9

KUO CHUAN PRESBYTERIAN SECONDARY SCHOOL

2016 MID YEAR EXAMINATION

Secondary 2 Express

NAME _____

CLASS _____ **REG. NO** _____

LOWER SECONDARY SCIENCE

5 May 2016

2 hour

Additional Materials: Multiple Choice Answer Sheet

Setter: Mr. Joseph Chung

READ THESE INSTRUCTIONS FIRST

Write your name, class and register number on all the work you hand in.

This paper consists of 3 sections.

Section A consists of 30 multiple-choice questions.
Answer **all** questions.
For each question, choose the most appropriate answer and shade the letter corresponding to the answer in soft 2B pencil on the separate Multiple Choice Answer Sheet.

Section B consists of 8 structured questions.
Answer **all** questions in dark blue or black pen in the space provided on the Question Paper.

Section C consists of 3 free response questions.
Answer **all** questions in dark blue or black pen in the space provided on the Question Paper.

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	

.....
Parent's signature/ Date

This document consists of **31** printed pages, including the cover page.

[Turn over

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Section A (30 marks)

*Answer **ALL** questions in this section.*
Shade the letter corresponding to the answer in soft 2B pencil on the separate Multiple Choice Answer Sheet.

1 Light travels at different speeds in different mediums. Which of the following represents the decreasing speed of light in the respective mediums?

A air, water, glass

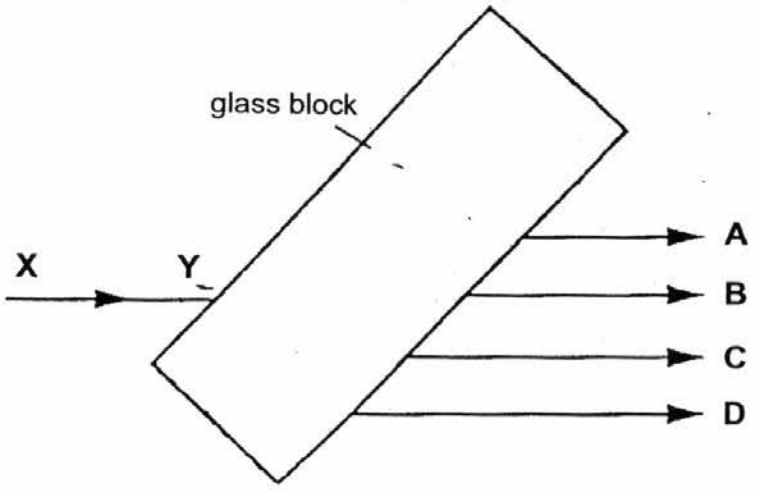
B air, glass, water

C glass, water, air

D water, air, glass

2 **XY** is a ray of light that passes through the rectangular glass block.

Which of the four rays, A, B, C, D shown is most likely to represent the path of the light ray emerging from the glass block after refraction?



3 The formation of a rainbow is the result of light undergoing

A deflection.

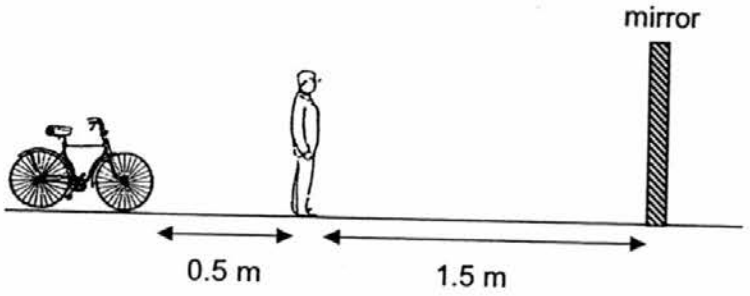
B dispersion.

C irregular reflection.

D regular reflection.

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4 Anthony stands in front of a mirror that is placed 1.5 m away from him. He sees a bicycle that is 0.5 m behind him.



What is the distance from his eyes to the image of the bicycle?

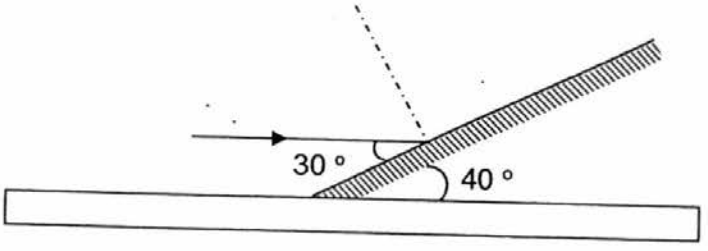
A 0.5 m

B 1.5 m

C 3.0 m

D 3.5 m

5 The diagram below (not drawn to scale) shows a mirror that is tilted at an angle of 40 ^{0} to the bench. A ray of light is shone at an angle of 30 ^{0} to the surface of the mirror.



What is the angle of reflection?

A 30 °

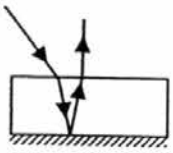
B 40 °

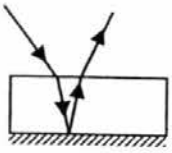
C 60 °

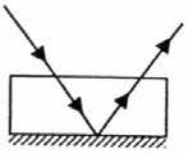
D 70 °

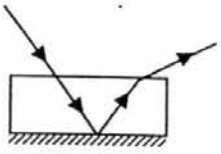
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6 The bottom surface of a glass block is silvered to act as a mirror. Which diagram could represent the path of a light ray which enters this glass block through the top surface?

A 

B 

C 

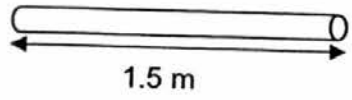
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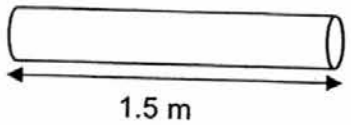
7 Which of the following is **not** the correct representation of the SI unit for the respective measurements?

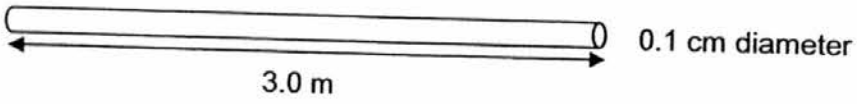
	measurement	SI unit
A	current	ampere
B	resistance	ohm
C	potential difference	volts
D	energy	kilowatt

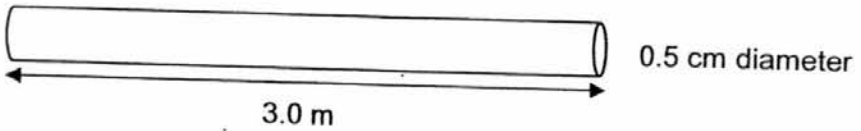
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8 The diagram below shows four wires of different dimensions made from the same metal. Which of the following has the **lowest** electrical resistance?

A 

B 

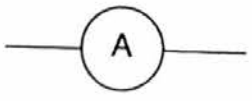
C 

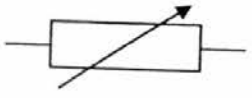
D 

9 Which of the following electrical component can be used to vary the brightness of a light bulb in a circuit?

A 

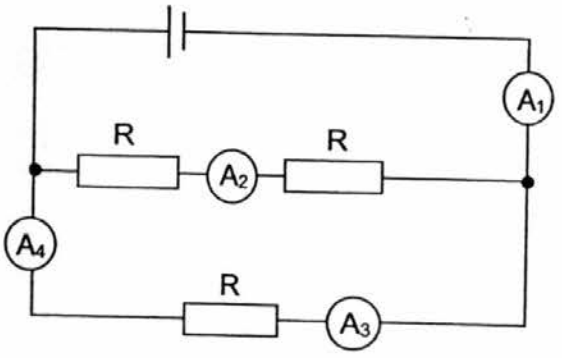
B 

C 

D 

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10 The diagram shows an electric circuit with three identical fixed resistors R.



