

METHODIST GIRLS' SCHOOL
Founded in 1887



END-OF-YEAR EXAMINATION 2018
PRIMARY 5
SCIENCE

BOOKLET A1

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Shade your answers in the Optical Answer Sheet (OAS) provided.

Name: _____ ()

Class: Primary 5. _____

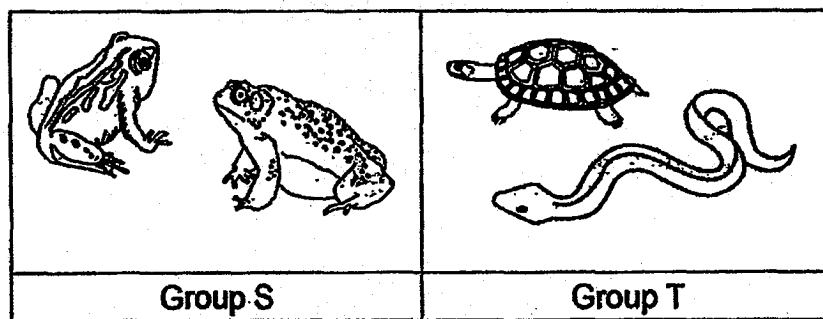
Date : 30 October 2018

This booklet consists of 9 printed pages including this page.

For each question from 1 to 14, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS).

[28 marks]

1 Study the two groups of organisms, S and T below.



Which one of the following correctly describes animal group S or T?

	Group	Covered with scales	Give birth to live young
(1)	S	Yes	Yes
(2)	S	No	No
(3)	T	No	Yes
(4)	T	Yes	Yes

2 Which one of the following organisms is not a fungus?

- (1) moss
- (2) yeast
- (3) mould
- (4) mushroom

- 3 Ruhi carried out an experiment to find out how the worms respond to changes in the environment. 40 worms were placed in the middle of Container X. After ten minutes, the number of worms in each section of Container X was counted. The experiment was repeated with Container Y using the same number of worms and the results of the experiment were shown below.

damp 30 worms	dry 10 worms
------------------	-----------------

Container X

dark 24 worms
bright 16 worms

Container Y

damp and dark	dry and dark
damp and bright	dry and bright

Container Z

Based on the results from Container X and Y, which one of the following shows the likely number of worms found in each section of Container Z?

(1)

12	2
22	4

(2)

22	2
12	4

(3)

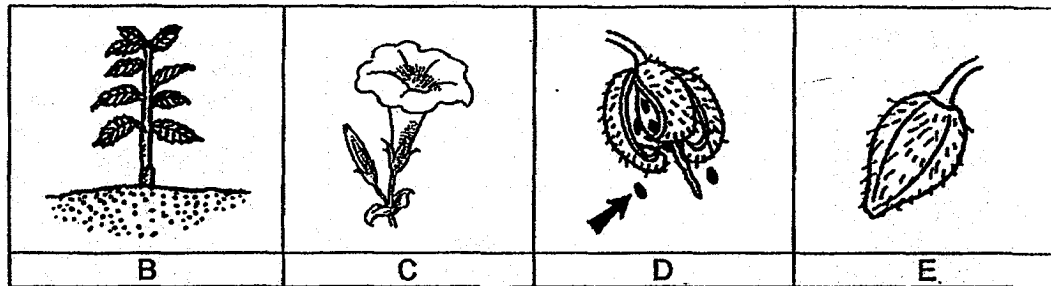
18	8
12	2

(4)

18	2
12	8

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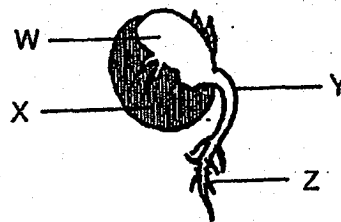
- 4 The diagrams below show the stages of development of a flowering plant.



Which one of the following shows the stages in the correct order?

- (1) B, E, D, C
- (2) C, E, D, B
- (3) D, E, C, B
- (4) E, C, D, B

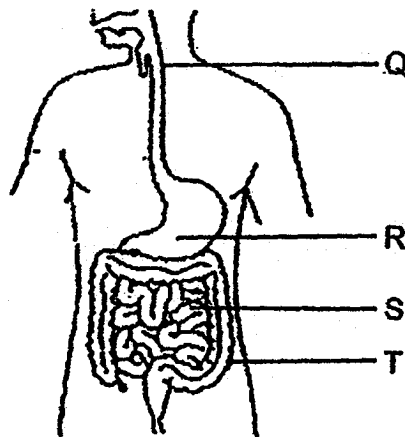
- 5 The diagram below shows a seedling.



Which part, W, X, Y or Z, provides food for the seedling before the leaves are developed?

- (1) W
- (2) X
- (3) Y
- (4) Z

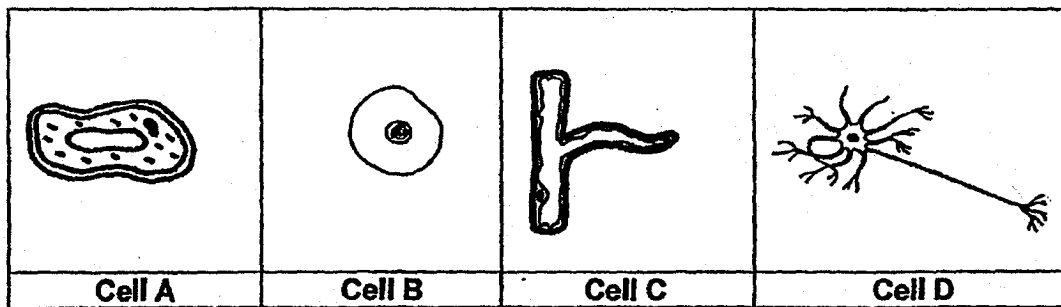
- 6 The diagram below shows part of a human digestive system.



Which one of the following shows the correct function of the organs?

	Absorption of water	Absorption of digested food
(1)	Q	R
(2)	R	Q
(3)	S	T
(4)	T	S

- 7 Four different types of cells are shown below.

