Name: ( )	Class:	Teaching Group:

SERVE·LEAD·EXCEL

GREENDALE SECONDARY SCHOOL
End-of-Year Examination 2022

SCIENCE

Secondary 2 Express

5 October 2022
2 hours

Additional Materials: Multiple Choice Answer Sheet

READ THESE INSTRUCTIONS FIRST

Write your name, class and register number on all the work you hand in.
You may use an HB pencil for any diagrams, graphs, tables or rough working.
Write in dark blue or black pen.
Do not use staples, paper clips, glue or correction fluid.

The use of an approved scientific calculator is expected, where appropriate.
You may lose marks if you do not show your working or if you do not use appropriate units.

Section A
Answer **all** questions. For each question there are four possible answers **A**, **B**, **C** and **D**.
Choose the **one** you consider correct and record your choice in **soft pencil** on the separate Multiple Choice Answer Sheet.

Sections B and C
Answer **all** questions. Write your answers in the spaces provided on the question paper.

A copy of the Periodic Table is printed on page 30.
At the end of the examination, fasten all work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

For Examiner's Use	
Section A	/ 25
Section B	/ 55
Section C	/ 20
Total	/ 100

This document consists of **30** printed pages.

[Turn over

Section A

Answer **all** questions.

1 A student tried to light up a Bunsen burner and the flame appeared at the jet area upon lighting.

What could be the cause of this?

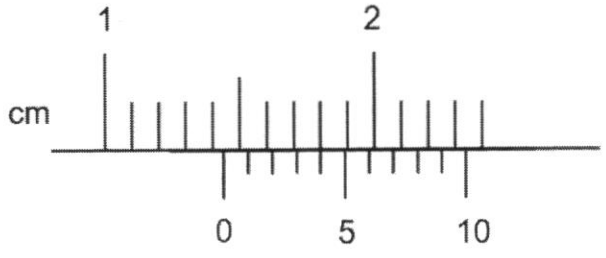
A The air-hole was closed fully before lighting.

B The air-hole was not fully closed before lighting.

C The gas tap was not turned on fully.

D The rubber tubing was not connected properly to the Bunsen burner.

2 What is the correct reading of the vernier calipers as shown?



A 1.44 cm **B** 1.45 cm **C** 1.54 cm **D** 1.55 cm

3 Observations about four solids were made.

- P is made up of white and green particles. When water was added, only the white particles dissolved. The green particles remained at the bottom of the beaker.
- Q has a silvery and shiny appearance. When it is heated at a high temperature, it melts into a silver liquid.
- Green solid R has a fixed proportion by mass. When electricity is passed through R, a colourless gas and a black solid is produced.
- S conducts electricity well and can be found in the Periodic Table. When S is heated strongly in the air, it reacts with oxygen to form one substance.

Which substance is a compound?

A P **B** Q **C** R **D** S

4 Sea water contains dissolved sodium chloride.

Which method is used to obtain pure water from the sea water?

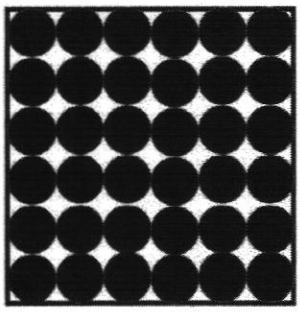
A chromatography

B distillation

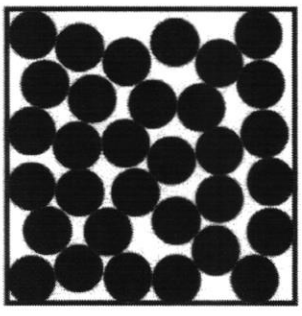
C evaporation to dryness

D filtration

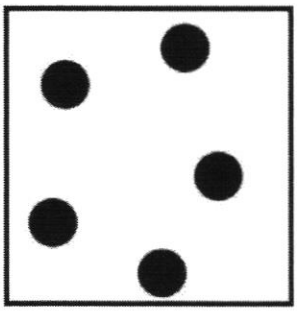
5 The diagrams show the arrangement of particles in three different physical states of a substance G.



state 1



state 2



state 3

Which statement about the physical states of substance G is correct?

A Particles in state 1 are held together by weak forces of attraction.

B Particles in state 2 vibrate about fixed positions.

C State 1 changes to state 3 by sublimation.

D State 3 changes directly to state 1 by melting.

6 A liquid is heated.

Which statement about the particles in the liquid is **not** correct?

A They expand.

B They gain energy.

C They move faster.

D They move further apart.

7 The table shows the freezing points and boiling points of three liquids which can be used for thermometers.

	mercury	alcohol	pentane
freezing point / °C	–39.0	–112.0	–180.0
boiling point / °C	357.0	78.0	36.5

If a thermometer is to be used to measure –50 °C and 38 °C, which liquid can it be filled with?

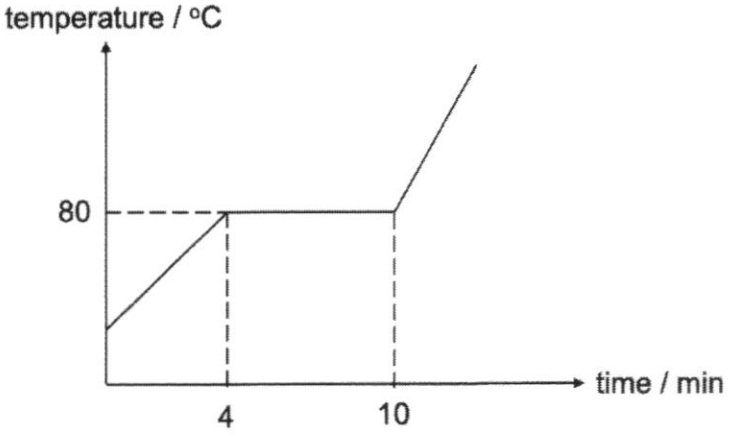
A alcohol only

B either mercury or alcohol

C either mercury or pentane

D mercury only

8 When solid stearic acid is heated from room temperature, the temperature is recorded at regular intervals and the change is represented by the graph.



From the results shown on the graph, which statement is **not** true?

A At 8 minutes, stearic acid exists as a mixture of solid and liquid.

B It takes 6 minutes for the stearic acid to melt.

C Stearic acid freezes at 80 °C.

D The graph shows that the solid stearic acid is not pure.

9 Nitrogen and chlorine react as shown.

1 molecule of nitrogen + 3 molecules of chlorine → 2 molecules of nitrogen trichloride

What is the equation for this reaction?

A $2N + 3Cl \rightarrow 2NCl$

B $2N + 2Cl_3 \rightarrow N_2Cl_6$

C $N_2 + 3Cl_2 \rightarrow 2NCl_3$

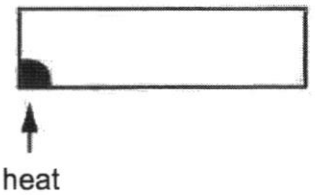
D $N_2 + 3Cl_2 \rightarrow N_2Cl_6$

10 The weight of objects varies on different planets within the Solar System depending on the strength of the planet's gravitational field.

Which object has the smallest mass?

	gravitational field strength / N per kg	weight / N
A	9	225
B	10	150
C	11	220
D	25	125

11 A solid metal rod is heated at one end.



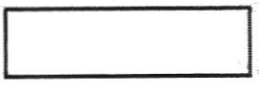
Which diagram represents the state of the particles a short time after the heating was started?

