

Name: _____ () Form Class/Subject Group: _____ / _____



WOODLANDS SECONDARY SCHOOL END-OF-YEAR EXAMINATION 2024

Secondary 1

Subject Level:	G3	Marks:	100
Subject:	Lower Secondary Science	Day:	Friday
Paper:	-	Date:	4 October 2024
Duration:	2 hours	Time:	0800 – 1000

READ THESE INSTRUCTIONS FIRST

Write your index number, name and class on all the work that you hand in.
Do not use staples, paper clips, glue or correction fluid.

Section A

Write in soft pencil. There are **thirty** questions in this section.
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 Optical Answer Sheet. Each correct answer will score one mark.

Section B and C

Answer **all** questions.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Write your answers in the spaces provided on the question paper.
You may lose marks if you do not show your working or if you do not use appropriate units.

A copy of the Periodic Table is printed on page 22.
The use of an approved scientific calculator is expected, where appropriate.
The number of marks is given in brackets [] at the end of each question or part question.

For Examiner's Use			
Section A	Section B	Section C	Total
/30	/40	/30	/100

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.

This document consists of **22** printed pages.

Section A (30 marks)

Answer **all** questions. Shade your answers on the Optical Answer Sheet provided.

- 1 Ethanol causes fire readily when reacts with oxygen in the air.
Sodium hydroxide attacks tissues.
Potassium nitrate decomposes to release oxygen which supports burning.

Which of the following lists the correct examples of chemicals with the given hazard symbols?

			
A	ethanol	sodium hydroxide	potassium nitrate
B	sodium hydroxide	ethanol	potassium nitrate
C	sodium hydroxide	potassium nitrate	ethanol
D	potassium nitrate	ethanol	sodium hydroxide

- 2 A scientist wanted to produce membrane of a certain thickness. He repeated the experiment 10 times, always producing membranes of the same thickness but not the ideal thickness that he wanted.

Which of the following best describes his results?

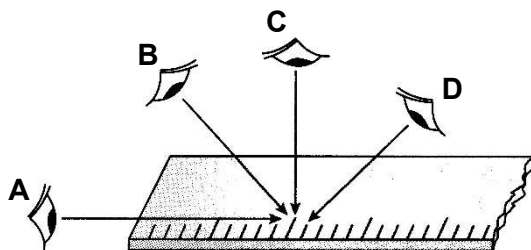
	accuracy	precision
A	high	high
B	high	low
C	low	high
D	low	low

- 3 Which of the following instruments is most appropriate to determine each measurement?

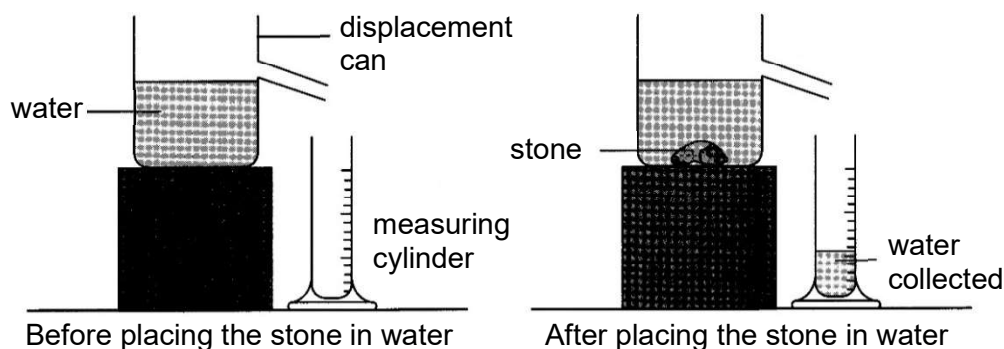
	volume of water	diameter of thin wire	mass of a ball
A	measuring cylinder	digital calipers	electronic balance
B	measuring cylinder	ruler	weighing machine
C	test tube	digital calipers	electronic balance
D	test tube	ruler	weighing machine

- 4 A student was instructed to cut threads that are 15.0 cm in length. He used a ruler to measure each thread.

Which is the correct position of his eye to make the most accurate measurement?



- 5 The diagram shows what happened when a stone was placed into the displacement can.



Which of the following can be measured using the method shown?

- A The density of the stone
 - B The density of water
 - C The mass of the stone
 - D The volume of the stone
- 6 The table shows some differences between milo drink and sugar solution. Which of the following correctly shows the difference between them?

	milo drink	sugar solution
A	clear	cloudy
B	does not allow light to pass through	allow light to pass through
C	homogenous	not homogenous
D	no particles settle at the bottom	many particles settle at the bottom

- 7 Which of the following is **not** a property of fibres?

- A able to absorb dyes
- B can be spun into threads
- C fragile
- D poor conductors of heat

- 8 How many different types of elements are present in ammonium hydroxide, NH_4OH ?

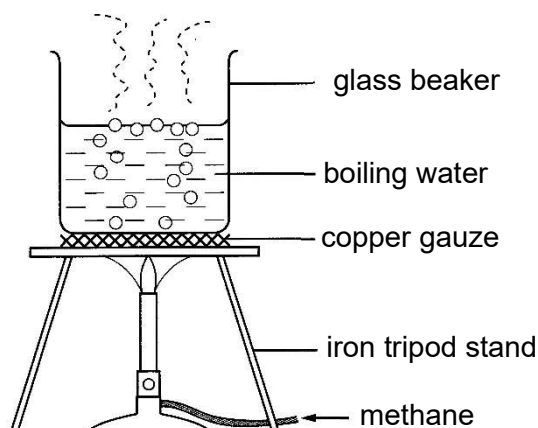
A 3 **B** 4 **C** 5 **D** 7

- 9 Three substances, A, B and C were dissolved in equal volumes of three different solvents, X, Y and Z to test their solubility. The results are shown in the table.

solvent	substance dissolved in grams / g		
	A	B	C
X	30	19	11
Y	24	13	7
Z	9	10	12

Which of the following is true?