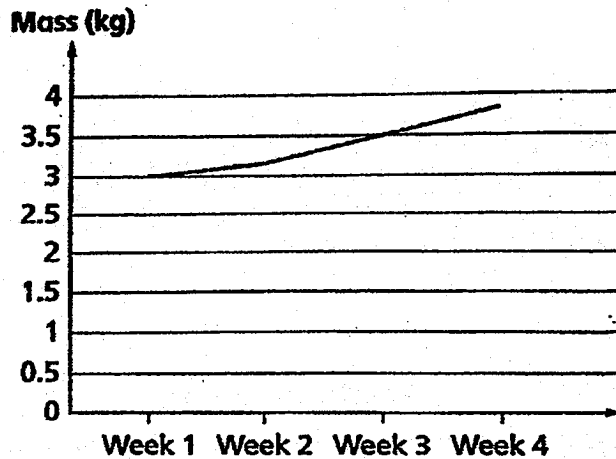


Which one of the following classifies the cells correctly?

	Plant cells	Animal cells
(1)	A	B, C and D
(2)	A and B	C and D
(3)	A and C	B and D
(4)	A, C and D	B

(Go on to the next page)

- 8 The graph below shows the mass of a baby over four weeks.



Based on the graph, some pupils made the following statements.

- Raj: The baby's mass increased because there are many types of cells.
 Ben: The baby's mass increased because the size of the cells increased.
 Zul: The baby's mass increased because the number of cells increased.

Whose statement(s) is/are correct?

- (1) Ben only
 (2) Zul only
 (3) Raj and Zul only
 (4) Raj and Ben only

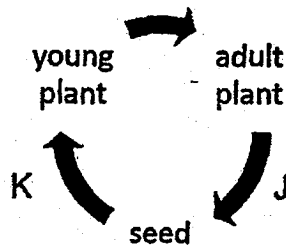
- 9 Meiling made some statements about sexual reproduction in humans and plants.

- X Reproductive cells are found in the ovary.
 Y Reproductive cells are found in the testes.
 Z Fertilisation occurs in a female reproductive part.

Which of the following is correct?

	Humans	Plants
(1)	Y	X, Z
(2)	X, Y	Z
(3)	X, Y, Z	X, Z
(4)	X, Y, Z	Y

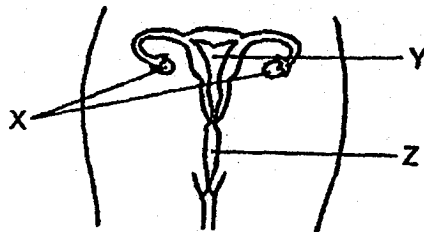
- 10 The diagram below shows the life cycle of a flowering plant.



Which one of the following correctly states the process(es) involved at J and K?

	Process(es) at J	Process(es) at K
(1)	pollination	fertilisation
(2)	pollination and fertilisation	dispersal and germination
(3)	fertilization and dispersal	pollination and germination
(4)	dispersal and germination	pollination and fertilisation

- 11 The diagram below shows a female reproductive system.



Which of the following statement(s) is/are false?

- P The fertilised eggs are found in X.
- Q The baby develops in part Y.
- R The baby develops in part Z.

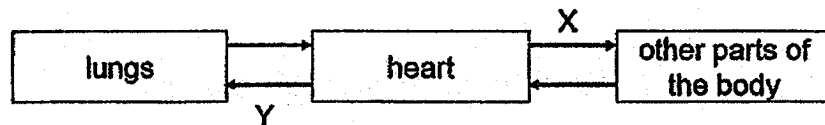
- (1) Q only
- (2) R only
- (3) P and Q only
- (4) P and R only

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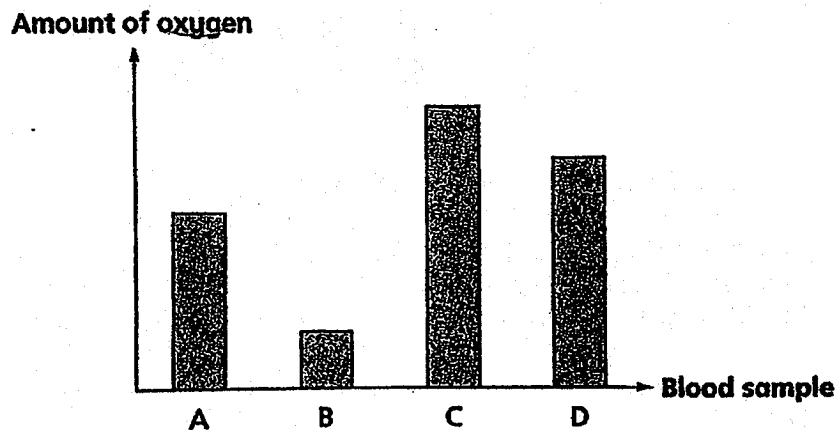
- 12 A hamster was placed in a sealed glass tank. What would happen to the various gases in the tank after half an hour?

	carbon dioxide	oxygen	water vapour
(1)	decrease	increase	increase
(2)	increase	decrease	decrease
(3)	increase	decrease	increase
(4)	decrease	increase	decrease

- 13 The diagram below shows the circulatory system of a human. The arrows represent the flow of blood between the different parts of the circulatory system.



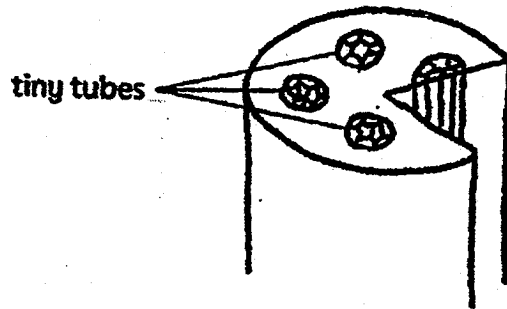
The bar chart below shows the amount of oxygen in four blood samples taken from different blood vessels in the circulatory system.



Which blood sample A, B, C or D is likely to be taken from blood vessels X and Y?

	Blood Vessel X	Blood Vessel Y
(1)	A	D
(2)	B	A
(3)	C	B
(4)	D	C

- 14** The diagram below shows the cross-section of a stem.



Which of the following statement(s) is/are correct?