A

B

C

D



key

□ area where particles have low kinetic energy

■ area where particles have higher kinetic energy

12 A man pushes a box along the floor.

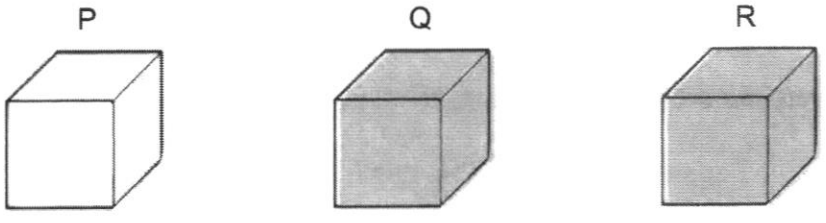
The total constant horizontal force on the box is 80 N.

The work done is 100 J. Friction can be assumed to be negligible.

How far does the box move?

A 0.80 m **B** 1.25 m **C** 1.80 m **D** 2.50 m

13 Three blocks, P, Q and R, are the same size and are made from the same material. They are coated and are set up as shown in the diagram.



white smooth surface at 80 °C

black rough surface at 80 °C

black rough surface at 40 °C

P, Q and R emit thermal energy.

The table shows statements about the amount of thermal energy emitted per second by the blocks.

Which row is correct?

	statement 1	statement 2
A	P emits less than Q	R emits less than Q
B	P emits less than Q	R emits more than Q
C	P emits more than Q	R emits less than Q
D	P emits more than Q	R emits more than Q

14 The table shows the pH values of five solutions, P, Q, R, S and T.

solution	P	Q	R	S	T
pH value	1	8	7	14	6

Which row represents a weak acid and a weak alkali?

	weak acid	weak alkali
A	P	Q
B	Q	R
C	T	Q
D	T	S

15 Two chemical reactions are described.

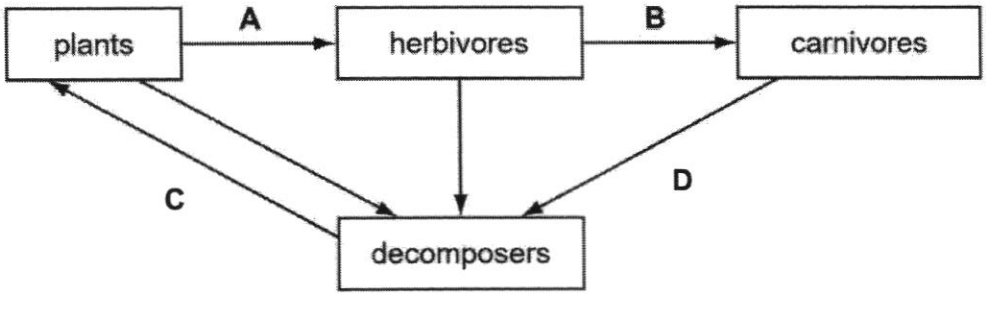
reaction X: copper(II) carbonate is heated to produce copper(II) oxide and carbon dioxide

reaction Y: burning magnesium in air

Which row **best** describes reactions X and Y?

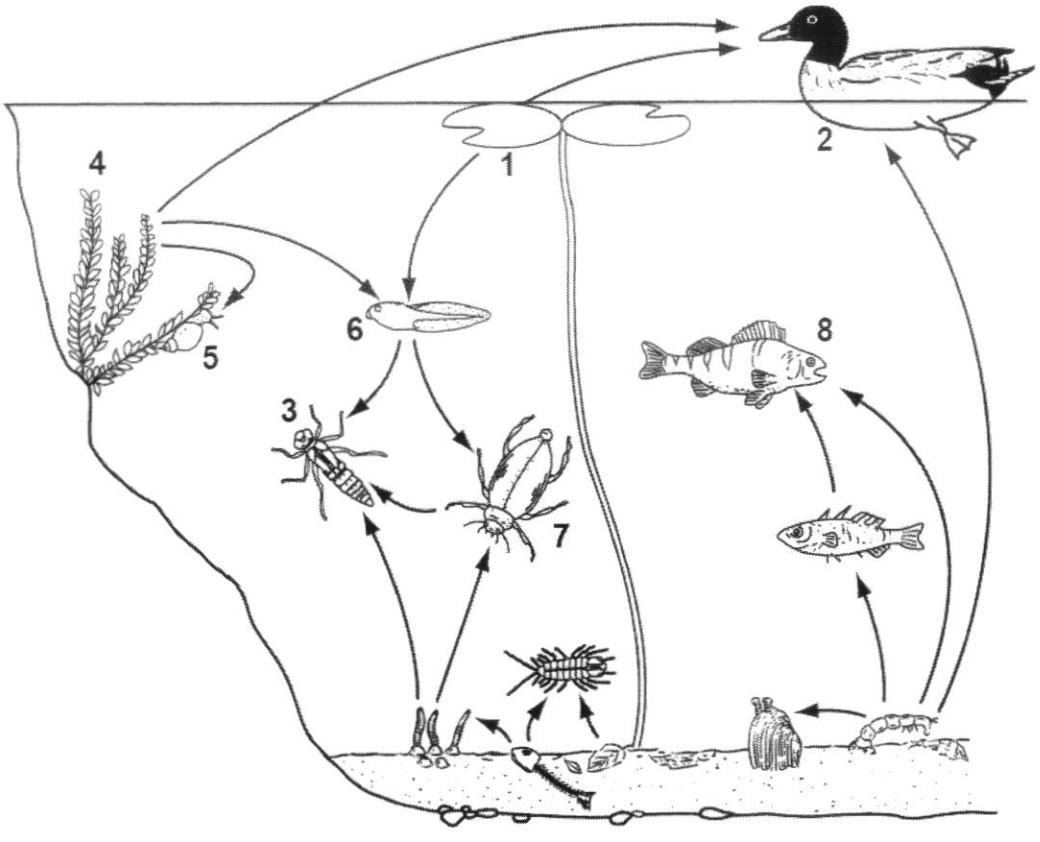
	reaction X	reaction Y
A	combination	combination
B	combustion	oxidation
C	neutralisation	oxidation
D	thermal decomposition	combustion

16 The diagram shows a food web.



Which arrow does **not** show the direction of energy flow?

17 The diagram shows a food web in a freshwater pond.



Which of the organisms is a producer, a herbivore or a carnivore?

	producer	herbivore	carnivore
A	1	6	7
B	2	4	5
C	4	2	6
D	7	3	8

18 Which term describes a group of organisms of the same kind living in the same environment?

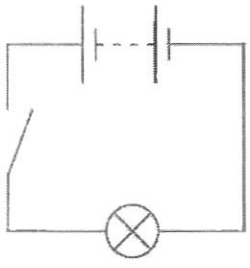
A biodiversity

B community

C ecosystem

D population

19 A battery is connected to a switch and a lamp. The brightness of the lamp depends on the current flowing through it.



Which change will increase the brightness of the lamp?

A Add a fuse in series with the lamp.

B Add a resistor in series with the lamp.

C Add another cell to the battery.

D Connect a wire parallel to the lamp.

20 A current flowing in the electrical system can result in useful effects such as chemical, heating and magnetic effects.

Which application does **not** involve the useful effects stated above?

A electroplating a hip implant with a metal that is compatible with living tissue

B keeping a baby warm in an infant incubator

C magnetic resonance imaging to generate images of soft tissues in the body

D using the automated external defibrillator to send electric shock to the heart.

21 An electric shower has a power rating of 10 kW and runs for 5 minutes each time the shower is used.

The cost of electrical energy is 30 cents per kWh.

How much does it cost to use the shower once every day for 300 days?