- A** A is the most soluble solute for all three solvents.
B A, B and C are best dissolved in solvent Y.
C B is least soluble in solvent X compared to A and C.
D C is more soluble than B in solvent Z.
- 10 A student boiled some water using the set-up shown in the diagram.



How many of the labelled substances are elements?

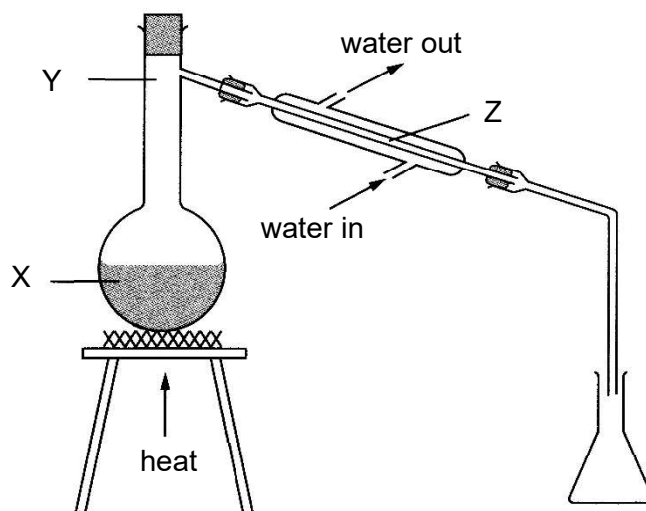
- A** 1 **B** 2 **C** 3 **D** 4
- 11 Which of the following consists of compounds only?

A baking soda, sugar, common salt, water
B brass, oil, wood, magnesium
C carbon dioxide, sea water, nitrogen, chalk
D sodium, rust, plastics, steel

12 Which of the following properties **cannot** be used to separate mixtures?

- A boiling point
- B chemical reactivity
- C magnetic property
- D solubility of solute

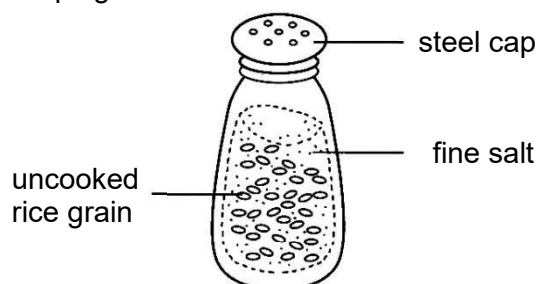
13 The diagram shows the set-up to separate sea water.



Which of the following statement is true?

- A A thermometer should be placed in X to measure the temperature of boiling water.
- B The change in state from liquid to gas occurs at Y.
- C The condensation of the vapour takes place at Z.
- D The temperature at X is exactly at 100°C when sea water boils.

14 Grains of uncooked rice are added to fine salt in a saltshaker to keep the salt dry and prevent it from clumping.



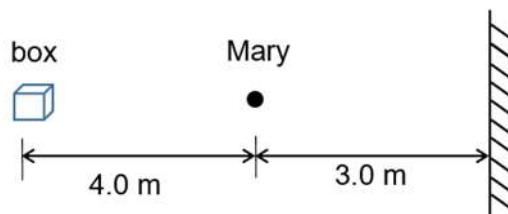
How is salt and uncooked rice separated when the saltshaker is used to sprinkle salt over food?

- A By magnetic attraction
- B By filtration
- C By evaporation
- D By dissolving

- 15 Which of the following uses a membrane to remove salt from seawater to produce drinking water?

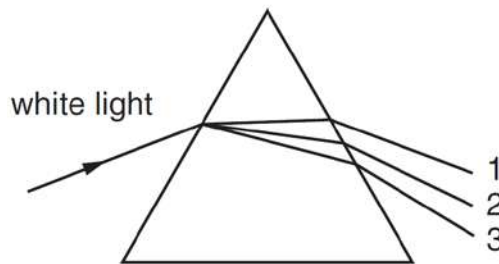
A chromatography
 B evaporation
 C reverse osmosis
 D simple distillation

- 16 Mary stands 3.0 m in front of a mirror. There is a box located 4.0 m behind her.



What is the distance from Mary's eye to the image of the box?

- A 4.0 m B 7.0 m C 10.0 m D 14.0 m
- 17 Which of the following statements about a convex mirror is **not** correct?
- A It helps people to see objects around blind corners.
 B It produces images with the same size as the object.
 C The images produced in a convex mirror is virtual.
 D The corner mirrors in the shops to prevent shoplifting are convex mirrors.
- 18 A spectrum is formed when white light passes through a prism.

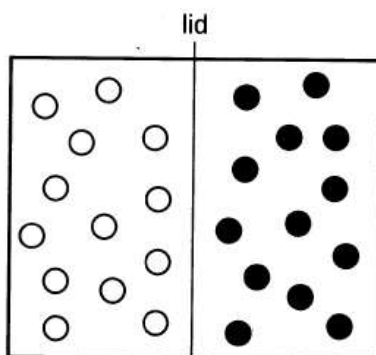


In which position are the colours green, red and yellow seen?