- E** Some of the tiny tubes absorb water for the plant.
- F** All the tiny tubes help to hold the plant upright.
- G** Some of the tiny tubes transport food from the leaves to all parts of the plant.
- H** The tiny tubes exchange gases between the plant and the surroundings.

- (1)** E only
- (2)** G only
- (3)** E and F only
- (4)** F and H only

METHODIST GIRLS' SCHOOL

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**END-OF-YEAR EXAMINATION 2018
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SCIENCE**

BOOKLET A2

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

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Name: _____ ()

Class: Primary 5. _____

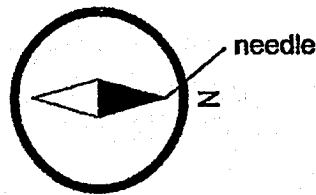
Date : 30 October 2018

This booklet consists of 10 printed pages including this page.

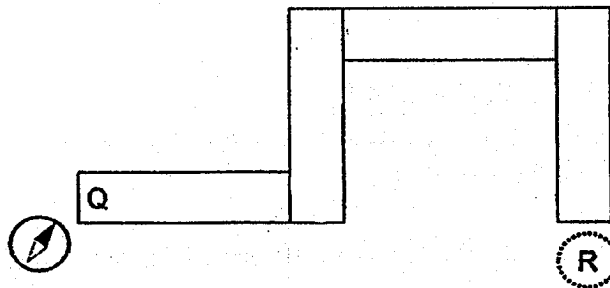
For each question from 15 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS).

[28 marks]

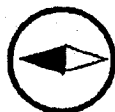
15 The picture below shows a compass.



Four bar magnets were arranged such that they were attracted to one another. A compass was then placed near Q and the direction of the compass needle is as shown below.



Which one of the following would be the direction of the needle when the compass was placed at R?



(1)



(2)

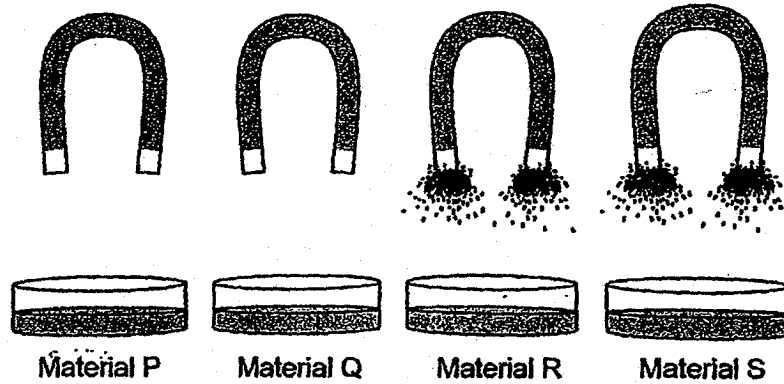


(3)



(4)

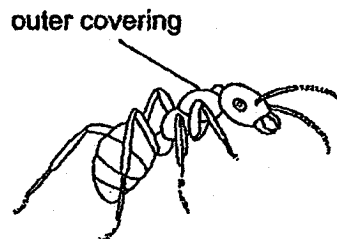
- 16 Four identical magnets were dipped into four different materials, P, Q, R and S. The results are shown below.



Based on the results, which one of the following correctly shows the material that could be separated from the mixture of materials indicated in the table?

	Material that could be separated	Mixture of materials
(1)	P	P, Q, R
(2)	Q	Q, P, S
(3)	R	R, P, Q
(4)	S	S, R, Q

- 17 The insect below has an outer covering that supports its body and protects its organs.

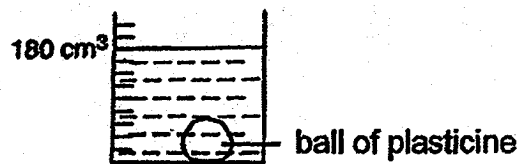


Which one of the following properties allows the outer covering to perform the functions described?

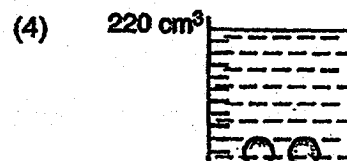
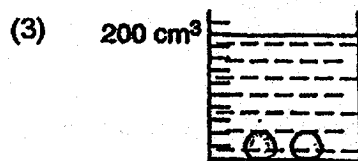
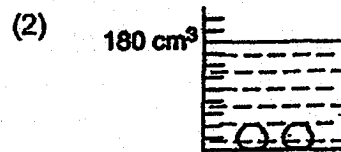
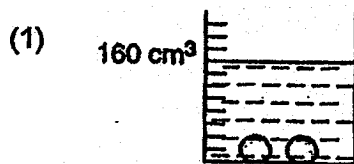
- (1) strength
- (2) flexibility
- (3) absorbency
- (4) ability to float

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- 18 Zulfri placed a ball of plasticine into a container of water. He observed that the water level rose to the 180 cm^3 mark as shown below.



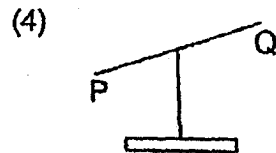
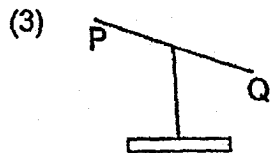
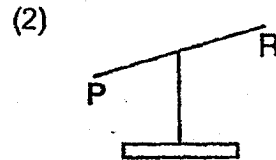
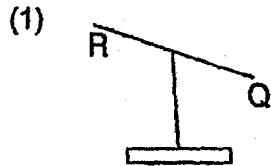
He then took the ball of plasticine out of the water, cut it into two pieces and carefully lowered them into the water again. Which one of the following diagrams shows the correct water level in the container?



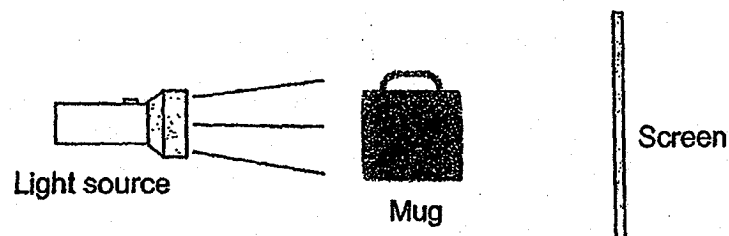
- 19 The table below shows the masses of object P, Q and R.