Which ammeter has the largest reading?

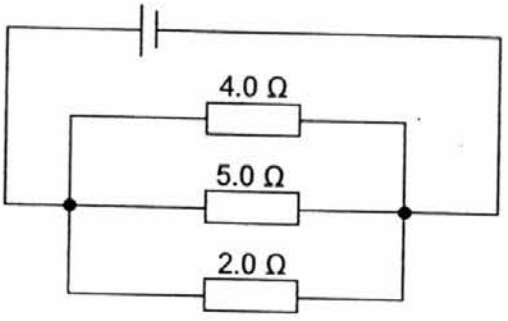
A A_1

B A_2

C A_3

D A_4

11 The diagram below shows three resistors that are connected in a parallel circuit.



What is the total resistance of the circuit?

A 0.09 Ω

B 0.95 Ω

C 1.05 Ω

D 11.0 Ω

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12 Which of the following precautions should be taken to prevent electrocution?

i. never insert any item into the electrical socket

ii. never use electrical gadgets in wet places

iii. overload an electrical socket

iv. replace worn out insulation of electrical wiring

A i and ii only

B i, ii and iv only

C ii, iii and iv only

D all of the above

13 What is the purpose of boiling chips in the distillation process?

A to ensure smooth boiling of the solution

B to produce more distillate

C to slow down the boiling process of the solution

D to speed up the boiling process of the solution

14 Which of the following are advantages of paper chromatography?

i. only a small amount of sample is required

ii. fast and accurate analysis can be given

iii. able to separate complex mixtures into its various components

A i only

B i and ii only

C ii and iii only

D all of the above

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15 Which method can be used to obtain iron filings from a mixture of iron and sulfur?

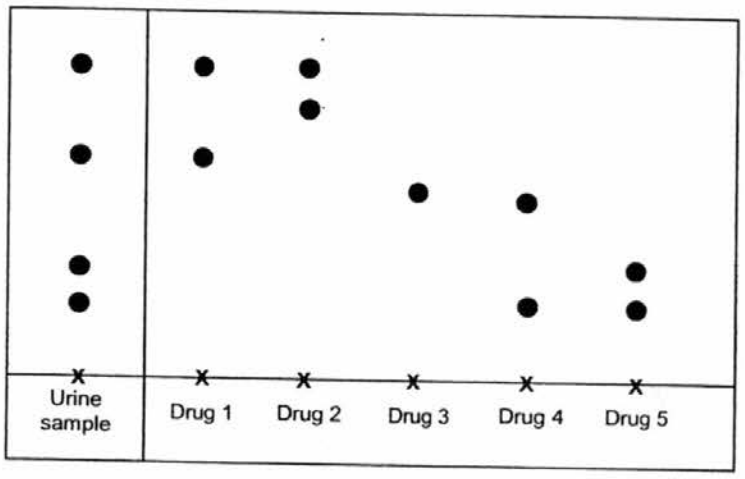
A add water to the mixture, stir and filter

B heat the mixture

C use electric current to pass through the mixture

D use magnetic attraction

16 Paper chromatography is often used to test for the presence of drugs in an athlete's urine sample. The diagram below shows the paper chromatogram of an athlete.



Which drugs are present in the urine sample of the athlete?

A Drug 1 and Drug 3

B Drug 1 and Drug 5

C Drug 1, Drug 3 and Drug 5

D Drug 1, Drug 4 and Drug 5

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17 Pure water can be obtained from sandy sea water. Which process needs to be carried out to obtain pure water after the sea water is filtered?

A evaporation to dryness

B paper chromatography

C simple distillation

D sublimation

18 Overhead electricity cables are often hung loosely from pole to pole. Which of the following explains why they are installed this way?

A to allow more room for expansion of cables

B to decrease the electrical conductivity

C to increase the electrical conductivity

D to prevent the cables from snapping due to contraction in cold weather

19 In the process of conduction, energy is transferred

A because of density differences in a liquid.

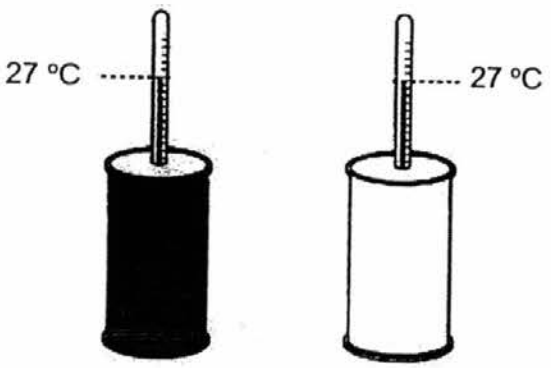
B because of temperature differences in a solid.

C by the diffusion of particles through a liquid.

D by the vibration of particles in a solid.

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20 Two cans of the same shape and material are filled up with equal volume of water at 27 °C. One can is a dull, black can while the other is a silvery, shiny can. The two cans are placed under the sun for 30 minutes.



dull, black can silvery, shiny can

Which of the following represents the correct observation after 30 minutes?

A The temperature rise in both cans will be the same.

B The temperature in both cans will remain the same at 27 °C.

C The temperature rise in the dull, black can will be more than that of the silvery, shiny can.

D The temperature rise in the dull, black can will be less than that of the silvery, shiny can.

21 A woolen jacket filled with wool helps to keep a person warm in cold climate. How does the wool keep the person warm?

A The wool generates high temperature.

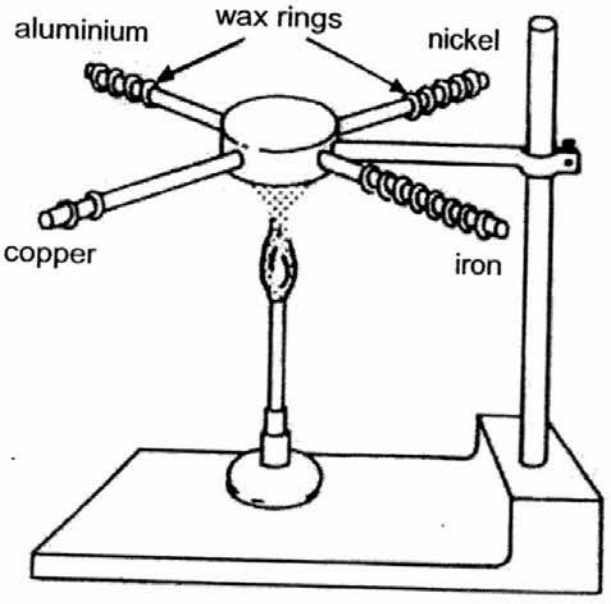
B The wool helps to prevent heat loss by convection.

C The wool is a good absorber of heat.

D The wool traps air, which is a good insulator of heat.

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22 David sets up an experiment to investigate the heat conductivity of four different types of metals. All the metals started with the same number of wax rings at the start of the experiment. After 15 minutes, the diagram below shows the observation made by David.



Based on the information given above, arrange the metals in decreasing order of their heat conductivity.