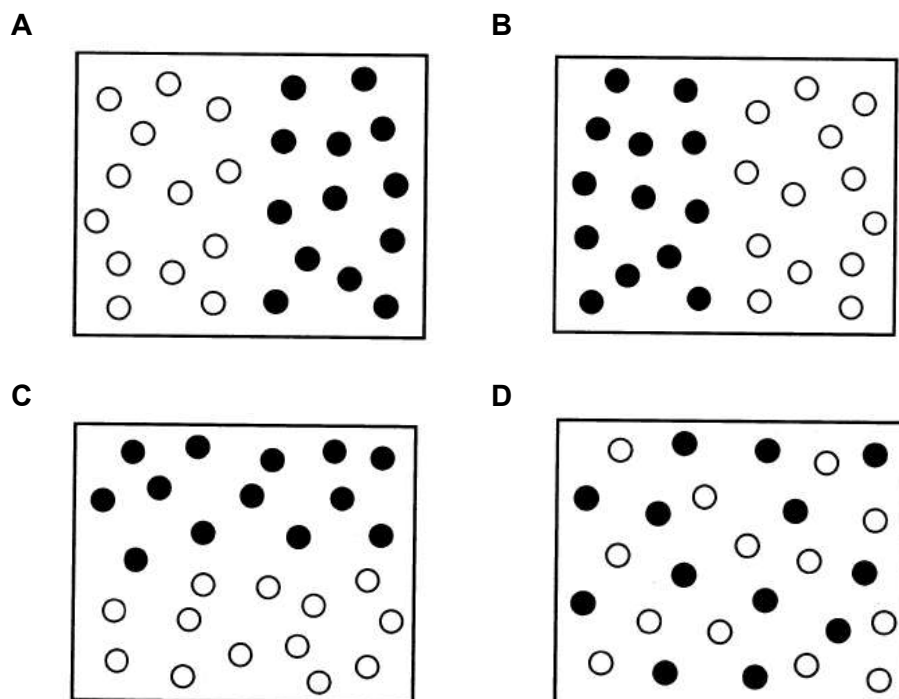
	1	2	3
A	green	red	yellow
B	green	yellow	red
C	red	green	yellow
D	red	yellow	green

- 19 A thermal imaging camera was used to observe leaves of plants.
- What information can be gathered about the leaves from directly observing the image on the thermal imaging camera?
- A amount of food made by the leaves
 - B amount of visible light the leaves used for photosynthesis
 - C colour pigment of the leaves
 - D temperature of the leaves
- 20 Which of the following is **not** a function of a cell wall?
- I protects cells from injury
 - II controls substances entering or leaving the cell
 - III gives cells a regular shape
- A I only
 - B II only
 - C I and II only
 - D I and III only
- 21 A student views a specimen of blood under a light microscope. Which of the following best describes the specimen?
- A organ
 - B organism
 - C system
 - D tissue
- 22 Which of the following shows a limitation of using models to study cells and matter?
- A Models are representations of phenomena in the real world.
 - B Models help us to make predictions about phenomena.
 - C Models help us to understand things that we cannot observe directly.
 - D Models leave out important details of the phenomena.
- 23 The heart, which is an organ, is made up of muscle tissue, blood vessels, nerve tissue and connective tissue. What can you infer regarding tissues and organs?
- A Different types of tissues working together can form an organ.
 - B Only the same type of tissues working together can form an organ.
 - C Tissues are made up of different types of cells. Organs are made up of one type of tissue.
 - D Tissues are made up of one type of cell. Organs are made up of one type of tissue.

- 24 Which of the following is **not** a molecule?
- A Ar B NO C P₄ D S₈
- 25 Why does a substance of a particular mass usually have a slightly higher density in the solid state than in the liquid state?
- A The particles in the solid are bigger than those in the liquid.
 B The particles in the solid are heavier than those in the liquid.
 C The particles in the solid have more energy than those in liquid.
 D The particles in the solid are more closely packed than those in the liquid.
- 26 Two different gases are separated by a lid in a container as shown.



When the lid is removed, which of the following observations is likely to take place after the container is left undisturbed for one day?



27 Which of the following is **not** shown by a chemical formula?

- A The number of atoms in the compound
- B The number of elements in the compound
- C The size of the elements in the compound
- D The type of elements in the compound

28 Which of the following correctly shows the charges of protons, electrons and neutrons?

	protons	electrons	neutrons
A	+ 1	- 1	0
B	+ 1	0	- 1
C	- 1	+ 1	0
D	- 1	0	+ 1

29 The table shows the melting points and boiling points of substances P, Q, R and S.

Substance	melting point / °C	boiling point / °C
P	- 114	78
Q	660	2470
R	- 7	60
S	- 218	- 183

From the data given, which of the following statement is **incorrect**?

- A S is a gas at 25°C.
- B R is a liquid at 25°C.
- C Q is a solid at 100°C.
- D P is a liquid at 100°C.

30 Through the beams of sunlight entering a room, dust particles are seen to move in a random manner.

Which of the following accounts for the random movement?

- A absorption of energy from the sun
- B collision of dust particles with moving air molecules
- C movement of wind guiding the path of dust particles
- D refraction of sunlight by the dust particles

Section B [40 marks]

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

- 1 Fig. 1.1 shows a girl heating a boiling tube in the laboratory.



Fig. 1.1

- (a) Identify the **two** hazards in the diagram. Explain how these hazards may pose as a danger to the girl.

.....

 [2]

- (b) State the type of flame that the girl should use for heating. Give a reason for your answer.

.....
 [2]

[Total: 4]

- 2 Two students measured their heart rates in beats per minute (bpm) after drinking two brands of fizzy drinks. Both of them had the same resting heart rate (60 bpm) just before they had the drinks.

Table 2.1 shows the students' heart rates after consuming brands G and H fizzy drinks.

Table 2.1

brand of fizzy drink	Student A's heart rate / bpm	Student B's heart rate / bpm
G	75	60
H	111	97

- (a) Suggest the hypothesis that the students are testing out.

.....
 [1]

- (b) State the independent variable for this experiment.

..... [1]

- (c) State one variable that should be kept constant for this experiment.