Object	P	Q	R
Mass (g)	65	145	250

Which one of the following diagrams shows the relationship between two of the objects?



- 20 Sam set up the experiment as shown below.

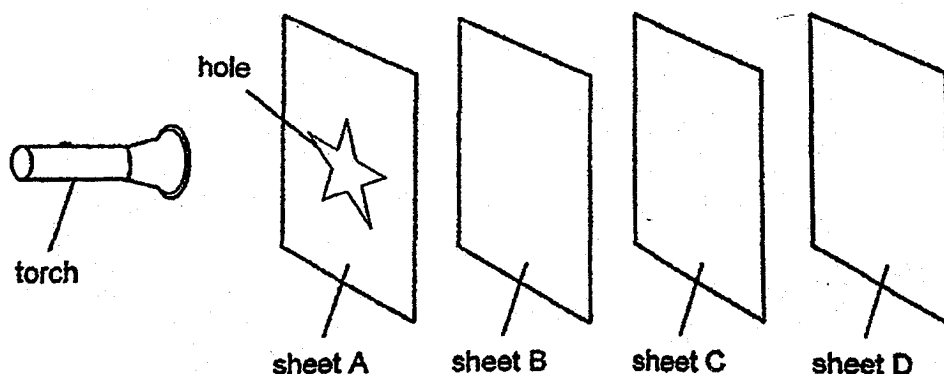


Which one of the following is the shadow formed on the screen?



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- 21 The experiment below was carried out in a dark room.



Sheets A to D were arranged in a straight line. When the torch was switched on, a bright star patch of light was seen on sheet C only.

Which one of the following correctly describes the properties of the materials that sheets A, B, C and D are made of?

	Does not allow light to pass through	Allows light to pass through	Not possible to tell
(1)	A and C	B	D
(2)	C	B	A and D
(3)	C	A and D	B
(4)	D	A and B	C

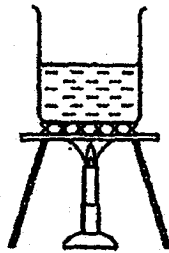
- 22 The table below shows the freezing points of three substances X, Y and Z.

Substance	Freezing point ($^{\circ}\text{C}$)
X	10
Y	50
Z	125

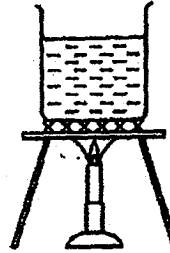
Based only on the information given, which one of the following is correct?

- (1) X is a solid at 7°C .
- (2) X and Y are both liquids at 45°C .
- (3) Y and Z are both solids at 140°C .
- (4) Z can be a liquid or a gas at 125°C .

- 23 The diagrams below show two beakers, A and B, containing different amounts of water at room temperature. Both beakers of water are heated until boiling point.

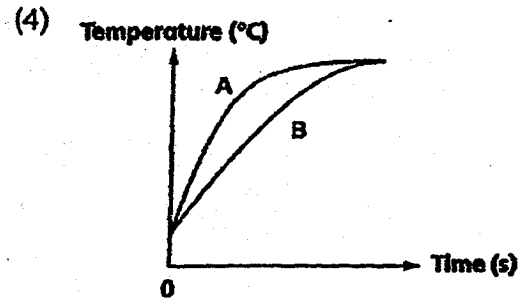
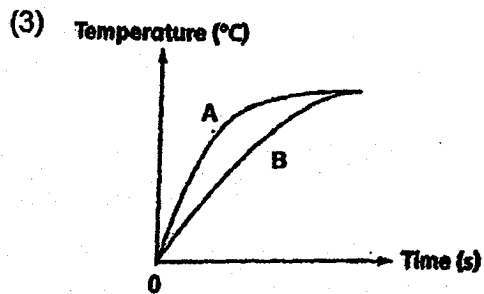
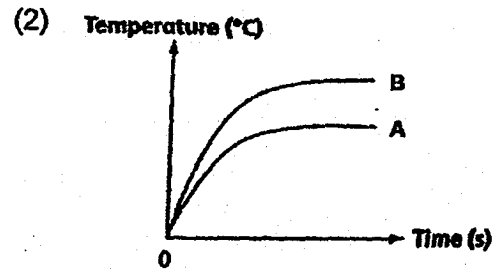
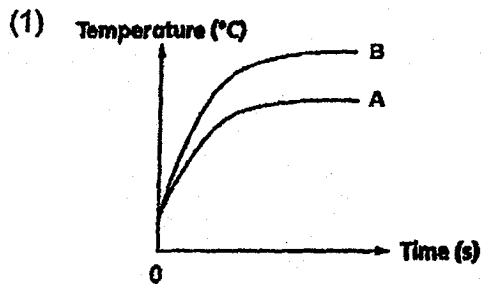


Beaker A



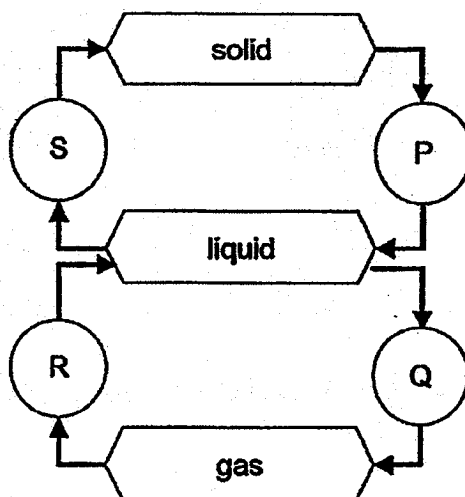
Beaker B

Which one of the following graphs shows the temperature of the water in the two beakers over time?



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- 24 The diagram below shows the changes of state of water.



If P represents melting, which of the following correctly describe processes Q, R, and S?