A copper > aluminium > nickel > iron

B copper > nickel > aluminium > iron

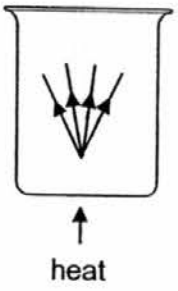
C iron > aluminium > nickel > copper

D iron > nickel > aluminium > copper

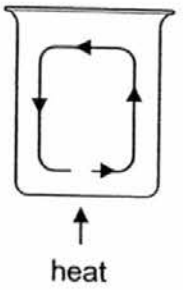
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23 Which of the following diagrams show the correct representation of the convection current in a beaker of boiling liquid?

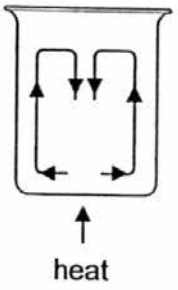
A



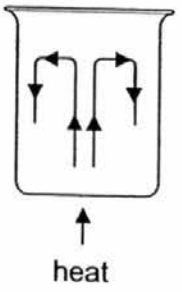
B



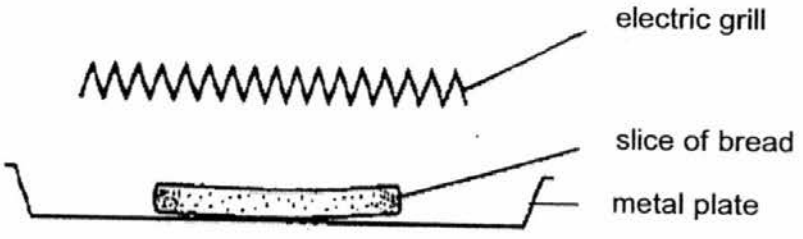
C



D



24 A slice of bread is placed on a metal plate under an electric grill to make a toast.



How does the heat reach the bread?

A by conduction only

B by radiation only

C by conduction and radiation only

D by conduction, convection and radiation

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25 Which of the following statements about sound is **not** true?

A Sound travels in the form of wave.

B The average hearing range of an adult human is between 20 Hz to 20,000 Hz.

C The lower the frequency, the higher the pitch of sound produced.

D The speed of sound in air is 330 m/s.

26 A tuning fork has a frequency of 30 Hz. Which of the following statements about the tuning fork is **true**?

A The tuning fork takes 1 minute to produce 30 vibrations.

B The tuning fork takes 1 second to produce 30 vibrations.

C The tuning fork takes 30 minutes to produce 1 vibration.

D The tuning fork takes 30 seconds to produce 1 vibration.

27 The sound wave from the guitar has a lower frequency than the sound wave produced by a trumpet. However, the sound wave produced by the trumpet has a higher amplitude than the sound wave produced by the guitar.

Which of the following correctly represents the pitch and volume of the sound wave made by the guitar and the trumpet?

	lower pitch	lower volume
A	guitar	guitar
B	guitar	trumpet
C	trumpet	guitar
D	trumpet	trumpet

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28 The time taken for sound to travel in a thin iron rod of length 320 m is 0.1 seconds. What is the speed of sound in iron metal?

A 0.0003125 m/s

B 32 m/s

C 320 m/s

D 3200 m/s

29 A ship sends sound wave vertically downwards to the sea bed. The time taken to detect the echo is 1.5 seconds. If the speed of sound in water is 1500 m/s, what is the depth of the sea?

A 1125 m

B 2250 m

C 4500 m

D 9000 m

30 In which of the following scenarios does sound travel the fastest?

A drilling through the wall

B explosion in space

C shouting across the hall

D sonar that measures the depth of the ocean

- End of Section A -

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Name: _____ ( ) **Class:** _____

Section B (40 marks)

*Answer **ALL** questions in this section.*
Show your working and write your answers in the space provided.

1 Fig. 1.1 shows a triangle **ABC** placed in front of a plane mirror.

(a) Draw and label the image **A'B'C'** formed behind the mirror. [2]

(b) Show, by drawing **two** light rays from point **B** of the object, how the image is being formed. [2]

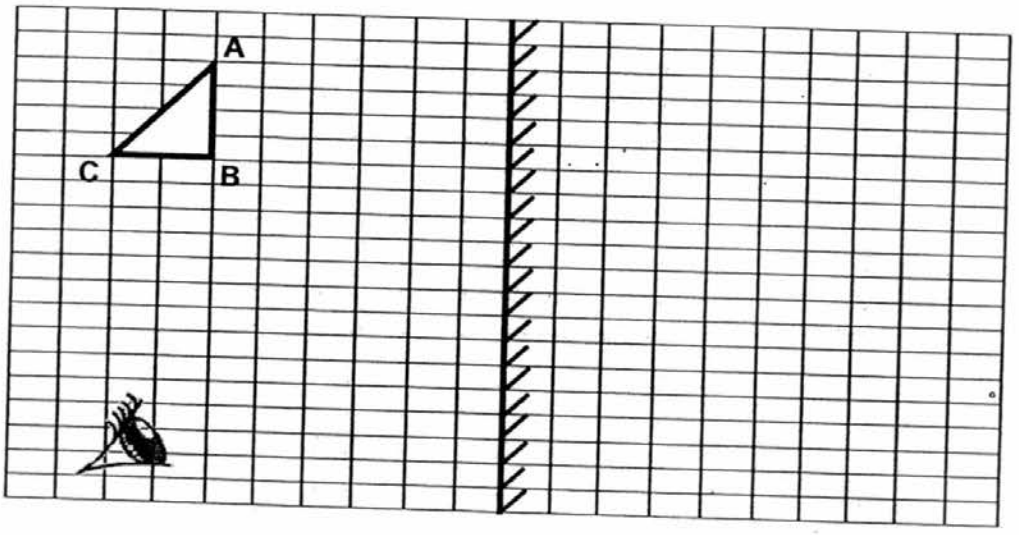


Fig. 1.1

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2 Fig. 2.1 shows the electrical system of a hot water heater.

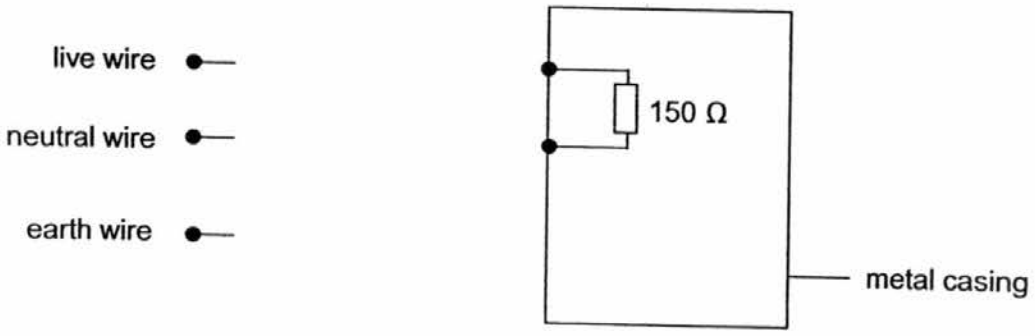


Fig. 2.1

(a) On Fig. 2.1, complete the electrical system by connecting the following:

(i) the live, neutral and earth wires to the hot water heater [2]

(ii) the fuse to the hot water heater. Label the fuse in your drawing. [1]

(b) A voltage of 240 V is applied across the hot water heater. The heating element has a resistance of 150 Ω. Calculate the amount of current passing through the heating element.

[2]

(c) Suggest a material that can be used as the heating element. Explain why.

.....

.....

..... [2]

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3 Fig. 3.1 shows a circuit diagram.