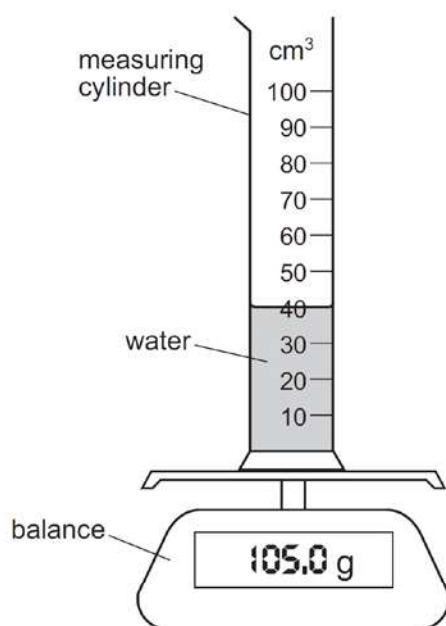
..... [1]

- (d) Suggest how the results may be affected if the variable stated in (c) is not kept constant.

.....
 [1]

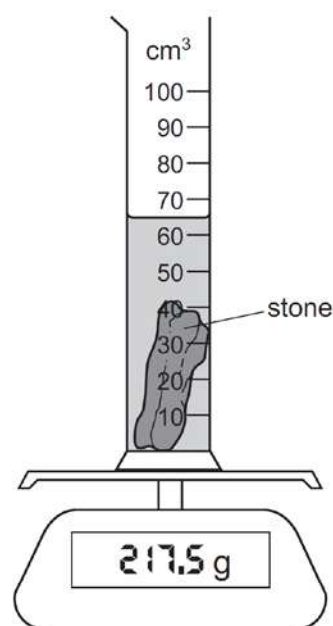
[Total: 4]

- 3 Fig. 3.1 shows a measuring cylinder containing only water, placed on an electronic balance. Fig. 3.2 shows a small, irregularly shaped stone completely immersed in the water of the same measuring cylinder.



before the stone
is immersed

Fig. 3.1



after the stone
is immersed

Fig. 3.2

- (a) State one precaution that should be taken when measuring the volume of the stone.

.....
 [1]

- (b) Determine the volume of the stone.

volume of stone = cm³ [1]

- (c) Calculate the density of the stone.

density of stone = g/cm³ [2]

- (d) Suggest if the density of water is smaller than, greater than or equal to the density of the stone. Explain your answer.

.....
 [2]

[Total: 6]

- 4 The boxes in Table 4.1 contain descriptions of four different substances, **P**, **Q**, **R** and **S**.

Table 4.1

P A grey substance that can be attracted to a magnet. It cannot be decomposed into anything simpler.	Q A white substance formed by burning magnesium with oxygen.
R A red substance that has a constant composition and decomposes into two different substances when heated.	S It is speckled green and white. The green particles dissolve in water but the white particles do not.

- (a) Identify the substances **P**, **Q**, **R** and **S** in Table 4.2.

Table 4.2

type of substance	substance(s)
element	
compound	
mixture	

[3]

- (b) Describe **one** similarity and **one** difference between substance **S** in water and salt solution other than the colour of the two substances.

.....

 [2]

[Total: 5]

- 5 A scientist analyses a food colouring X.
 The scientist also analyses four dyes A, B, C, and D.
 Fig. 5.1 shows the chromatogram produced.

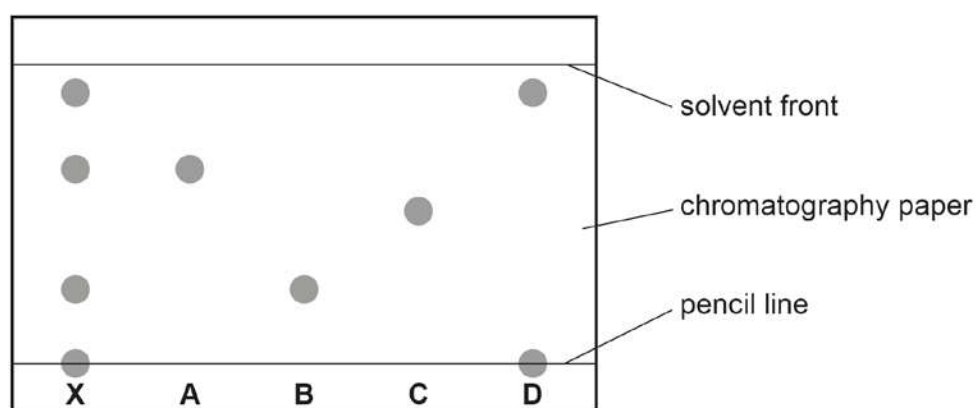


Fig. 5.1

- (a) State why the start line is drawn using pencil instead of ink.

.....
 [1]

- (b) Identify which of the dyes, A, B, C and D, are in the food colouring X.

..... [1]

- (c) One of the substances in dye D remains on the pencil line.
 Explain why.

.....
 [1]

- (d) A student claims that dye A is considered to be a mixture.
 Do you agree with him? Use the information to explain your reasoning.

.....
 [1]

- (e) State an advantage of using chromatography to identify the dyes in food colouring.

.....
 [1]

[Total: 5]

- 6 Fig. 6.1 shows a light ray passing from water into air.