A 30 dollars **B** 75 dollars

C 150 dollars **D** 9000 dollars

22 What causes food to move from the oesophagus to the stomach?

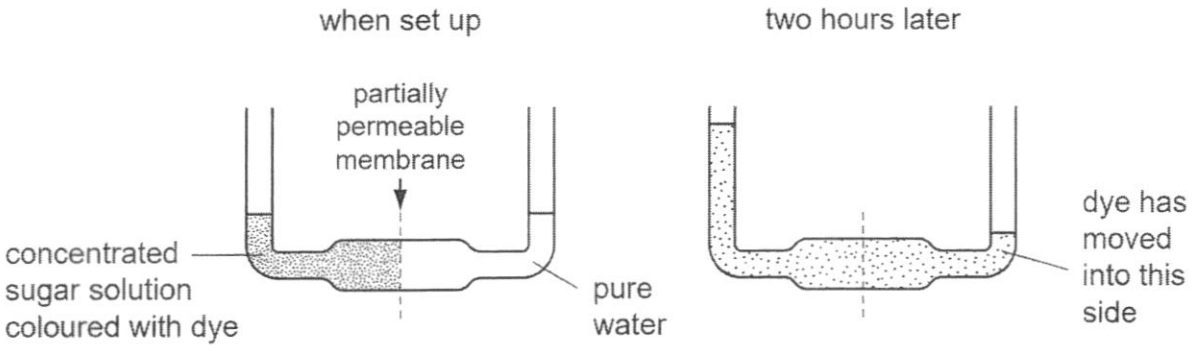
A blood pressure from the surrounding blood vessels

B gravitational pull on the food particles

C muscular action of the walls of the oesophagus

D pressure created as the food is swallowed

23 The diagrams show an experiment when set up and the same experiment two hours later.

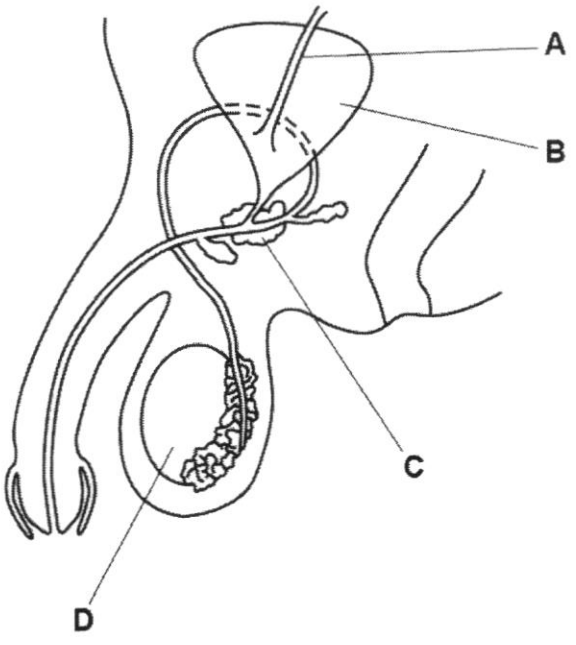


What explains the movement of water and dye?

	movement of water	movement of dye
A	diffusion	osmosis
B	osmosis	diffusion
C	osmosis	Brownian motion
D	Brownian motion	diffusion

24 The diagram shows the male reproductive and urinary systems.

Which structure produces the fluid part of semen?



25 Before fertilisation takes place, sperms travel through some parts of the female reproductive system to reach the egg.

What is the correct order of the parts through which the sperms travel?

A cervix → vagina → oviduct → uterus

B cervix → vagina → uterus → oviduct

C vagina → cervix → oviduct → uterus

D vagina → cervix → uterus → oviduct

Section B

Answer **all** questions in the spaces provided.

1 Food was ingested by a person.

(a) **(i)** With reference to the teeth, describe the physical digestion that takes place in the mouth.

.....

..... [2]

(ii) Explain the importance of physical digestion.

.....

..... [2]

(b) A food molecule **M** is present in the food ingested by the person.

Fig. 1.1 shows the digestion of **M** by an enzyme **N**.

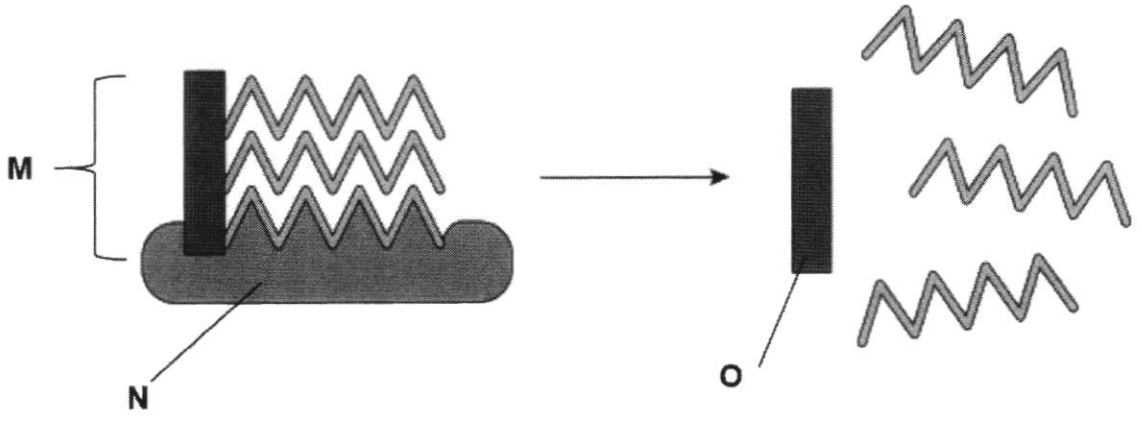


Fig. 1.1

(i) Name enzyme **N** and molecule **O**.

N .....

O ..... [2]

(ii) In which part of the alimentary canal does digestion of **M** take place?

..... [1]

[Total: 7]

2 Fig. 2.1 shows a child at the top of a slide.

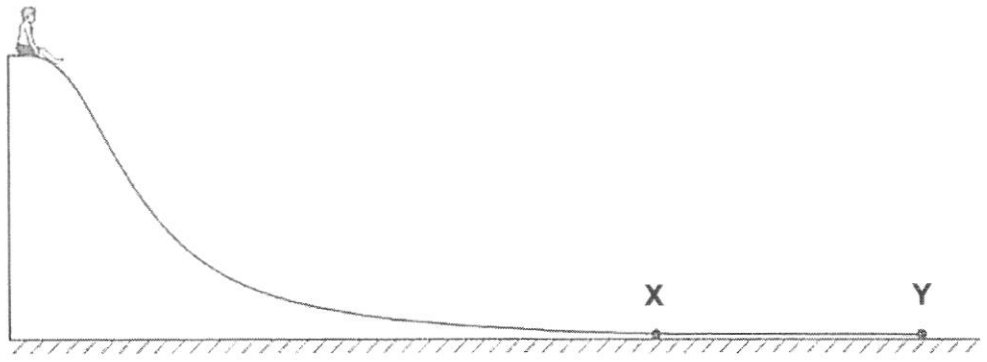


Fig. 2.1

(a) The child stops at point **Y** on the slide.

(i) Describe the conversion of energy that occurs as the boy moves from **X** to **Y**.

.....

..... [1]

(ii) State the force acting on the boy that causes the conversion of energy in **(a)(i)**.

..... [1]

(b) State why there is no change in gravitational potential energy between points **X** and **Y**.

.....

..... [1]

[Total: 3]

3 The three copper cans, **A**, **B** and **C**, shown in Fig. 3.1 contain equal volumes of hot water at the same initial temperature.