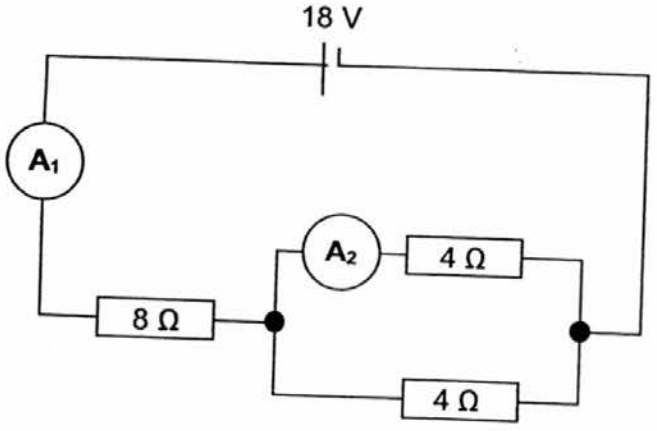


Fig. 3.1

(a) Calculate the total resistance of the circuit.

Total resistance = ... [2]

(b) Calculate the reading of the current that will be shown on ammeter A_1.

Reading on ammeter A_1 = ... [1]

(c) Calculate the reading of the current that will be shown on ammeter A_2.

Reading on ammeter A_2 = ... [1]

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4 Table 4.1 shows the power ratings of each air-conditioner unit and each electric fan used in the household.

Table 4.1

appliance	power rating	number of hours used per day
air-conditioner	1600 W	7 hours
electric fan	125 W	10 hours

A family uses three air-conditioner units and three electric fans to keep their house cool.

(a) Calculate the total amount of electrical energy used in kWh in the household per day.

[3]

(b) The cost of using one unit of electrical energy is $0.20. Calculate the total cost of electricity used per day.

[1]

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5 Aaron accidentally mixed two liquids, **X** and **Y** together. Liquid **X** has a boiling point of 50 °C, while liquid **Y** has a boiling point of 86 °C. To separate the two liquids, he set up the apparatus as shown in Fig. 5.1.

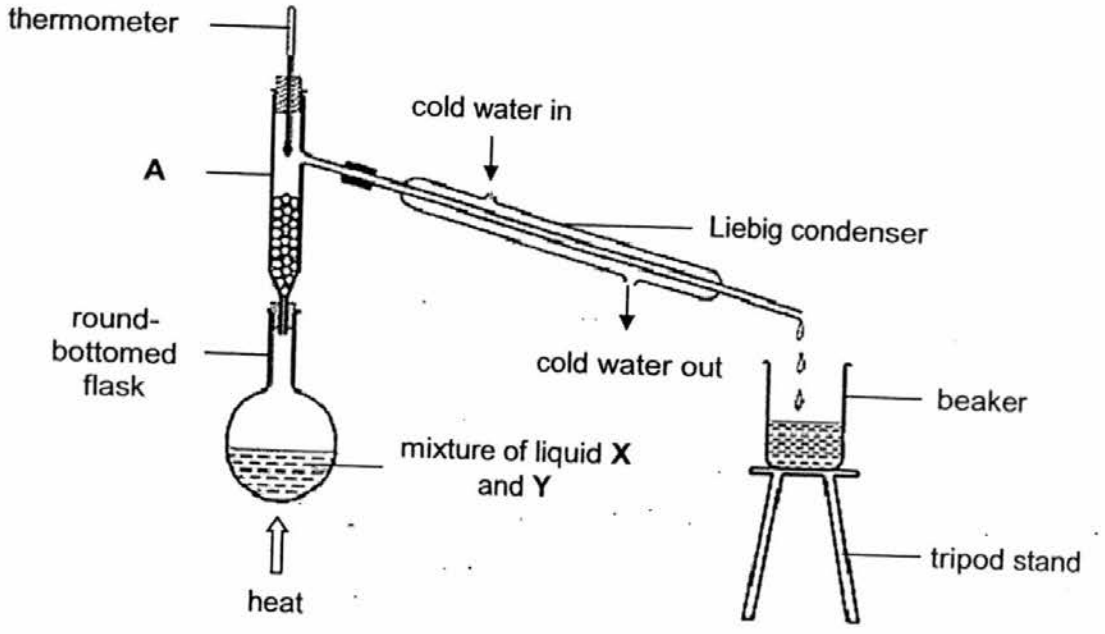


Fig. 5.1

(a) Name this separation technique.

..... [1]

(b) Identify apparatus **A** and state its function.

A: .....

Function of **A**: .....

.....

..... [2]

(c) State which liquid will be collected in the beaker first. Explain why.

.....

.....

..... [2]

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(d) Aaron made a mistake when setting up the apparatus shown in Fig. 5.1. Identify the mistake made and explain how this will affect his separation.

.....

.....

.....

..... [2]

6 Fig. 6.1 shows a vacuum flask which keep water hot for a long period of time.

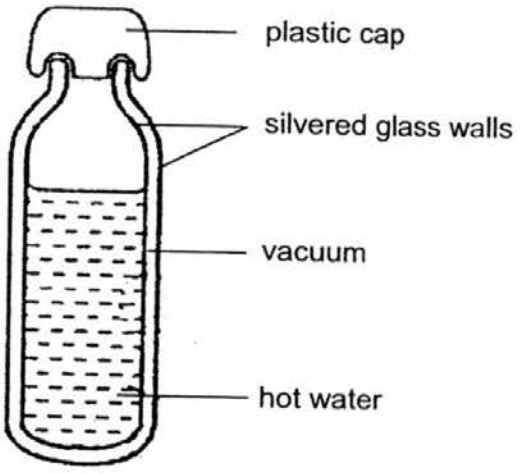


Fig. 6.1

Explain how the following features of the vacuum flask is able to help keep the water hot for a long period of time.

(a) plastic cap

.....

.....

.....

..... [2]

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(b) silvered glass walls

.....

.....

.....

..... [2]

(c) vacuum

.....

.....

.....

..... [2]

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7 Fig. 7.1 shows the cooling system of a refrigerator.

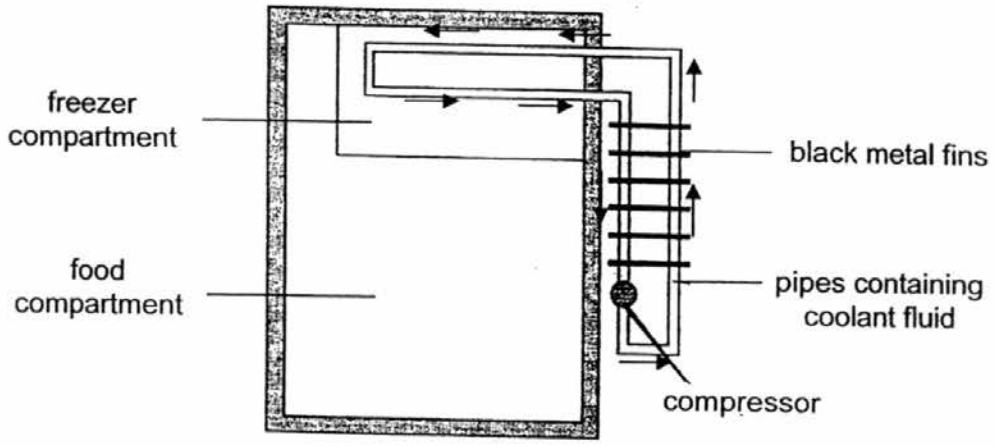


Fig. 7.1

To keep the items in the refrigerator cool, the compressor pumps a coolant fluid through the pipes. The coolant fluid goes to the top part of the refrigerator where it will take heat out of the freezer compartment. Once the coolant fluid exits the refrigerator, the heat is given off into the surroundings at the back of the refrigerator through the black metal fins.