	Q	R	S
(1)	evaporating	condensing	freezing
(2)	evaporating	freezing	condensation
(3)	condensing	evaporating	freezing
(4)	freezing	evaporating	condensing

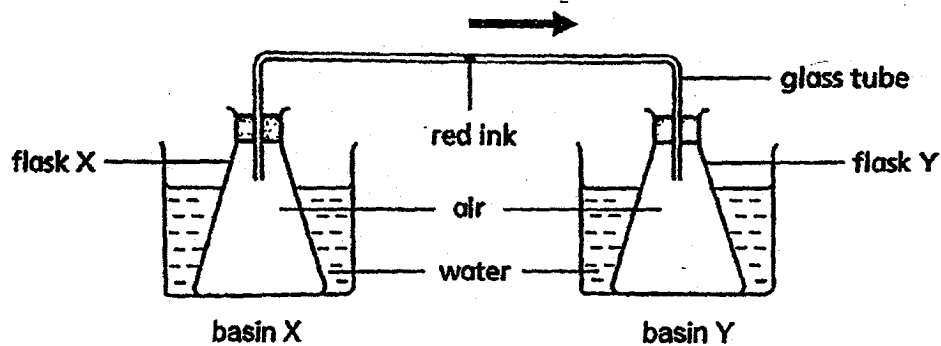
- 25 Rina wanted to find out how the exposed surface area of a container affects the rate of evaporation of water.

Set-up	Volume of water in container (ml)	Temperature (°C)	Wind	Exposed surface area of container (cm ²)
J	280	31	absent	200
K	350	25	absent	90
L	280	31	absent	90
M	350	25	present	200

Which two set-ups should Rina use for her investigation?

- (1) J and K
- (2) J and L
- (3) K and M
- (4) L and M

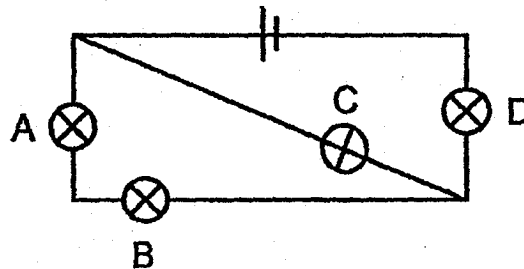
- 26 Two identical flasks were placed into two basins, X and Y, containing water of different temperatures as shown below. After a while, the red ink moved towards flask Y.



Which one of the following shows the temperature of water in the two basins?

	Temperature of water in basin X (°C)	Temperature of water in basin Y (°C)
(1)	25	75
(2)	40	90
(3)	75	25
(4)	80	80

- 27 Study the circuit below.

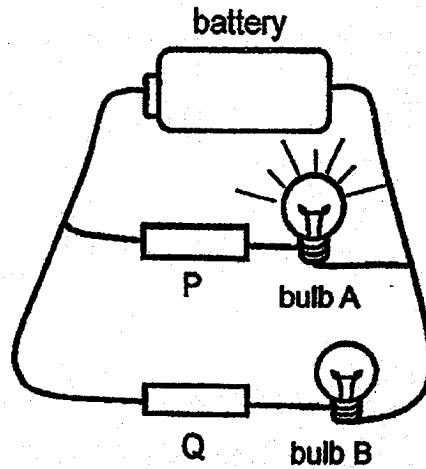


When one of the bulbs had blown, all the other bulbs did not light up. Which one of the bulbs had blown?

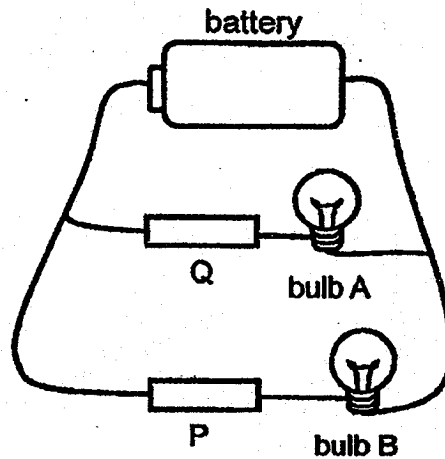
- (1) A
(2) B
(3) C
(4) D

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- 28 Shu Ning set up a circuit as shown below. She observed that only bulb A lit up.



She then swapped P and Q and observed that none of the bulbs lit up.



Which one of the following is correct?

	Bulb not working	Electrical insulator
(1)	A	P
(2)	B	P
(3)	A	Q
(4)	B	Q

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BOOKLET B1

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.

Name: _____ ()

Class: Primary 5. _____

Date : 30 October 2018

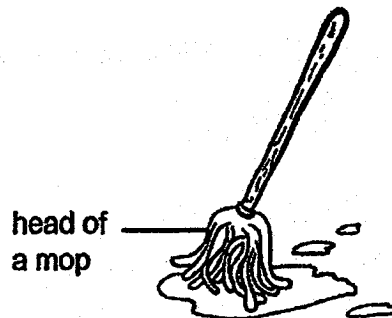
Booklet A1 & A2	56
Booklet B1	22
Booklet B2	22
Total	100
Parent's Signature	

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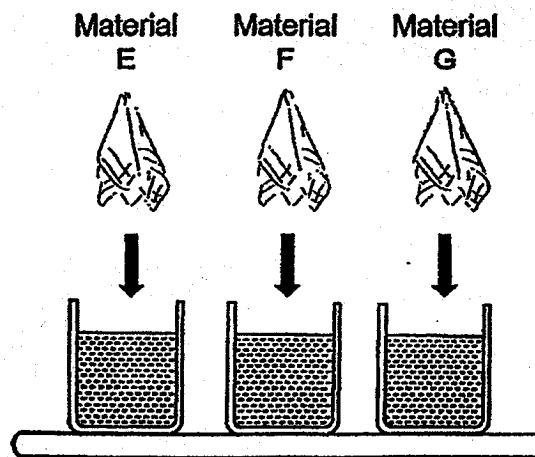
For questions 29 to 34, write your answers in the spaces provided. The number of marks available is shown in brackets [] at the end of each question or part question.

[22 marks]

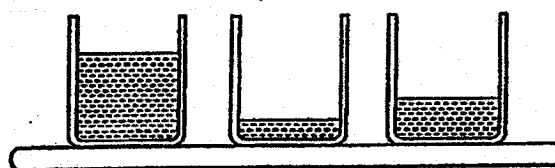
- 29 Zacchary wanted to choose a material to make the head of a mop as shown below.