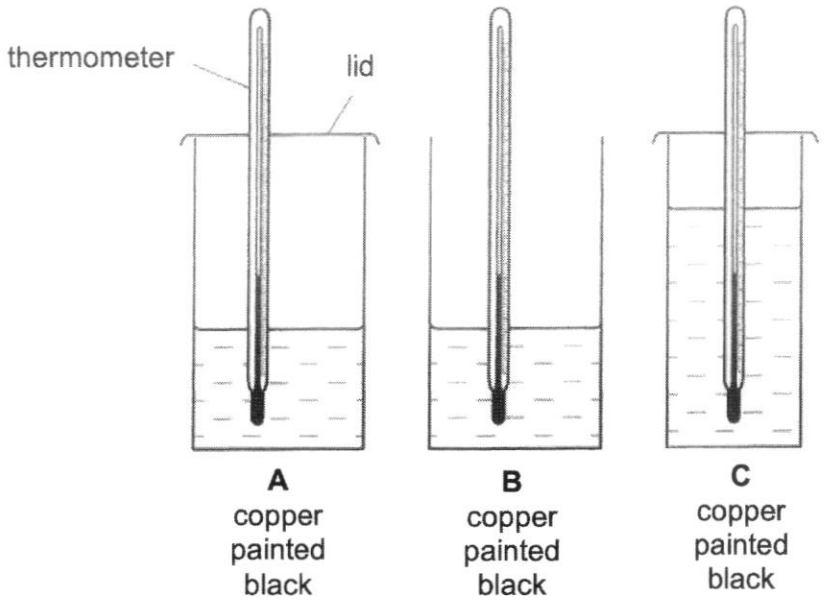


Fig. 3.1

Cans **A** and **C** have lids; can **B** has no lid.
Cans **A** and **B** have the same diameter; can **C** has a smaller diameter.

For each can, the temperature is measured every minute as the water cools and a graph is drawn to show the variation of temperature with time.

Fig. 3.2 shows the graph that is obtained for can **A**.

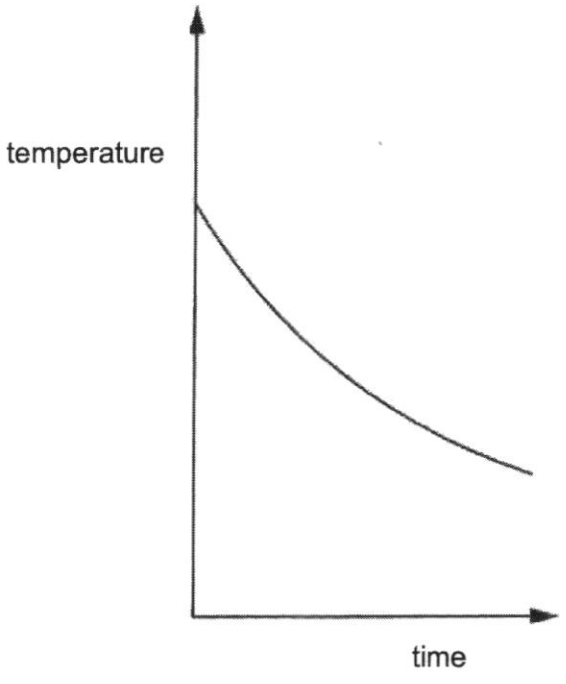


Fig. 3.2

(a) **(i)** Compare can **A** and can **B**, state and explain which can will lose heat faster.

.....

.....

..... [2]

(ii) On Fig. 3.2, sketch the line obtained for can **B**. [1]

(b) State why the temperature of the water in can **C** decreases more rapidly than the temperature of the water in can **A**.

.....

..... [1]

[Total: 4]

4 Fig. 4.1 shows a leaf cell from the corn plant. **X** is a cell structure that contains chlorophyll.

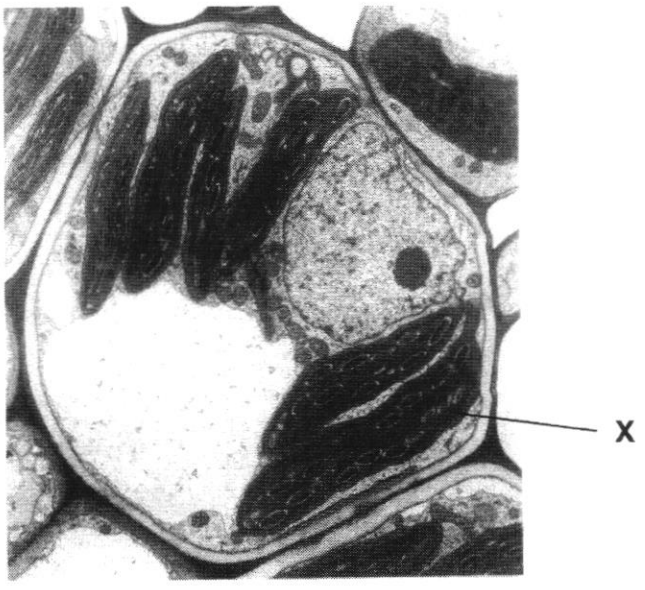


Fig. 4.1

(a) State the energy conversion that takes place in **X**.

..... [1]

(b) A corn plant has specialised plant cells that are used to absorb water from the soil.

(i) How is the shape of these cells different from the cell shown in Fig. 4.1.

.....

..... [1]

(ii) Suggest why it is important for these cells to have a different shape to the cell shown in Fig. 4.1.

.....

..... [2]

(c) Land is grazed by cows to provide meat for human consumption. This land could instead be used to grow corn for consumption by either humans or cows.

(i) Construct a food web that involves humans, cows and corn.

[2]

(ii) Suggest why it would be a more efficient use of the land to grow corn as a food source for humans.

.....

.....

.....

.....

..... [2]

[Total: 8]

5 Male **Y** is sexually active. He developed non-itchy rashes on different parts of his body as shown in Fig. 5.1. The rashes disappeared after he had taken antibiotics.

Fig. 5.1

(a) Deduce the STI that male **Y** got.

..... [1]

(b) Is this STI viral or bacterial? Explain your answer.

.....

..... [1]

(c) State one long-term effect of this STI.

..... [1]

(d) Suggest another way that a STI could be transmitted other than through sexual intercourse.

..... [1]

[Total: 4]

6 Two resistors R_1 and R_2 are connected first in series, as shown in Fig. 6.1, and then in parallel, as shown in Fig. 6.2.

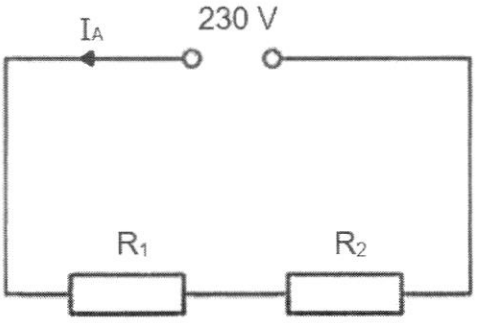


Fig. 6.1

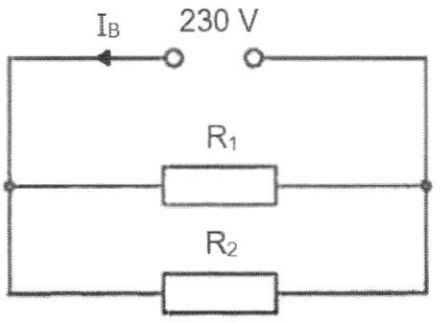


Fig. 6.2

There is no other resistance in either circuit.

R_1 and R_2 are identical resistors.

(a) Compare the currents I_A and I_B in Fig. 6.1 and Fig. 6.2.

State which current is larger and explain your choice.

.....

..... [1]

(b) In the circuit shown in Fig. 6.1, another resistor, R_3 – that is identical to R_1 and R_2 – is added into the circuit as shown in Fig. 6.3.