(a) Explain how this process helps to keep the refrigerator cool.

.....

.....

.....

.....

..... [2]

(b) Explain why the metal fins are black.

.....

.....

..... [2]

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8 Fig. 8.1 shows the displacement-time graph of a sound wave over time.

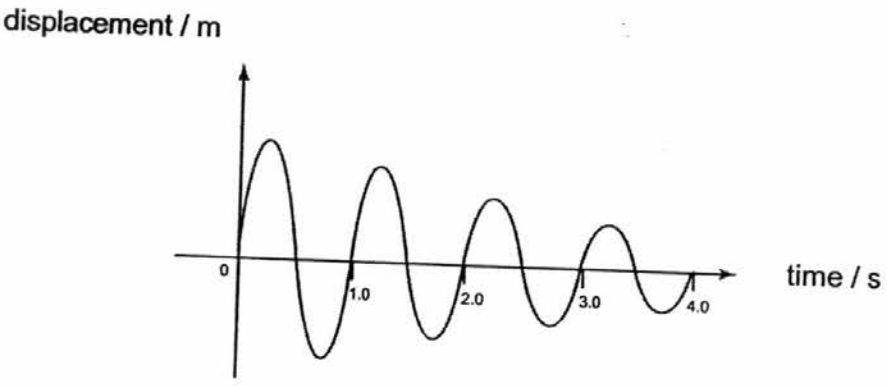


Fig. 8.1

(a) With reference to Fig. 8.1, what can you conclude about the pitch of the sound wave? Explain why.

.....

.....

..... [2]

(b) With reference to Fig. 8.1, what can you conclude about the volume of the sound wave? Explain why.

.....

.....

..... [2]

- End of Section B -

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Name: _____ ( )

Class: _____

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Q 9		Q 11	
Q 10		Total	

Section C (30 marks)

*Answer **ALL** questions in this section.*
*Each question carries **10 marks**.*
Show your working and write your answers in the space provided.

9 **(a)** Fig. 9.1 shows how purple food colouring solution is made from purple cabbage.

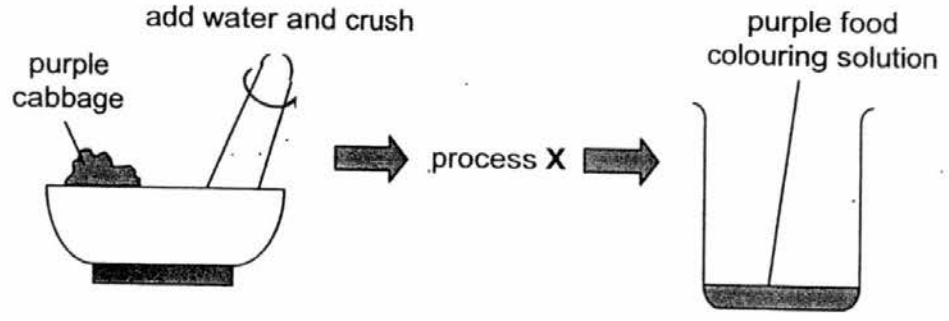


Fig. 9.1

After crushing the purple cabbage, process **X** was carried out to remove the unwanted solid cabbage parts from the purple food colouring solution.

(i) Name process **X**.

..... [1]

(ii) Describe how process **X** is able to separate the unwanted solid cabbage parts from the purple food colouring solution. Identify the residue and filtrate in your answer.

.....

.....

.....

..... [2]

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(b) The purple food colouring solution was analyzed using paper chromatography. Fig. 9.2 and Fig. 9.3 shows two different paper chromatograms, with different solvents being used.

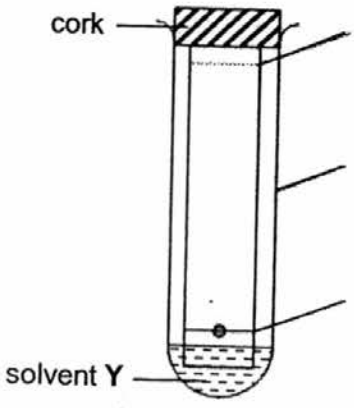


Fig. 9.2

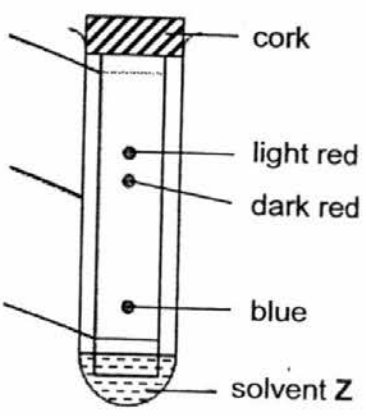


Fig. 9.3

(i) Compare Fig. 9.2 and Fig. 9.3. State which of the following solvent (**Y** or **Z**) is the purple food colouring soluble in? Explain why.

.....

.....

..... [2]

(ii) Explain why ink should **not** be used to draw the starting line.

.....

..... [1]

(iii) State whether the purple food colouring is a pure substance or a mixture. Explain why.

.....

.....

..... [2]

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(c) A few drops of the purple food colouring solution are placed in the centre of a filter paper as shown in Fig. 9.4. After the solution has dried, solvent **Z** is added to the centre of the paper.

On Fig. 9.4, draw and label the different coloured components present in the purple food colouring to show the paper chromatogram that will be obtained with this set-up. [2]

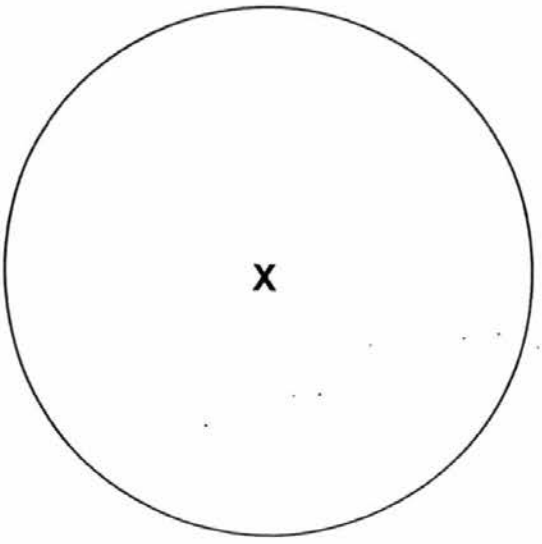


Fig. 9.4

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10 (a) Fig. 10.1 shows a bimetallic strip which is made up of two metals attached firmly to each other. Metal **X** expands at a faster rate than metal **Y** when heated and contracts at a faster rate than metal **Y** when cooled.



Fig. 10.1

In the space provided below, draw and label how the bimetallic strip will look like **(i)** when heated and **(ii)** when cooled.

(i) when heated	**(ii)** when cooled

[2]

(b) Brian wanted to use the same type of bimetallic strip to construct a fire alarm system for his science project. Fig. 10.2 shows an example of his fire alarm.