He conducted an experiment with 3 pieces of material, E, F and G of the same size. He dipped each piece of material into the same amount of water for 5 minutes as shown below.



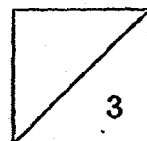
After 5 minutes, he removed the materials and observed the amount of water left in the beakers. The results are shown below.



- (a) From the results shown above, which material, E, F or G, is the most suitable for making the head of a mop? Explain your answer clearly. [2]

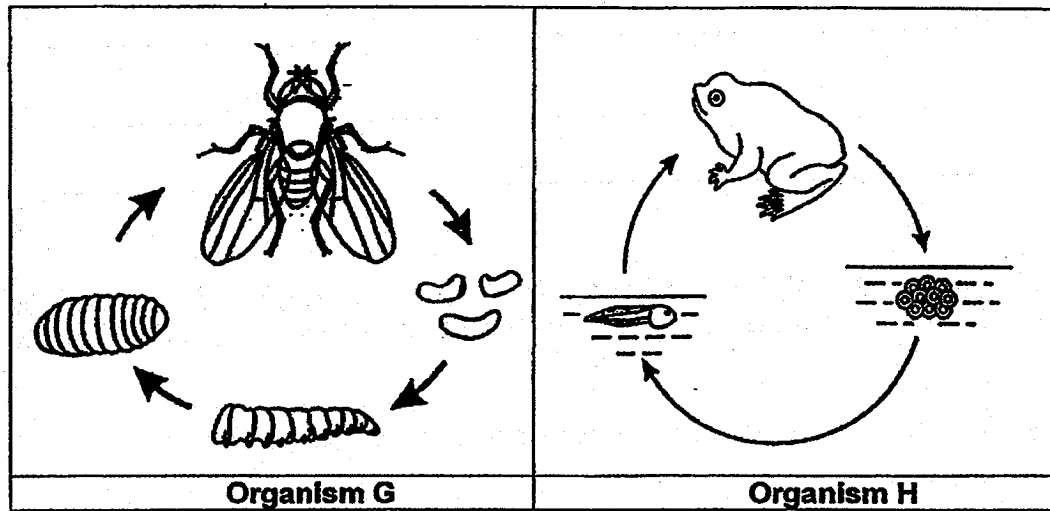
After the experiment, Zacchary placed the mop into the cupboard. One week later, he opened the cupboard and noticed some black spots growing on the head of the mop.

- (b) What are these black spots and where did they come from? [1]



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- 30 The diagrams below show the life cycle of organisms G and H.

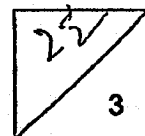


- (a) Which group of animals does organism G belong to? Give a reason for your answer. [1]

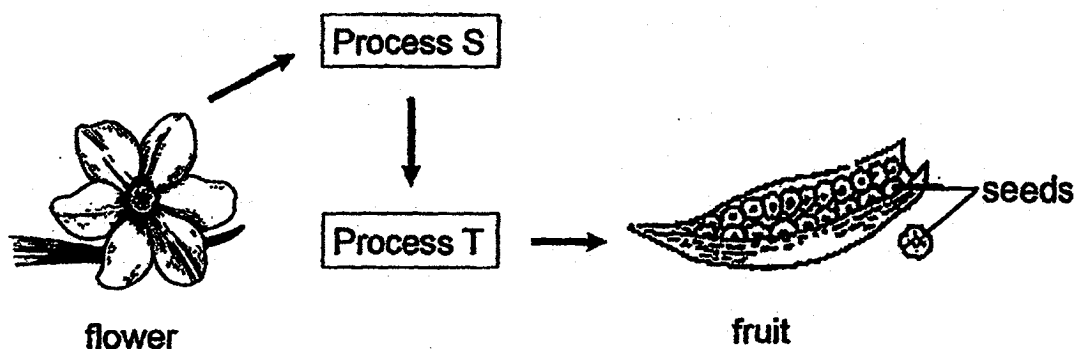
- (b) Based only on the diagrams, what is one similarity and difference between the life cycles of organism G and H? [2]

Similarity:

Difference:



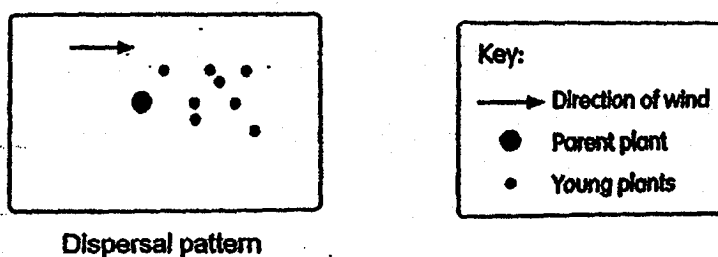
- 31 The diagram below shows how a fruit is formed from a flower of a certain plant.



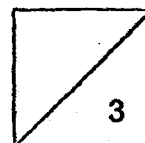
- (a) Which process, S or T, is similar to the reproduction of humans? Name the process. [1]

- (b) Explain why process S is important in the reproduction of flowering plants. [1]

The diagram below shows the dispersal pattern of the plant.



- (c) How are the seeds dispersed? State a characteristic of the seed that allows it to be dispersed this way. [1]

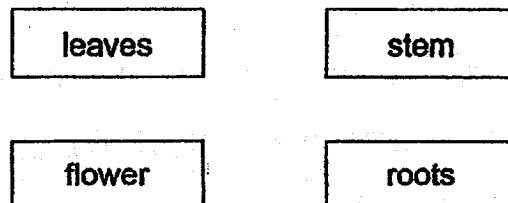


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- (d) Why do the new plants bear similar fruits as the adult plant? [1]

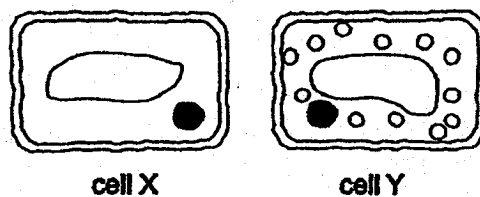
32 Some parts of a plant are shown below.