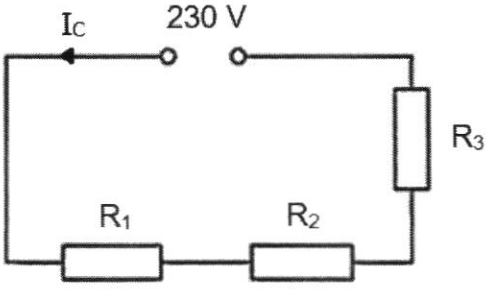


Fig. 6.3

State and explain how current I_C would differ from I_A.

.....

.....

..... [2]

[Total: 3]

7 Fig. 7.1 and Fig. 7.2 give information about the relative mass and relative charge of five different particles **A**, **B**, **C**, **D** and **E**.

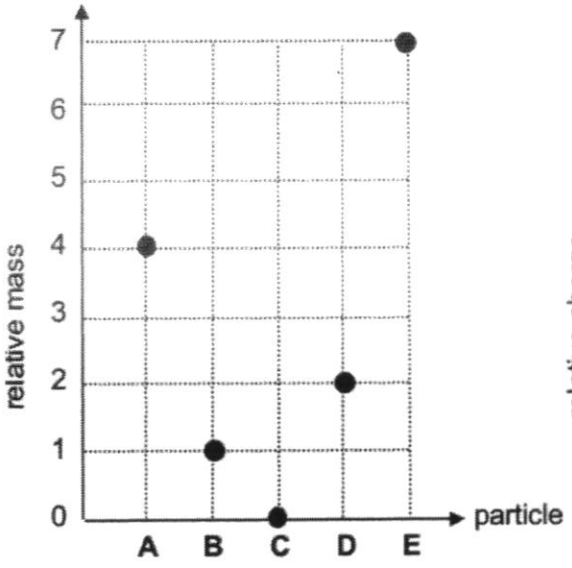


Fig. 7.1

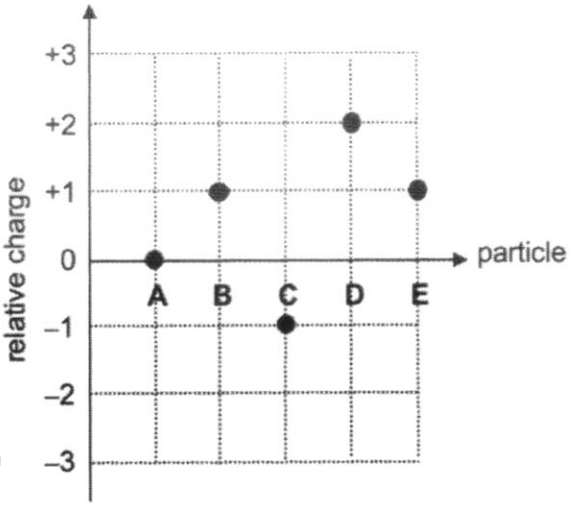


Fig. 7.2

Use Fig. 7.1 and Fig. 7.2 to answer the following questions:

(a) Which particle represents an electron? Explain your answer.

.....

..... [1]

(b) Which particle could be made up of two protons but no neutrons in the nucleus? Explain your answer.

.....

..... [2]

(c) Suggest a possible identity of particle **A**. Explain your answer.

.....

..... [2]

(d) Particle **E** is an ion of an element. Draw a diagram to show the electronic structure of particle **E**.

[2]
[Total: 7]

8 Fig. 8.1 shows some reactions of dilute hydrochloric acid with six unknown substances **A**, **B**, **C**, **D**, **E** and **F**.

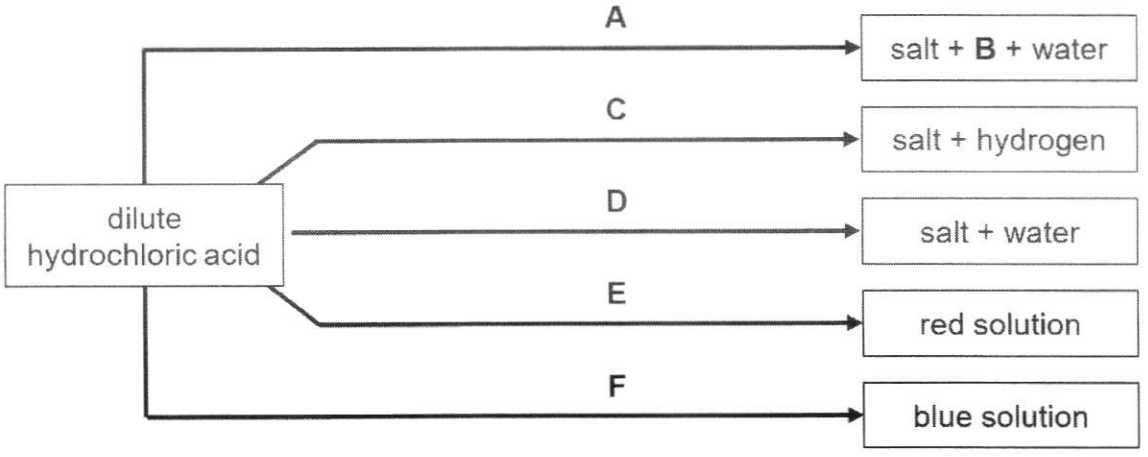


Fig. 8.1

(a) Use the substances **A**, **B**, **C**, **D**, **E** and **F** to answer the following questions.

(i) Which substance is likely to be Universal Indicator?

..... [1]

(ii) Which substance is likely to be carbon dioxide?

..... [1]

(iii) Which substance is likely to be magnesium?

..... [1]

(iv) Which substance is likely to be sodium hydroxide?

..... [1]

(b) The salt produced when **A** reacts with dilute hydrochloric acid is sodium chloride.

What is the identity of substance **A**?

..... [1]

(c) Hydrochloric acid can be found in the alimentary canal.

State **two** of its functions.

1 .....

2 ..... [2]

[Total: 7]

9 When an object is placed in front of two reflective surfaces which are at an angle to each other, it is possible to observe multiple reflections as shown in Fig. 9.1.

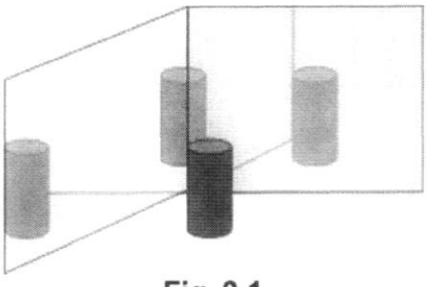


Fig. 9.1

(a) State **two** properties of an image formed by a plane mirror.

.....

..... [2]

(b) A student wants to investigate how this works, so he positions two mirrors $\mathbf{M_1}$ and $\mathbf{M_2}$ at an angle and places a cylinder, at position **X** as shown in Fig. 9.2.

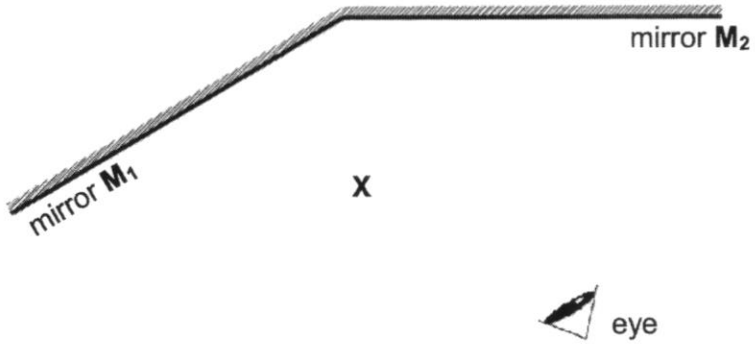


Fig. 9.2

On Fig. 9.2,

(i) draw the position of the image of the cylinder in mirror $\mathbf{M_1}$ and label it $\mathbf{I_1}$. Show clearly all construction lines. [1]

(ii) draw a ray from **X** to show how the student can see the image of the cylinder in mirror $\mathbf{M_1}$. [2]

(iii) locate the position of the image formed by mirror $\mathbf{M_2}$ and label it $\mathbf{I_2}$. [1]

[Total: 6]

(2021 Bedok Sec 2E MYE Q7)

10 Fig. 10.1 shows an aphid piercing its mouthpart into a vessel labelled **X** in the stem of a plant to feed on sugars produced by the plant.