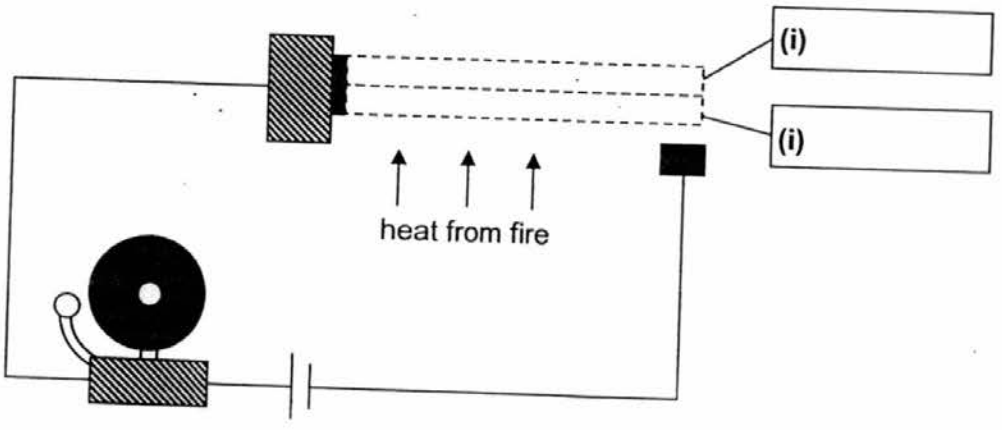


Fig. 10.2

(i) In the boxes in Fig. 10.2, label the correct positions of the metals (metal **X** and metal **Y**) on the bimetallic strip that will allow the fire alarm to function properly. [1]

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(ii) With reference from Fig. 10.2, explain how the fire alarm works when a fire is detected.

.....

.....

.....

.....

.....

..... [3]

(iii) Suggest an identity for metal **X** and metal **Y**.

metal **X** .....

metal **Y** ..... [2]

(iv) State **one common** physical property of the two metals used in the bimetallic strip.

..... [1]

(v) State **one** other use of bimetallic strips.

..... [1]

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11 (a) Fig. 11.1 shows a bell-jar experiment set up by Student **A** to investigate how sound travels through a medium. The vacuum pump gradually removes the air from the bell-jar when it is switched on.

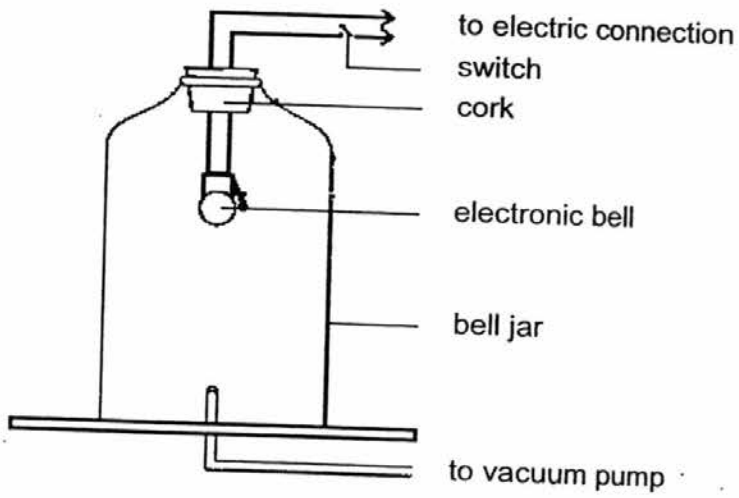


Fig. 11.1

(i) What will happen when Student **A** switched on the electronic bell, with the presence of air inside the bell jar?

.....

..... [1]

(ii) State what happens when Student **A** switched on the vacuum pump?

.....

..... [1]

(iii) What conclusion can you draw from this experiment?

.....

..... [1]

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(b) Fig. 11.2 shows two students, **A** and **B**, standing in front of a wall. Student **A** claps his hands once. Student **B** hears two sounds – the clap followed by an echo.

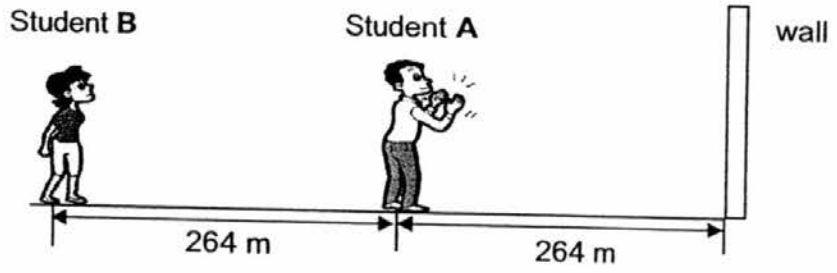


Fig. 11.2

Given that speed of sound in air is 330 m/s, calculate the time interval between the two sounds.

[3]

(c) **(i)** Define frequency and state its SI unit.

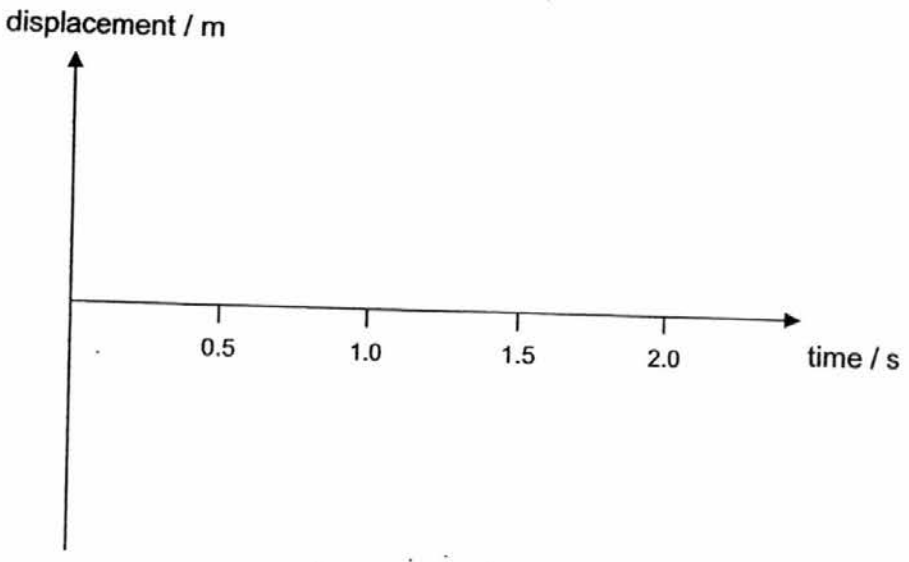
.....

.....

..... [2]

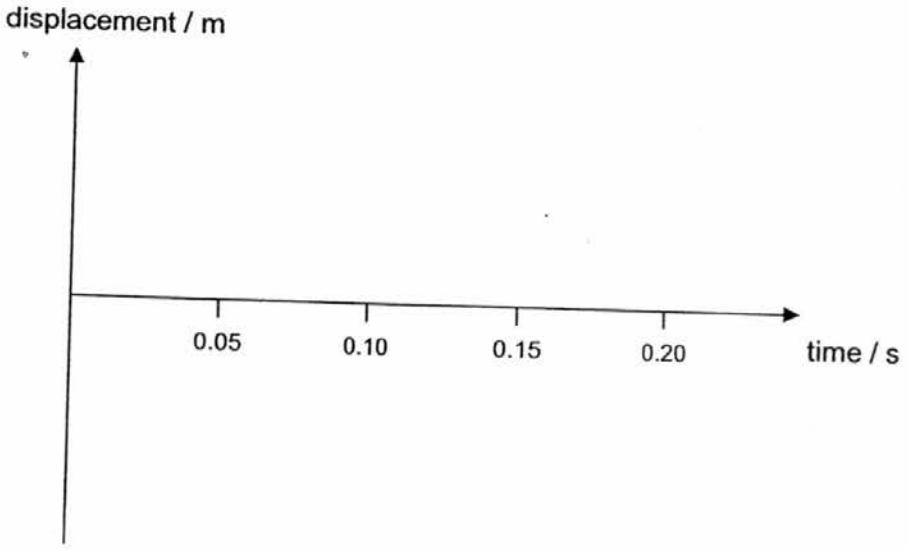
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(ii) The frequency of a sound wave is 2 Hz. Sketch the displacement-time graph.