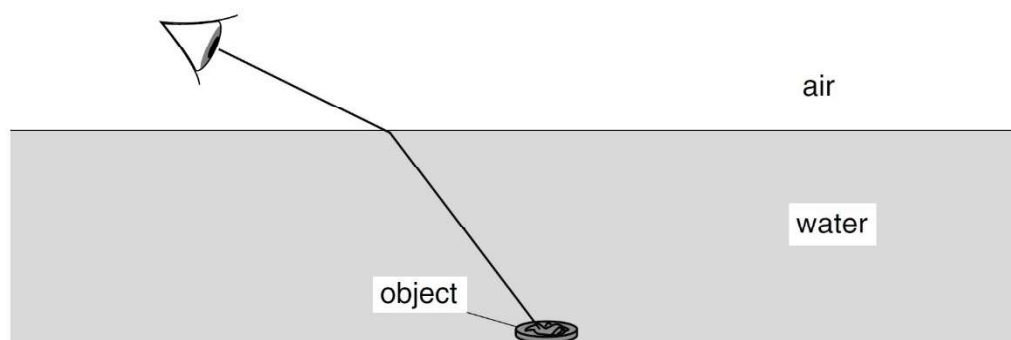


Fig. 6.1

- (a) Name this phenomenon when light ray passes between two different optical media.
 [1]
- (b) On Fig. 6.1,
 (i) mark the direction in which the light ray travels, [1]
 (ii) draw the normal and label the angle of incidence. [1]
- (c) By drawing a suitable line on Fig. 6.1, show where the object appears to be to the observer. [1]
- (d) State in which optical medium, air or water, the light ray has a greater speed. Explain your answer.

.....

 [2]

[Total: 6]

- 7 (a) State the difference between a molecule of an element and a molecule of a compound.

.....
 [1]

- (b) Fig. 7.1 represents the particles in different substances at room temperature.

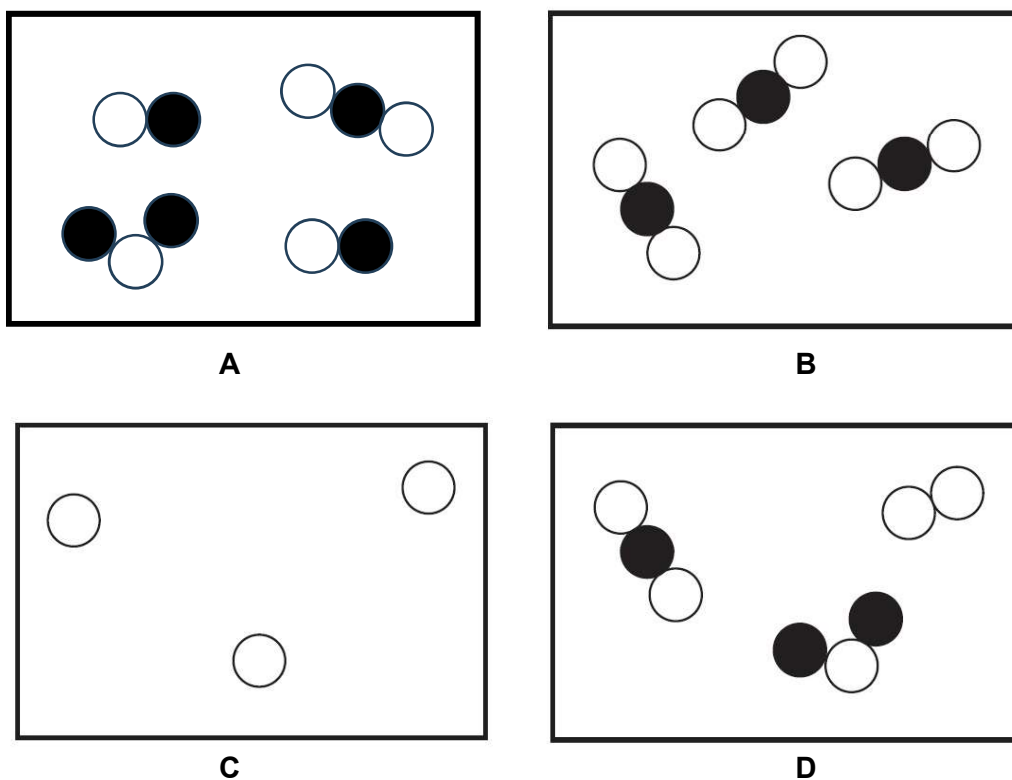


Fig. 7.1

Which diagram could represent

- (i) a gaseous element,
- (ii) a mixture of elements and compounds,
- (iii) a compound made of two different atoms,
- (iv) a mixture of compounds.

[4]

[Total: 5]

- 8 Table 8.1 shows the composition of four particles.

Table 8.1

Particle	Number of protons	Number of electrons	Number of neutrons
A	17	17	18
B	20	18	20
C	17	17	20
D	11	11	

- (a) Using the Periodic Table, fill in the number of neutrons for particle D. [1]

- (b) State the particles that are of the same element and explain how you arrive to the answer.

.....
 [2]

- (c) Explain why particle B is not a neutral atom.

.....
 [1]

- (d) State the mass number of particle C.

..... [1]
 [Total: 5]

Section C [30 marks]

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

- 1** A student wants to investigate how the smoothness of the surface of different materials affects the amount of light reflected. Table 1.1 shows the data she collected.

Table 1.1

Surface material	Smoothness of surface	Percentage of light reflected
P	Very smooth	90%
Q	Rough	55%
R	Smooth	80%
S	Very rough	38%

- (a) Using Table 1.1, state the relationship between the smoothness of the surface and the percentage of light reflected.

.....
 [1]

- (b) When parallel rays of light hit on surfaces P and S, describe how the rays of light would travel after reflection.

Material P..... [1]

Material S..... [1]

- (c) State the law of reflection.

.....
 [1]

- (d) The student wants to choose materials for making some objects. Explain which P, Q, R and S, would be most suitable for making the following objects.

- (i) mirror in the bathroom

material
 reason
 [2]

- (ii) anti-reflecting film for windows

material

reason

..... [2]

- (e) The vehicle has mirrors to help the driver see behind him. The driver sees a car in his mirror as shown on Fig. 1.2.