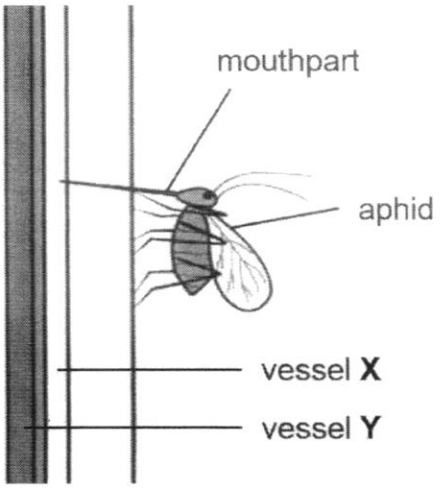


Fig. 10.1

(a) Name vessels **X** and **Y**.

vessel **X** .....

vessel **Y** ..... [2]

(b) The sugars in vessel **X** are produced in the leaves during photosynthesis.

Oxygen gas is also produced during photosynthesis. It is released into the surroundings from the stomata of the leaves.

State and explain the process by which oxygen molecules move from a leaf cell into the surroundings.

process .....

explanation .....

.....

.....

..... [2]

(c) The sugars produced can be converted into starch for storage in plant parts.

When humans ingest starch, they are able to break it down to sugars and use them for respiration.

Complete the word equations to show the complete digestion of starch.

starch $\xrightarrow{\text{.....}}$ ..... $\xrightarrow{\text{.....}}$ ..... [2]

[Total: 6]

Section C

Answer **all** questions in the spaces provided.

11 A student carries out an experiment to study the relationship between the potential difference across a resistor and the current flowing through the resistor.

The student uses the circuit shown in Fig. 11.1.

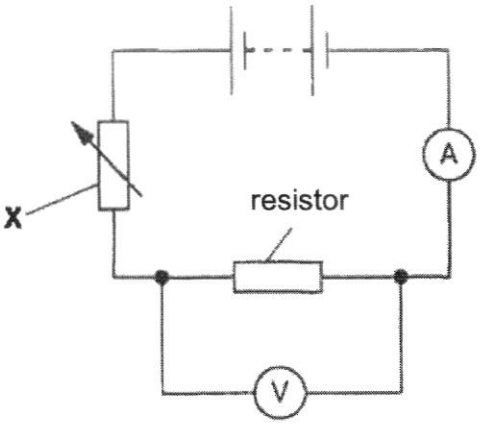


Fig. 11.1

(a) (i) Name the component labelled **X**.

..... [1]

(ii) State the purpose of the component labelled **X**.

.....

..... [1]

(b) The readings taken by the student are shown in Table 11.1.

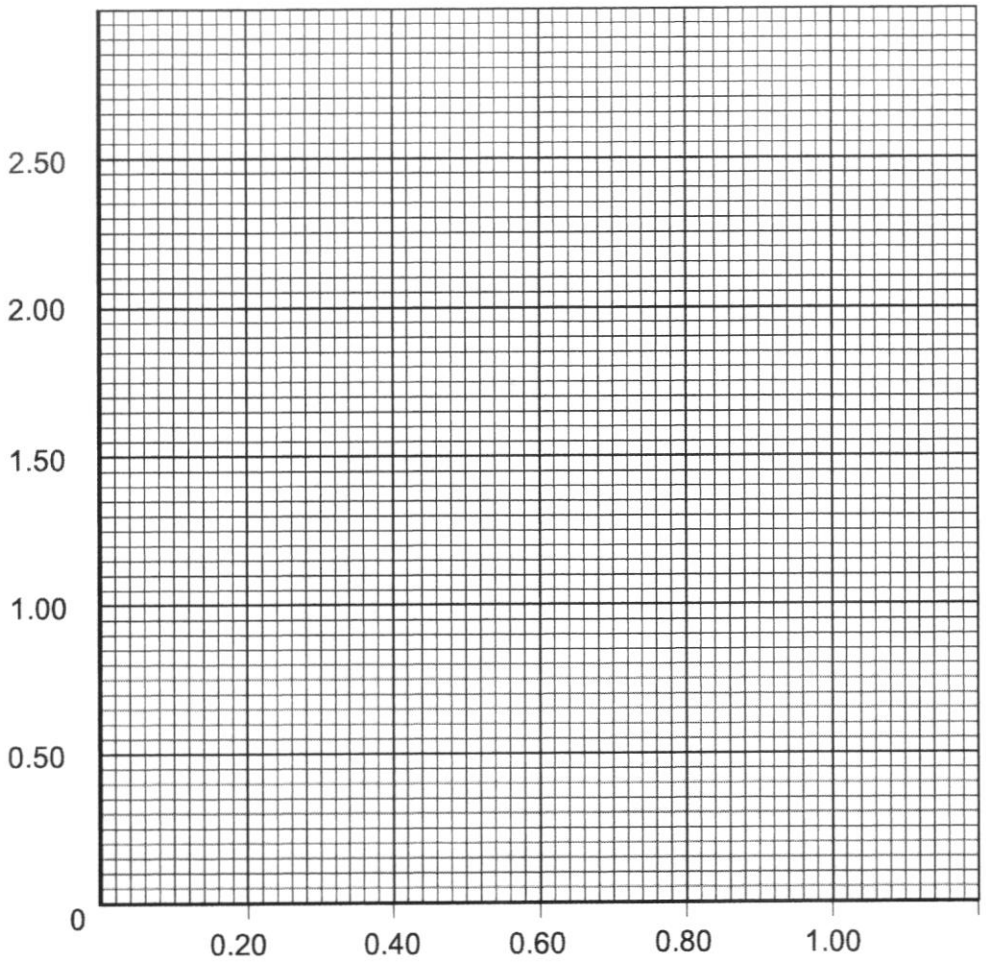
Table 11.1

current reading/ A	p.d. reading/ V
0.00	0.00
0.20	0.50
0.40	1.05
0.60	1.45
0.80	2.00
1.00	2.50

(i) On the grid provided, plot a graph of p.d. (vertical axis) against current (horizontal axis) with these results.

You are to
1 label the axes,
2 mark each point with a cross (x),
3 draw a best-fit line taking account all the plotted points.

[3]



(ii) What is the potential difference when the current is 0.70 A?

..... [1]

(c) A pacemaker is a medical device that generates electrical impulses and delivers them to the heart. It helps to support the heart in performing its function after a heart attack.

A heart attack occurs when the heart muscle cells die due to a lack of oxygen and nutrients. This occurs when the arteries transporting blood to the muscle cells are blocked by fatty substances.

(i) State the function of the heart.

.....

.....

..... [2]

(ii) Coronary arteries are small arteries that transport oxygen and nutrients to the heart muscle cells.

Fig. 11.2 shows a cross section of a healthy coronary artery.