[1]

(iii) The frequency of a sound wave is increased to 10 Hz. Sketch the new displacement-time graph.



[1]

- End of Paper -

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KUO CHUAN PRESBYTERIAN SECONDARY SCHOOL
SECONDARY TWO EXPRESS
GENERAL SCIENCE
MID-YEAR EXAMINATION 2016
Answer Scheme

Section A – Multiple Choice Questions (30 marks)

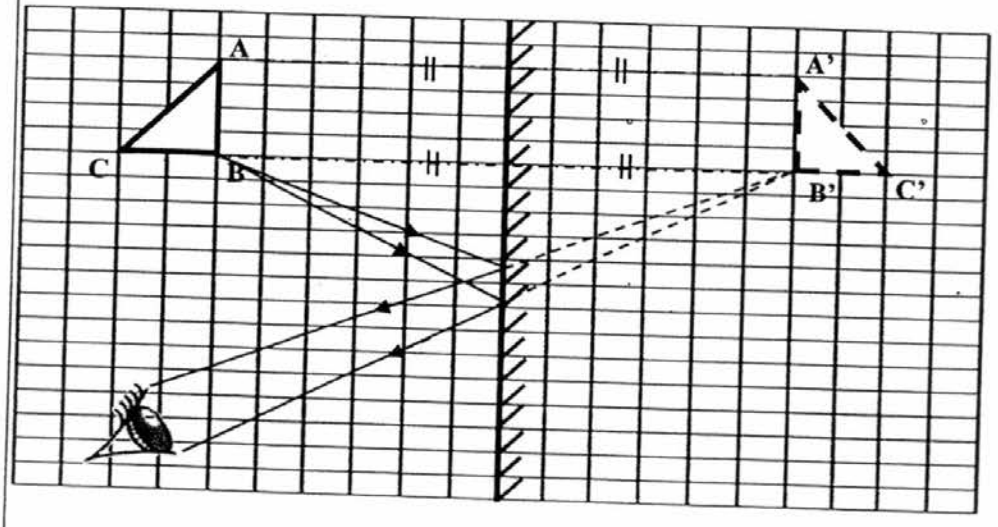
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
A	C	B	D	C	B	D	B	D	A

Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
C	B	A	D	D	B	C	D	D	C

Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
D	A	D	C	C	B	A	D	A	A

Section B Structured Questions (40 marks)

1

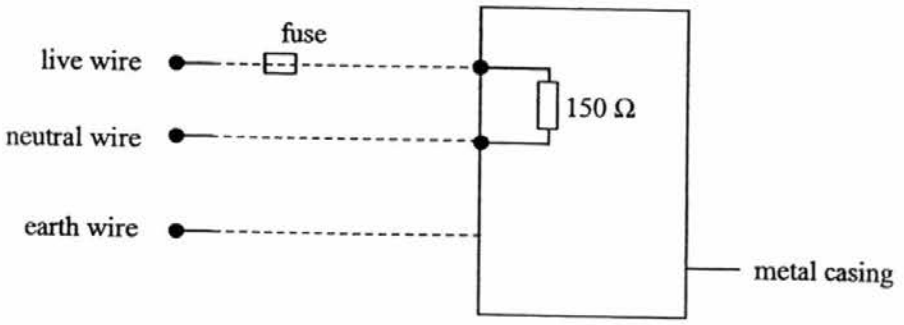


(a) 1m for correct labeling of image; 1m for same size and shape of image with correct distance

(b) 1m for two light rays from point B with correct arrows; 1m for dotted lines behind mirror (not from Point B – no marks awarded)

Total: 4m

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2	ai / ii		(i) 1m for correct connection of live wire and neutral wire (i) 1m for correct connection of earth wire to metal casing * -1m from part (i) if any other additional connection were drawn (ii) 1m for correct positioning of fuse with label
	b	V = IR I = 240 V / 150 Ω I = **1.6 A**	1 1 (minus 1m if no/wrong units) * no marks if answer in fractions
	c	Nichrome Nichrome has a **high resistance**, therefore a **higher amount of heat** can be generated. *OR* Nichrome has a **high melting point** to **withstand the heat** generated by the hot water heater.	1 1
			Total: 7m
3	a	Effective resistance of parallel circuit: $1/R = 1/R_1 + 1/R_2$ $1/R = ¼ + ¼$ $1/R = ½$ R = **2 Ω**	 1

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		Total resistance of circuit = 8 Ω + 2 Ω = **10 Ω**	1 (minus 1m overall if no units) ECF – if correct calculation, maximum 1m overall
	b	V = IR I = 18 V / 10 Ω I = 1.8 A Therefore, ammeter reading on A_1 is **1.8 A**.	1 (no marks if no units) *allow for ecf from part a
	c	Ammeter reading on A2 = 1.8 A / 2 = **0.9 A**	1 (no marks if no units) *allow for ecf from part b
			Total: 4m
4	a	Total electrical used by the three air-conditioner units per day = 3 x (power x time) = 3 x (1600 W x 7 h) = 3 x (1.6 kW x 7h) = 3 x 11.2 kWh = **33.6 kWh** Total electrical energy used by the three fans per day = 3 x (power x time) = 3 x (125 W x 10 h) = 3 x (0.125 kW x 10h) = 3 x 1.25 kW = **3.75 kWh** Total electrical energy used in the household per day = 33.6 kWh + 3.75 kWh = **37.35 kWh**	1 1 1

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			(minus 1m overall if no/wrong units)
	b	Total cost of electricity used per day = 37.35 kWh x $0.20 = **$7.47**	1 (no marks if no units) ECF – if correct calculation, 1m
			Total: 4m
5	a	Fractional distillation	1 (no marks if wrong spelling)
	b	A: fractionating column Function of A: filled with glass beds to provide a larger surface area for the **condensation** of vapour that **does not have enough energy** OR To allow a **liquid of higher boiling point** to **condense** and fall back **during distillation of a liquid of lower boiling point** OR To allow a liquid of higher boiling point to **condense** and fall back if there is **not enough energy**	1 (no marks if wrong spelling) 1
	c	Liquid **X**. It has a **lower** boiling point.	1 1
	d	The cold water should go in from the bottom of the condenser instead of from the top of the condenser. There will **no be maximum condensation of the vapour**, resulting in the loss of some vapour. OR There will be **lesser amount of distillate collected**.	1 1