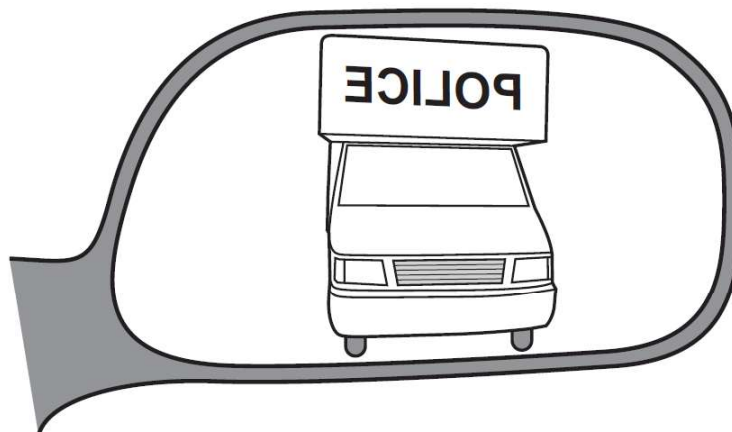


Fig. 1.2

Use Fig. 1.2 to describe **two** characteristics of an image seen in this mirror that are similar to the characteristics of an image seen in a plane mirror.

.....

..... [2]

[Total: 10]

- 2 Fig. 2.1 shows a flowering plant, and two cells from the plant.

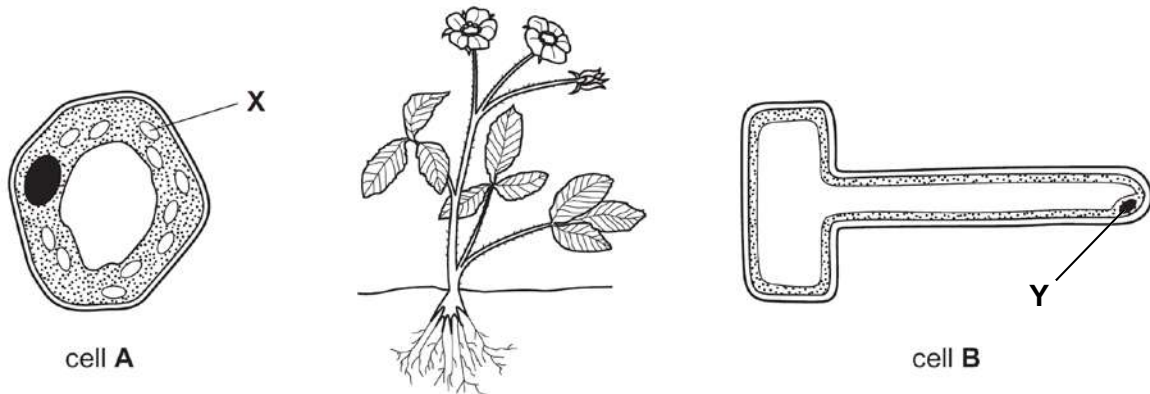


Fig. 2.1

- (a) The two cells are found in the leaf and the root of the plant. Complete the table to show where each cell can be found. [1]

part of the plant	cell
leaf	
root	

- (b) Name the structure labelled X in cell A and explain why cell A contains the structures labelled X, while cell B does not. [2]

.....

 [2]

- (c) Describe two differences between cell A and a typical animal cell. [2]

.....

 [2]

- (d) State the functions of the structure labelled Y in cell B. [2]

.....

 [2]

- (e) Explain how the root hair cells can be organised into a transport system of the flowering plant.

.....

 [3]

[Total: 10]

- 3 (a) Fig. 3.1 shows the change in temperature as a substance is heated from 25°C to 400°C.

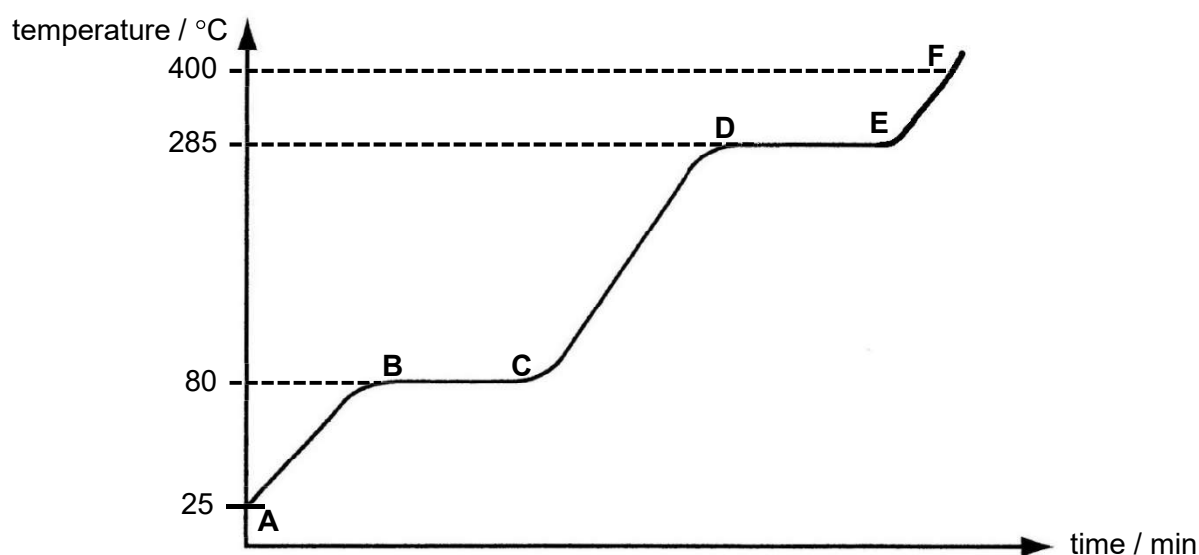
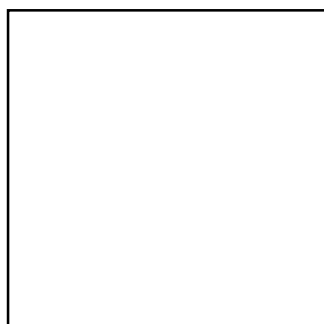
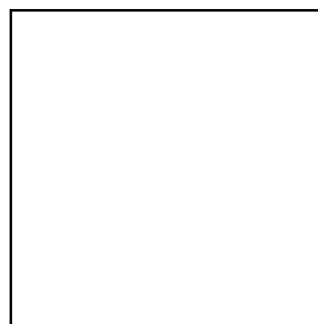


