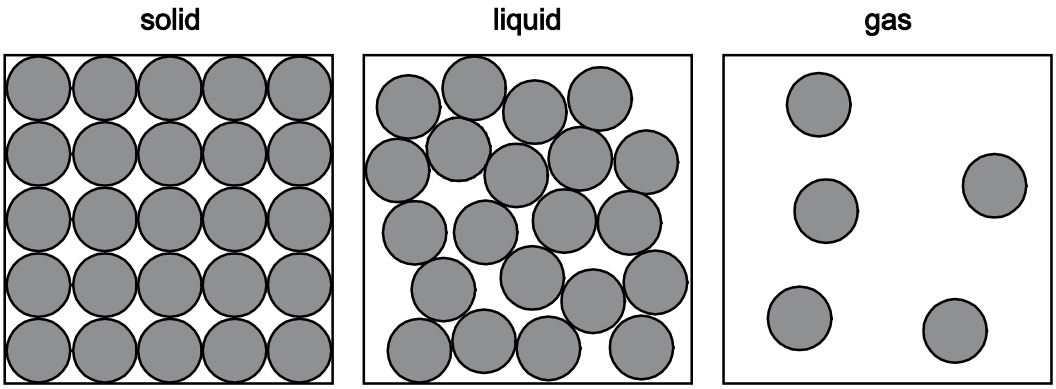
.....

2 .....

.....

[2]

11 Look at the diagrams. They show the arrangement of particles in solids, liquids and gases.



Look at the statements about solids, liquids and gases.

A are usually hard

B take the shape of the container they are put into

C can be compressed (squashed)

D completely fill any container they are put into

E have a fixed shape

F **cannot** flow easily

(a) Complete the table by putting the **letter** for each statement into the correct column.

One letter has been done for you.

solids	liquids	gases
	B	

[3]

(b) Liquids can evaporate.

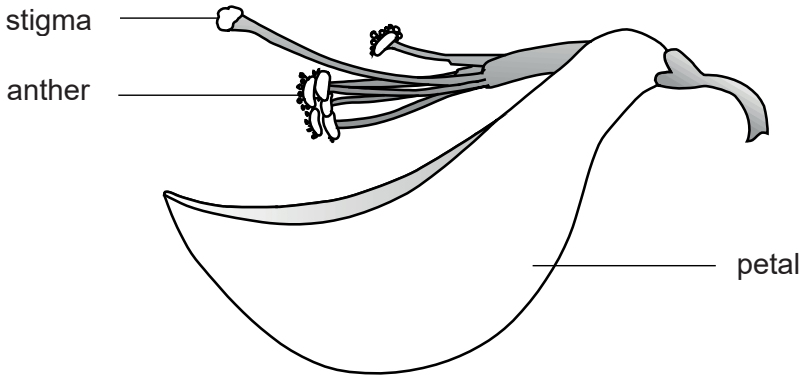
Explain what happens to the **particles** in a liquid during evaporation.

.....

.....

..... [2]

12 The diagram shows part of a flower that is pollinated by bees.



The male and female parts of the flower are protected by petals.

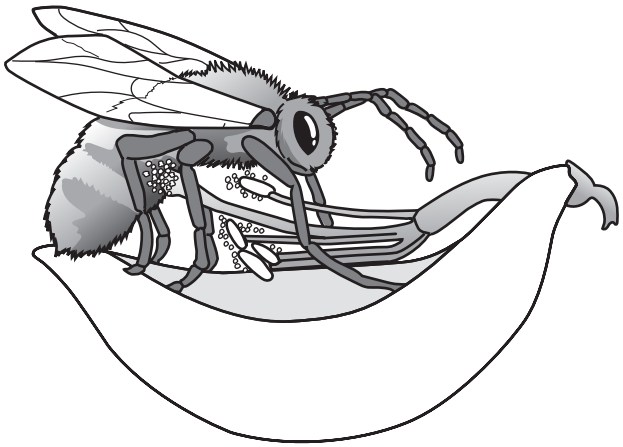
(a) Write down **one** other function of the petals.

.....[1]

(b) Write down **one** function of the anther.

.....[1]

(c) The diagram shows a bee pollinating this flower.



(i) Describe what happens **during** pollination.

.....[1]

(ii) Describe what happens **after** pollination.

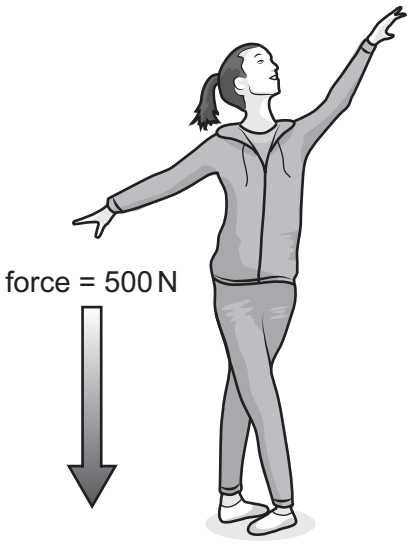
.....

.....[2]

13 Mia is a dancer.

The force she exerts on the floor is 500 N.

(a) She stands with both feet flat on the floor.



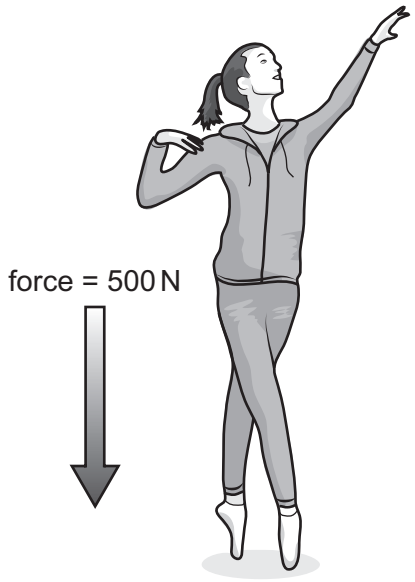
The area of her shoes in contact with the floor is 400 cm^2.

Calculate the pressure she exerts on the floor.

pressure ..... N/cm^2 [2]

(b) Mia stands on the points of her feet.

Her new area of contact with the floor is 10 cm^2 rather than 400 cm^2.

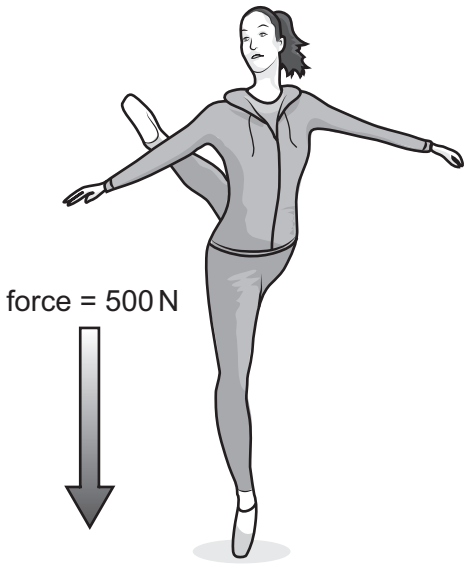


Describe what happens to the pressure she exerts on the floor.

.....

..... [1]

(c) Mia balances on one point.



She **cannot** remain on one point for a long time because it may damage her toes.

Suggest why this may damage her toes.

.....

..... [1]