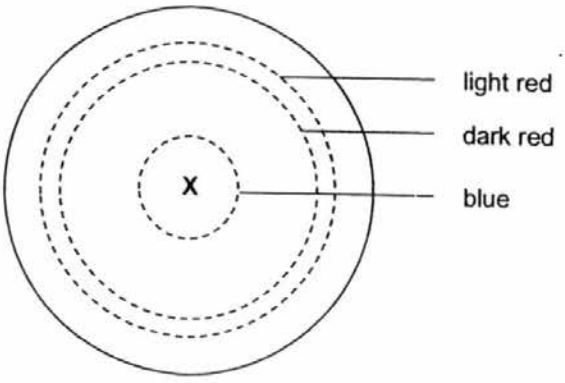
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6	a	The cap is made up of plastic which is a **poor conductor of heat / insulator of heat**,	Total: 7m 1
		thereby **minimizing/reducing heat loss by conduction**.	1
		OR	
		The cap also helps to **prevent heat loss by convection** into the **surroundings**	1
		as **hot air cannot rise up to be replaced by cold air**.	1
	b	Silvered glass walls **minimize / reduce heat loss by radiation**	1
		as silvered surfaces are **poor radiators / able to reflect the radiated heat back / good reflectors of heat / poor absorbers.**	1
	c	Vaccum **prevents heat loss through convection and conduction**	1
		As air is removed and these two processes **require a medium / cannot take place in a vacuum.**	1
7	a	When the coolant fluid enters the freezer compartment, it takes heat away from the air.	Total: 6m
		The **cooler air** at the freezer compartment is **denser** and **sinks** to the bottom of the refrigerator (food compartment).	1
		The cooler air **displaces the warmer and less dense air** which then **rises** to the top of the refrigerator.	1
		This forms a convection current which keeps the refrigerator cool.	
	b	Black coloured objects are **good radiators of heat**.	1
		The black metal fins **emit / give out heat** away from the refrigerator **easily** into the surroundings and keeps the refrigerator cool.	1
		NOTE: if students say "good absorbers and good radiators", they must be able to explain both aspects, i.e. "can absorb heat quickly from the coolant" and "give out heat quickly to the surroundings".	
8	a	**No significant change in pitch** of the sound	Total: 4m 1
		as **frequency** remains the **same** throughout / frequency is at 1Hz / one cycle or vibration per second.	1
	b	Volume getting **softer**	1

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		as **amplitude** of sound wave is **decreasing**	1
			Total: 4m

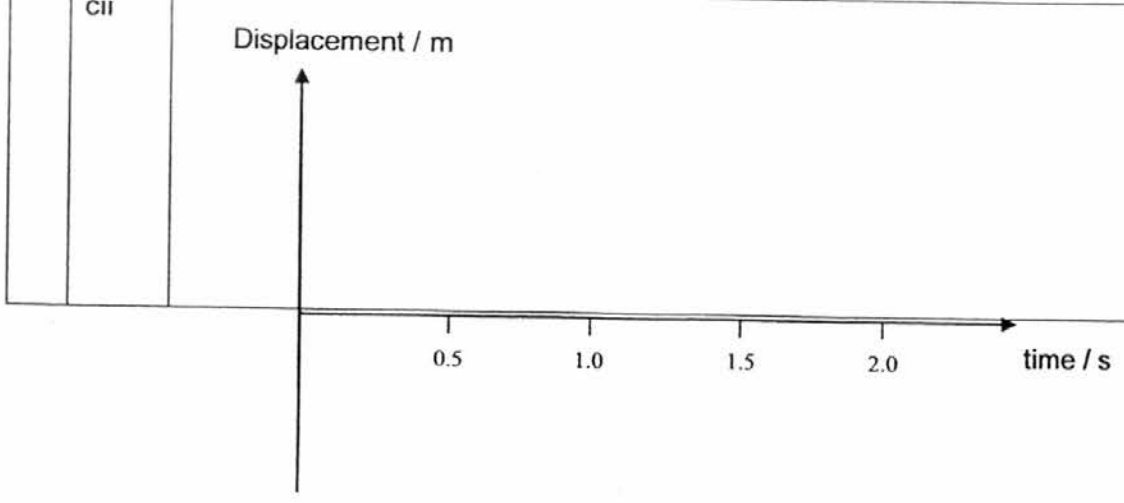
Section C: Free Response Questions [30marks]

9	ai	filtration	1
	aii	The unwanted solid cabbage parts are too **big to pass through the small pore openings** of the filter paper. The unwanted solid cabbage parts will be collected at the filter paper as **residue**, wherease the purple food colouring solution will pass through the filter paper and be collected as **filtrate**.	1 1
	bi	Solvent **Z** When solvent Y is used, the purple food colouring **remains on the starting line** but when solvent Z is used, the purple food colouring **separates into three different coloured components.**	1 1
	bii	If ink is used, it may **dissolve** in the solvent and **affect the accuracy** of the results.	1
	biii	The purple food colouring is a **mixture**. It is **separated** into **three different** coloured components (light red, dark red and blue)	1 1
	c		Total 2m 1m for all three coloured components drawn in the correct order; with labels 1m for correct distance between components
			Total: 10marks
10	ai		1

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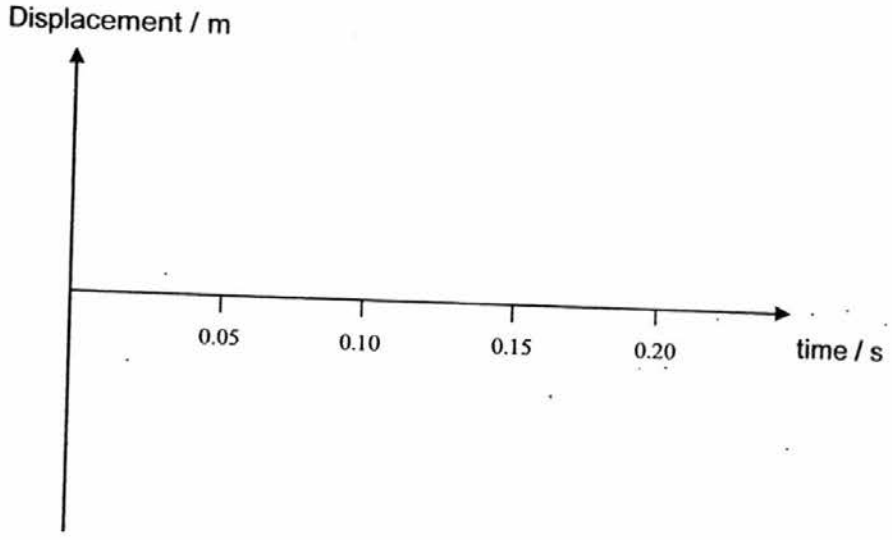
			(no marks if no labels)
	aii		1 (no marks if no labels)
	bi	Top box – metal X Bottom box – metal Y	1
	bii	Metal X expands at a **faster rate / more** than Metal Y. During a fire, the heated strip **bends with metal X on the outside of the curve / bends downwards.** The bimetallic strip will touch the contact point and **close the cirucit**, allowing current to flow through and triggering the alarm.	1 1 1
	biii	X – brass Y – iron	1 1
	biv	High melting point	1
	bv	Thermostat / bimetallic thermometer *any other reasonable answer	1
11	ai	A **ringing sound** can be **heard**.	Total: 10marks 1
	aii	As the vacuum pump is being switched on, the air will be sucked out of the bell jar. The **ringing sound** can **no longer be heard** when the air is **completely sucked out**. OR The **ringing sound** will become **softer** as air is **being sucked out**.	1
	aiii	Sound must travel through a medium / sound cannot travel through a vaccum.	1
	b	Time taken for clap to be heard = distance / speed = 264 m / 330 m/s	

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		= **0.8 s** Time taken for echo to be heard = distance / speed = (264 m x 3) / 330 m/s = 792 m / 330 m/s = **2.4 s** Time interval between the two sounds = 2.4 s – 0.8 s = **1.6 s**	1 1 1 (minus 1m overall if no units for answers) ECF – if correct calculation using wrong answers from earlier parts, maximum 1m overall for final answer
	ci	Frequency of sound is the **number of cycles per second** made by the vibrating sound of sound. SI unit: **hertz (Hz)**	1 1 (accept either one; no marks awarded if wrong spelling)
	cii		1 (amplitude must be the same over time)

8

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	ciii		1 (amplitude must be the same over time)
			Total: 10marks

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