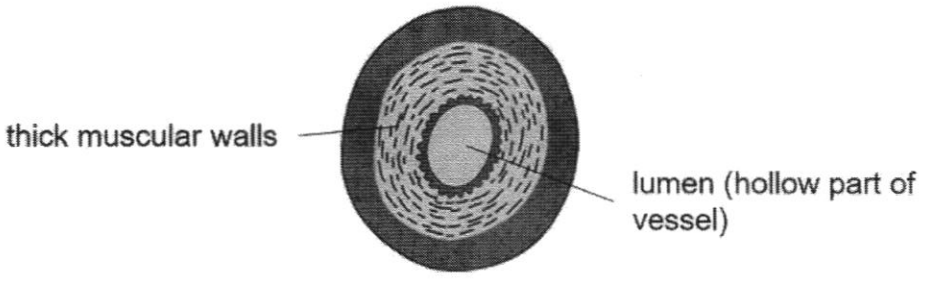


Fig. 11.2

With reference to its structure, suggest why it is easily blocked by fatty substances.

.....

..... [1]

(iii) One of the risks associated with the implantation of the pacemaker is the formation of blood clots.

Name the component of blood that causes clotting.

..... [1]

[Total: 10]

12 (a) Fig. 12.1 shows the side view of the female reproductive system.

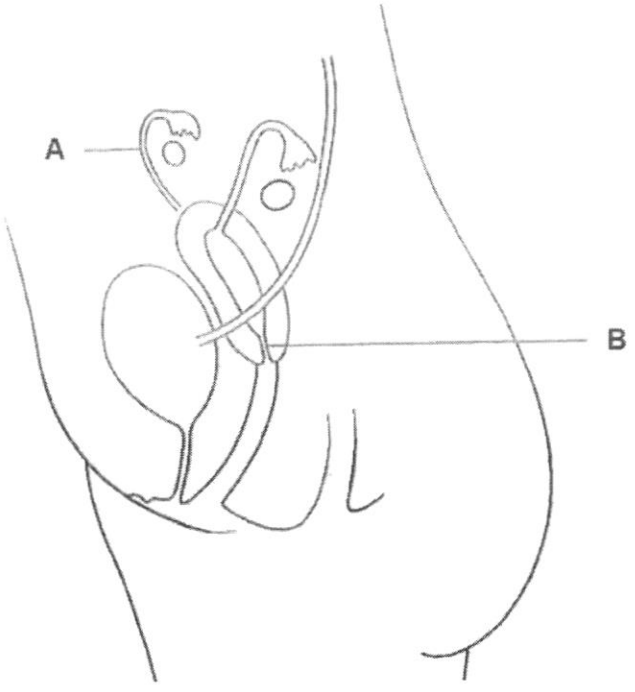


Fig. 12.1

State the names of parts **A** and **B** as shown in Fig. 12.1.

A .....

B ..... [2]

(b) On Fig. 12.1 add labelling lines and the correct letter to each line.

(i) Use a **C** to show where female sex hormones are produced. [1]

(ii) Use a **D** on the structure where fertilisation **normally** occurs. [1]

(iii) Use an **E** to show the **most likely** place for implantation. [1]

(c) Table 12.1 is a calendar which shows some events in a woman's menstrual cycle in October. Her menstruation ended on 11 October.

Table 12.1

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

(i) Predict the following:

- her date of ovulation. ..... Oct
- the dates for her fertile period. ..... Oct to . ..... Oct

[2]

(ii) Define the term *ovulation*.

.....

..... [1]

(iii) What would happen to the uterine lining in the days leading to ovulation?

.....

..... [1]

(d) Suggest one suitable birth control method that the woman could use if she engages in sexual intercourse during her fertile period.

..... [1]

[Total: 10]

END OF PAPER

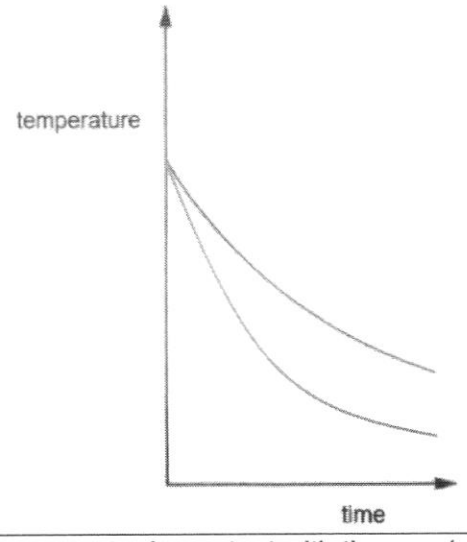
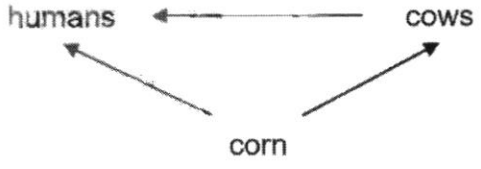
Sec 2E Science EOY 2022 Answers

Section A

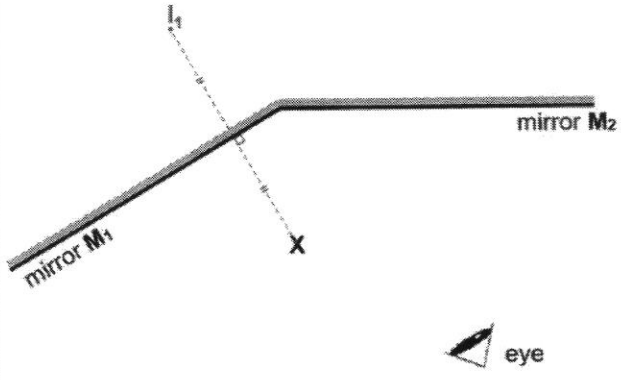
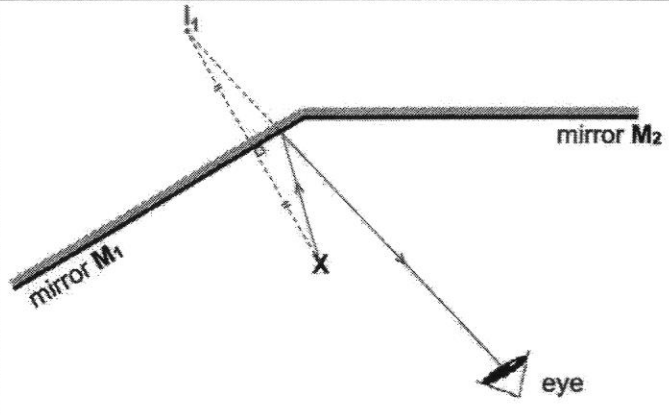
1	2	3	4	5	6	7	8	9	10
B	A	C	B	C	A	A	D	C	D
11	12	13	14	15	16	17	18	19	20
A	B	A	C	D	C	A	D	C	D
21	22	23	24	25					
B	C	B	C	D					