Fig. 3.1

- (i) State the melting point of this substance. °C [1]
 (ii) Draw the arrangement of the particles in this substance at solid and liquid states.



solid state



liquid state

[2]

- (iii) Explain, in terms of the particulate nature of matter, the shape of the graph at region BC.

.....

 [2]

- (iv) Describe the arrangement and movement of the particles for the substance in gaseous state.

arrangement

.....
 movement

..... [2]

- (b) A pot of water was heated from 25°C to 70°C.
 Use the particulate nature of matter to explain the following phenomenon:

- (i) volume of water increases,

.....

 [2]

- (ii) mass of water remains unchanged.

.....

 [1]

[Total: 10]

The Periodic Table of Elements

Group													
1	2											13	
Key proton (atomic) number atomic symbol name relative atomic mass						1 H hydrogen 1							
													5 B boron 11
3 Li lithium 7	4 Be beryllium 9											13 Al aluminium 27	
11 Na sodium 23	12 Mg magnesium 24	3	4	5	6	7	8	9	10	11	12		
19 K potassium 39	20 Ca calcium 40	21 Sc scandium 45	22 Ti titanium 48	23 V vanadium 51	24 Cr chromium 52	25 Mn manganese 55	26 Fe iron 56	27 Co cobalt 59	28 Ni nickel 59	29 Cu copper 64	30 Zn zinc 65	31 Ga gallium 70	
37 Rb rubidium 85	38 Sr strontium 88	39 Y yttrium 89	40 Zr zirconium 91	41 Nb niobium 93	42 Mo molybdenum 96	43 Tc technetium —	44 Ru ruthenium 101	45 Rh rhodium 103	46 Pd palladium 106	47 Ag silver 108	48 Cd cadmium 112	49 In indium 115	
55 Cs caesium 133	56 Ba barium 137	57–71 lanthanoids	72 Hf hafnium 178	73 Ta tantalum 181	74 W tungsten 184	75 Re rhenium 186	76 Os osmium 190	77 Ir iridium 192	78 Pt platinum 195	79 Au gold 197	80 Hg mercury 201	81 Tl thallium 204	
87 Fr francium —	88 Ra radium —	89–103 actinoids	104 Rf rutherfordium —	105 Db dubnium —	106 Sg seaborgium —	107 Bh bohrium —	108 Hs hassium —	109 Mt meitnerium —	110 Ds darmstadtium —	111 Rg roentgenium —	112 Cn copernicium —		

lanthanoids

57 La lanthanum 139	58 Ce cerium 140	59 Pr praseodymium 141	60 Nd neodymium 144	61 Pm promethium –	62 Sm samarium 150	63 Eu europium 152	64 Gd gadolinium 157	65 Tb terbium 159	66 Dy dysprosium 163	67 Ho holmium 165
89 Ac actinium –	90 Th thorium 232	91 Pa protactinium 231	92 U uranium 238	93 Np neptunium –	94 Pu plutonium –	95 Am americium –	96 Cm curium –	97 Bk berkelium –	98 Cf californium –	99 Es einsteinium –

actinoids





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WOODLANDS SECONDARY SCHOOL
End of Year Examination 2024
MARKING SCHEME

Level: Sec One

Marks: 100

Stream: G3

Date: 4 October 2024

Subject: Lower Secondary Science

Day: Friday

Section A MCQ (30 marks)

1	2	3	4	5	6	7	8	9	10
B	C	A	C	D	B	C	A	D	B
11	12	13	14	15	16	17	18	19	20
A	B	C	B	C	C	B	D	D	B
21	22	23	24	25	26	27	28	29	30
D	D	A	A	D	D	C	A	D	B

Section B (40 marks)

1	Total = 4
(a)	Explanation: By not wearing safety goggles, the chemical may spurt and enter her eyes. [1] AND Explanation: The food may be contaminated and unsafe for consumption. [1]
(b)	Non-luminous flame. [1] It is hotter / steadier / produces less soot. [1]

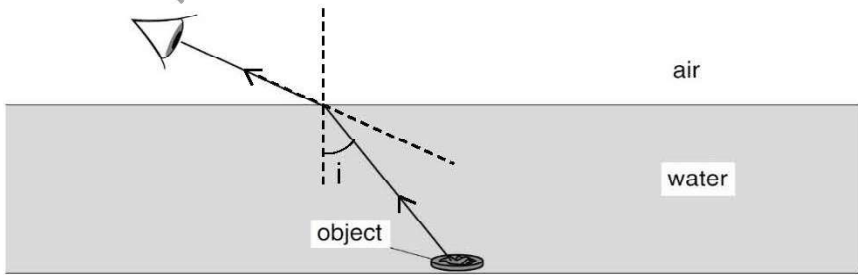
2	Total = 4
(a)	The hypothesis is that drinking different brands of fizzy drinks has varying effects on their / humans' heart rates. OR Drinking different brands of fizzy drinks increase heart rates of humans. OR Brand G/H increases the heart rates. OR Brand H increases heart rates more than Brand G. [1]
(b)	Brand of fizzy drink [1]
(c)	Any one of the following: - The same volume of fizzy drink must be drunk. - Drinking speed must be kept constant - Time taken to finish the drink - The student drinking the fizzy drink [1]
(d)	- Different volumes of fizzy drinks might have different effects. (i.e. greater volume might produce greater heart rate) - The speed of drinking the fizzy drinks might have different effects of the heart rates. (i.e. drinking faster might absorb faster into the blood stream.) - Rate at which the drinks are absorbed into the blood stream might be different.