- (a) Draw arrows ($\longrightarrow$) in the diagram to show how food is transported in a plant. [1]

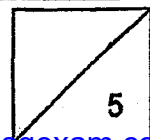


- (b) Some insects ate their way into the stem of a plant. This affected the growth of the roots of the plant. Explain why. [2]

The diagram below show cells X and Y observed under a microscope.



- (c) Which cell is likely taken from the roots of the plant? Explain why. [1]

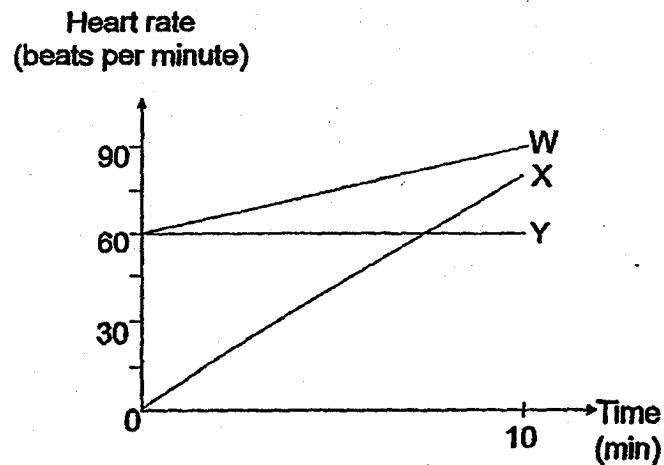


- 33 Nathaniel used his legs to pedal his bicycle when he delivered parcels.

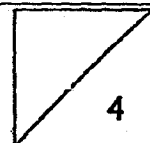


- (a) Describe clearly how the organs in his body enable oxygen in the environment to reach his legs. [2]

W, X and Y, in the graph below shows the possible heart rate when Nathaniel rode on the bicycle for 10 minutes.



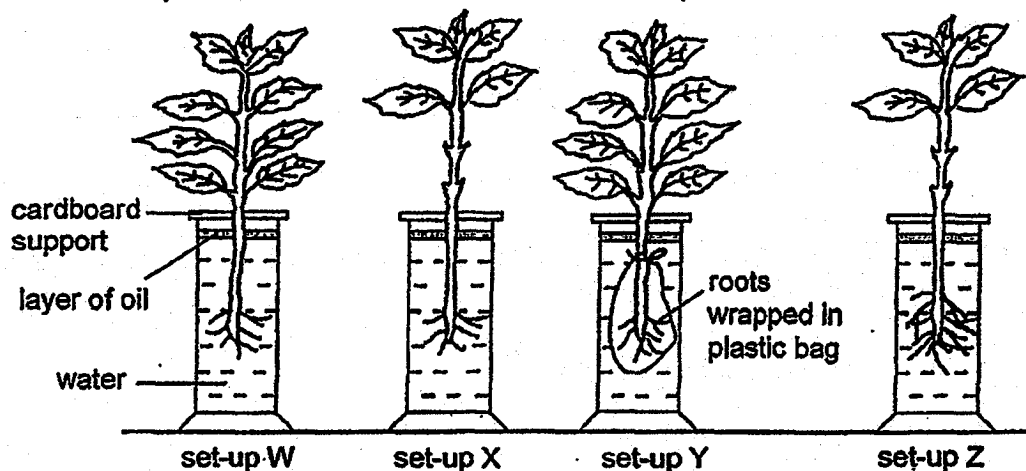
- (b) Which letter, W, X or Y, in the graph shows Nathaniel's possible heart rate when he was riding his bicycle? Explain your answer clearly. [2]



(Go on to the next page)

- (c) Which letter, W, X or Y, in the graph suggests that Nathaniel is sleeping? Explain why. [1]

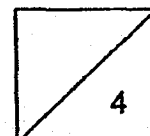
- 34 Four plants were placed next to the window for a few hours in identical containers with the same amount of water as shown below to show that the roots of the plant absorb water.



- (a) Which two set-ups should be compared to ensure a fair test? Give a reason for your answer. [1]

- (b) How does adding a layer of oil make the result accurate? [1]

- (c) What is another function of the roots of the plant? [1]



METHODIST GIRLS' SCHOOL

Founded in 1887



**END-OF-YEAR EXAMINATION 2018
PRIMARY 5
SCIENCE**

BOOKLET B2

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Name: _____ ()

Class: Primary 5. _____

Date : 30 October 2018

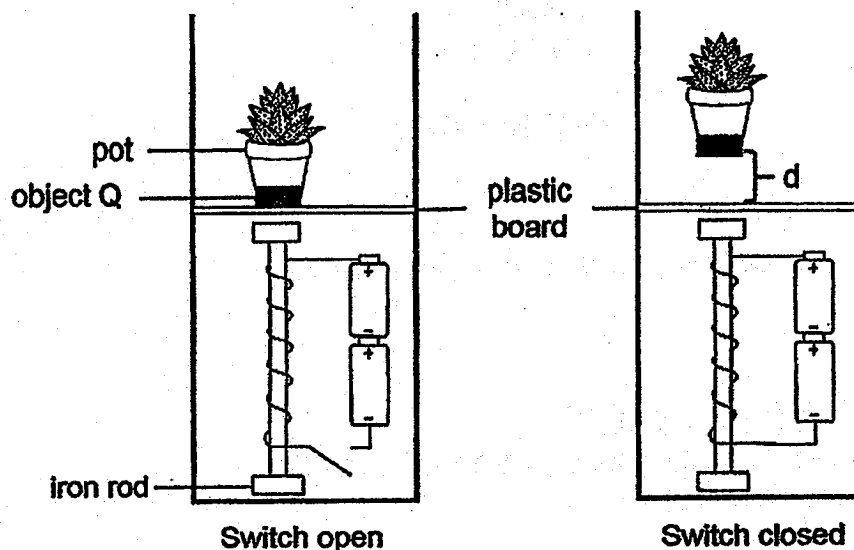
Booklet B2	22
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This booklet consists of 10 printed pages including this page.

For questions 35 to 41, write your answers in the spaces provided. The number of marks available is shown in brackets [] at the end of each question or part question.