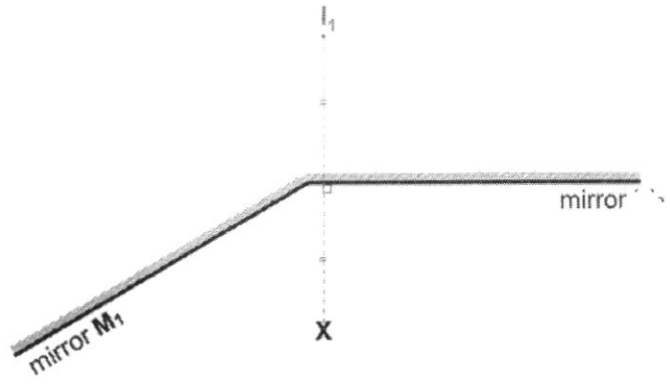
Section B

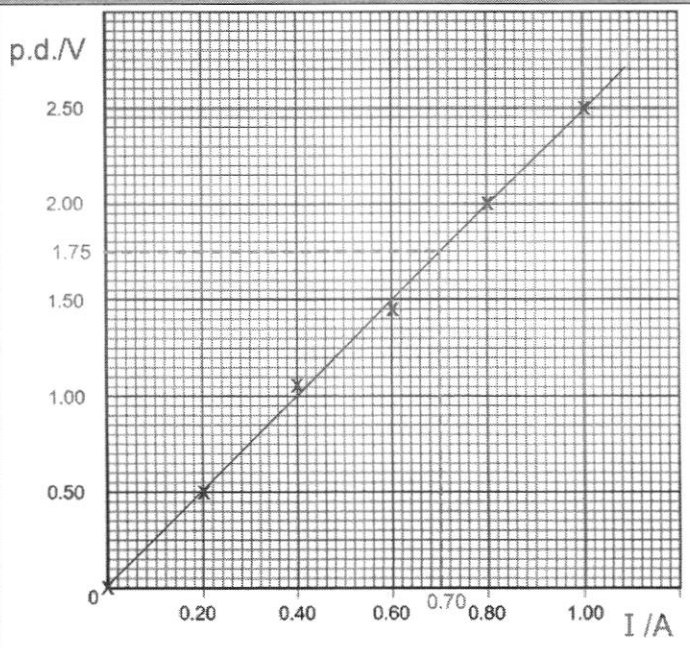
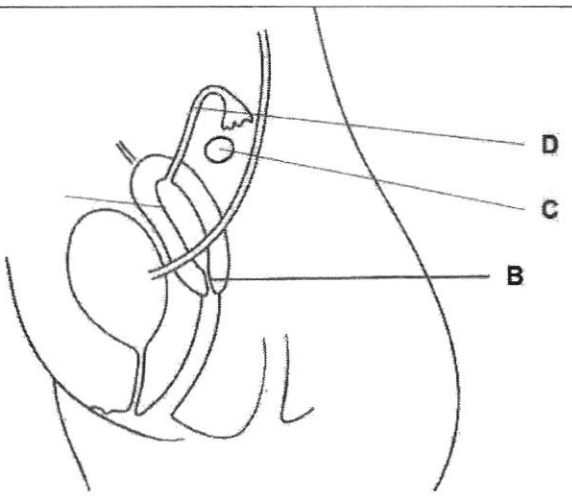
Qn	Answer	Mark
1(a)(i)	cutting / crushing / grinding / tearing of food into smaller pieces ;	2
1(a)(ii)	increase surface area for enzymes to act on	2
1(b)(i)	N lipase ; O glycerol ;	2
1(b)(ii)	small intestine	1
	TOTAL	[7]
2(a)(i)	kinetic energy of the boy is convered to thefinal energy / heat	1
2(a)(ii)	friction / frictional force	1
2(b)	no changes in height	1
	TOTAL	[3]
3(a)(i)	Can B will use heat faster *any of the following reasons:* • having no lid increases heat lost due to convection • having no lid increases heat lost due to evaporation • having no lid allows hot vapour to escape ;	2

Qn	Answer	Mark
3(a)(ii)		1
(b)	more water in contact with the can / surface area of water in contact with can is greater thus increases heat transfer / loss (through conduction);	1
	TOTAL	**[4]**
4(a)	light energy is converted to chemical energy ;	1
4(b)(i)	(root hair cell) has a long and narrow / elongated **AND** extension / root hair / protrusion ;	1
4(b)(ii)	increase surface area ; allow efficient absorption / speed up rate of absorption (of water and mineral salts) ;	2
4(c)(i)	 all feeding relationships are correct ; feeding representing by arrows ;	2
4(c)(ii)	energy lost as heat released during respiration / in uneaten parts / in waste products / in undigested food ; shorter food chain allows more energy to reach final consumer / human (thus supporting more humans than cow)	2
	TOTAL	**[8]**
5(a)	syphilis ;	1
5(b)	bacteria **AND** can be treated by antibiotics ;	1
5(c)	*any one*	1

Qn	Answer	Mark
	• blindness • paralysis • brain damage / insanity • heart damage • infertility ;	
5(d)	*any one* • blood transfusion • blood donation • from mother to infant / child **AND** during childbirth / breastfeeding • sharing of unsterilised / contaminated needles	1
	TOTAL	**[4]**
6(a)	I_B is larger **AND** resistors in <u>parallel</u> **AND** total/circuit/effective resistance decreases **OR** Resistors in <u>series</u> **AND** total/circuit/effective resistance increases	1
6(b)	I_C is smaller ; resistor added in <u>series</u> **AND** total/circuit/effective resistance increases **RA** **OR** more resistors in a <u>series</u> **AND** circuit/effective resistance increases **RA**	1 1
	TOTAL	**[3]**
7(a)	Particle **C AND** relative mass of 0/close to zero/$\frac{1}{1840}$ **OR** relative charge of –1 ;	1
7(b)	Particle **D** ; **COND** idea of relative mass of proton is 1 **AND** link to relative mass of D e.g. relative mass of proton is 1, so the total relative mass of two protons would be 2. Students need to demonstrate the use of data to deduce which particle contains 2 protons and 0 neutron.	2
7(c)	Particle **A** is helium (atom)	2
7(d)	correct number of electrons (showing clearly 2 electron) ; correct charge (+) with [ ] ;	2
	TOTAL	**[7]**
8(a)(i)	**E** ;	1

Qn	Answer	Mark
8(a)(ii)	**B** ;	1
8(a)(iii)	**C** ;	1
8(a)(iv)	**D** ;	1
8(b)	sodium carbonate ;	1
8(c)	kills bacteria / disease-causing microorganisms ; help <u>protease</u> to work	2
	TOTAL	[7]
9(a)	*any **two** of the following*: • image distance is equal to object distance • laterally inverted • same size as object • upright • virtual ;	2
9(b)(i)	 position of image labelled as I_1 **AND** show perpendicular sign and equidistant ;	1
9(b)(ii)	 correct point of incidence must be identified before marks would be awarded for the followings: [1]: incident ray drawn with correct angle **AND** arrow towards mirror ;	2

Qn	Answer	Mark
	[1]: reflected ray drawn with correct angle **AND** arrow towards eye ; Award 1m less if missing arrow OR directions of arrows are wrong.	
9(b)(iii)	 correct location of image labelled as I_2 ;	1
	TOTAL	**[6]**
10(a)	*vessel X* phloem ; *vessel Y* xylem ;	1
10(b)	diffusion ; net movement of oxygen molecules ; from a region of higher concentration (the leaf) to a region of lower concentration (the surrounding) ;	3
10(c)	amylase **AND** maltose ; maltase **AND** glucose ;	2
	TOTAL	**[6]**
11(a)(i)	rheostat / variable resistor ;	1
11(a)(ii)	vary the **current** in the circuit ;	1

Qn	Answer	Mark
11(b)(i)		3
11(b)(ii)	1.75 V (according to student's graph) ;	1
11(c)(i)	muscular pump ; to circulate blood around the body ;	2
11(c)(ii)	narrow lumen **WTTE** ;	1
11(c)(iii)	platelet(s) ;	1
	TOTAL	**[10]**
12(a)	**A** oviduct ; **B** cervix ;	2
12(b)		3
12(c)(i)	20 Oct ;	1
12(c)(ii)	16 Oct – 21 Oct ;	1

Qn	Answer	Mark
12(c)(ii)	release of <u>mature</u> egg / ovum **AND** from <u>ovary</u> ;	1
12(c)(iii)	repair **AND** thickening of <u>uterine lining</u> ;	1
12(d)	any one: • condom • diaphragm • IUD • spermicide	1
	TOTAL	**[10]**