	- The students drinking the fizzy might have different body composition like bodyweight, metabolism, type of food eaten beforehand etc.	[1]
--	---	-----

3	Total = 6	
(a)	Lower the stone gently so that water will not splash out of the measuring cylinder. OR The readings should be taken at eye level to avoid parallax error.	[1]
(b)	$65 - 40 = 25 \text{ cm}^3$	[1]
(c)	mass = $217.5 - 105 \text{ g} = 112.5 \text{ g}$ density = mass $\div$ volume = $112.5 \div 25$ = 4.5 g/cm^3	[1] [1]
(d)	Density of water is less than the density of the stone as the stone sinks in water.	[1] [1]

4		Total = 5
(a)	P Q, R S 1 mark for each row	[1] [1] [1]
(b)	Similarity: Both S and salt solution are mixtures. Difference: S forms a suspension when mixed with water but salt solution is a solution. OR Green particles is soluble but white is not in S but salt is entirely soluble in water.	[1] [1]

5	Total = 5	
(a)	The line does not dissolve in the solvent, and be separated too which might contaminate the chromatogram	[1]
(b)	A, B and D	[1]
(c)	The substance is insoluble in the solvent.	[1]
(d)	No as dye A consists of only one component, which need not be physically separated by paper chromatography	[1]
(e)	Only a small amount of colouring is needed. OR The process is quick / low cost / provides precise separation OR Simple to use or easy procedures (without the use of large devices).	[1]

6	Total = 6	
(a)	refraction	[1]
(b)	 The diagram illustrates the refraction of light as it passes from water into air. A horizontal line separates the 'air' region (top) from the 'water' region (bottom, shaded). A vertical dashed line represents the normal. An 'object' (a coin) is at the bottom of the water. A light ray originates from the object, travels upwards through the water, and hits the water-air interface at an angle of incidence labeled 'i'. Upon exiting the water into the air, the ray bends away from the normal. An observer's eye, located in the air, sees the ray as if it came from a shallower depth, indicated by a dashed line extending backwards from the ray in the air.	[1] [1] [1]
(c)	Air Since the light bends away from the normal as it exits water, it speeds up.	[1] [1]

	Will not award first mark if explanation is incorrect.	
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7		Total = 5
(a)	A molecule of an element consists of only one type of atoms that are chemically combined. A molecule of a compound consists of two or more types of atoms that are chemically combined.	[1]
(b)	(i) C	[1]
	(ii) D	[1]
	(iii) B	[1]
	(iv) A	[1]

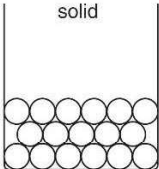
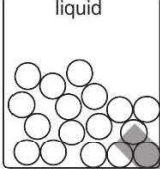
8		Total = 5
(a)	12	[1]
(b)	Particle A and C since they have the same number of protons.	[1]
(c)	The number of protons is more than / not the same as the number of electrons.	[1]
(d)	37	[1]

Section C (30 marks)

1		Total = 10
(a)	The smoother the material, the higher the percentage of light being reflected.	[1]
(b)	Material P – The reflected rays will be almost / nearly parallel OR The light rays will be reflected in the same direction. Material S – The reflected rays will be in different directions.	[1]
(c)	The angle of incidence is equal to the angle of reflection.	[1]
(d)(i)	Material P It can reflect 90% / most of the light and very smooth, which will give a clear image of the mirror.	[1]
(d)(ii)	Material S It only reflects 38% / least of the light.	[1]
(e)	Laterally inverted, upright and virtual Any 2, 1 mark each	[2]

2		Total = 10						
(a)	<table><tr><td>part of the plant</td><td>cell</td></tr><tr><td>leaf</td><td>A</td></tr><tr><td>root</td><td>B</td></tr></table> Both correct 1 mark	part of the plant	cell	leaf	A	root	B	[1]
part of the plant	cell							
leaf	A							
root	B							
(b)	structure X is a chloroplast; It is for photosynthesis; cell B does not have them because it is underground / gets no light :	[1] [1]						

(c)	A typical animal cell does not have cell wall but cell A has a cell wall	[1]
	A typical animal cell does not have chloroplast but cell A has chloroplasts	[1]
	A typical animal cell has many small vacuoles whereas cell A has few and large vacuole.	
	Any two of the above, 1 mark each	
(d)	Controls all activities that occur within the cell and	[1]
	Contains DNA that passed down from parents to off spring	[1]
(e)	Root hair cells have a specific function. Many root hair cells make up the root tissue and perform the same function.	[1]
	Many different tissues working together to perform the same function to make up the root as an organ.	[1]
	Many different organs, like root, work together to perform the specific function of transporting substances around the plant.	[1]
		[1]

3		Total = 10
(a)(i)	80°C	[1]
(a)(ii)	solid  liquid 	[1] [1]
(a)(iii)	The particles gain energy and vibrate faster about their fixed positions.	[1]
	They gain enough energy to overcome the very strong forces of attraction between them.	[1]
(a)(iv)	Arrangement - Very far apart and in disorderly manner;	[1]
	Movement - Moves freely and randomly at high speeds/quickly	[1]
(b)(i)	The energy absorbed is used to make the particles moves faster;	[1]
	The distances/spaces between the particles increases.	[1]
(b)(ii)	Size of particles / number of particles remain unchanged	[1]