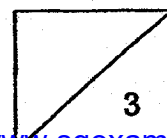
[22 marks]

- 35 An electric circuit was set up underneath a plastic board as shown below. When the switch was closed, the pot attached to object Q was able to float on the surface of the plastic board.



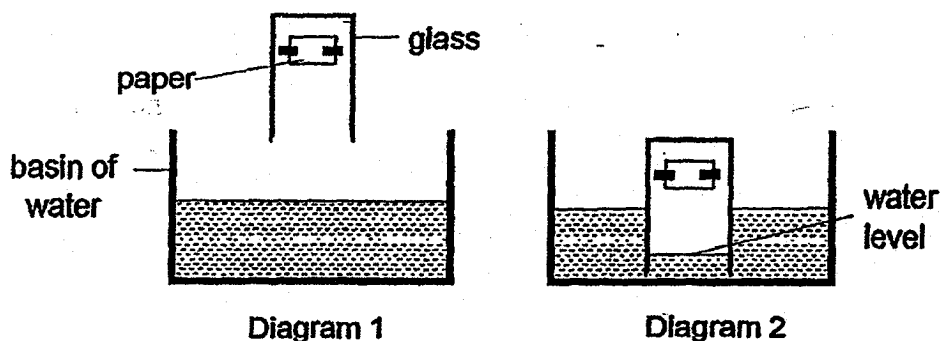
- (a) What is object Q? Explain why the pot could float above the plastic board when the circuit was closed. [2]

- (b) Suggest one way to reduce the distance between the plastic board and the pot (d) without making any changes to object Q? Give a reason for your answer. [1]



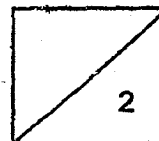
36

Gopal taped a piece of paper to the inner side of the glass. He then lowered the glass into a basin of water as shown in Diagram 1 below. Diagram 2 showed what was observed after Gopal lowered the glass into the basin of water.



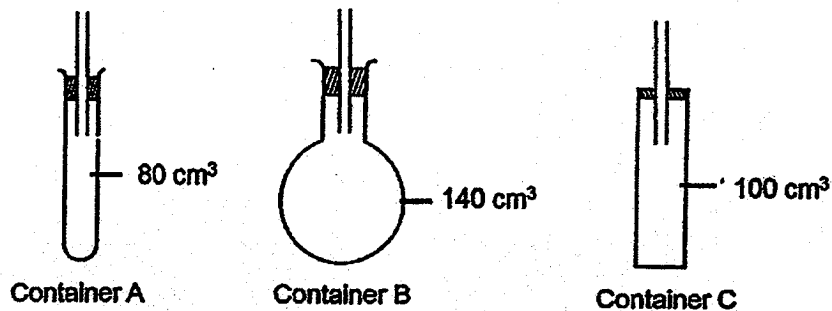
- (a) What did Gopal observe about the paper in Diagram 2? Explain your answer. [1]

- (b) What did Gopal observe about the water level in the glass? Explain your answer. [1]



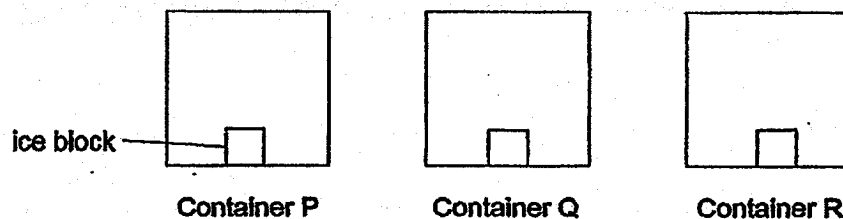
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Gopal then tried to pump 100cm^3 of gas into the three containers as shown below.

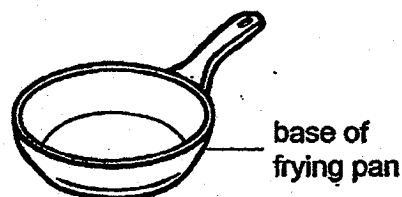
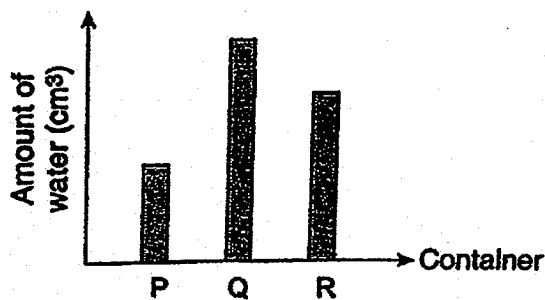


- (c) Which containers would Gopal be able to pump in another 100cm^3 of gas? Explain your answer. [1]

- 37 June set up an experiment as shown below. She placed three identical ice blocks into each container made of a different material.



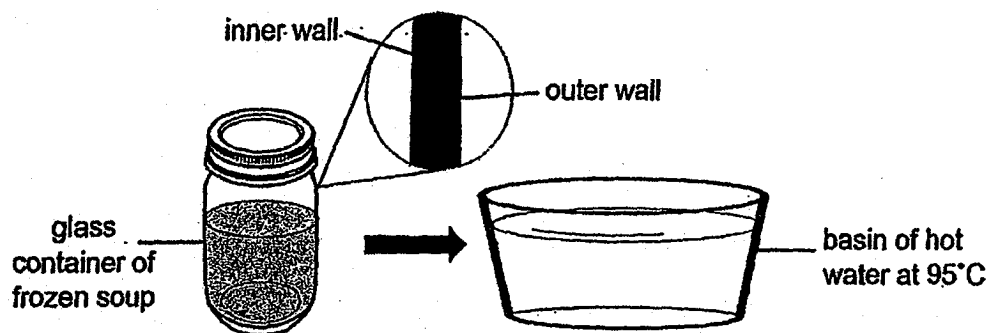
After 30 minutes, she removed the ice blocks from each container and measured the amount of water collected in each container. The results are shown below.



- (a) Which container, P, Q or R is made of a material that is suitable to make the base of a frying pan? Explain your answer based on the results obtained.

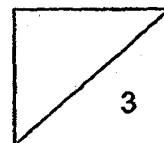
[2]

June wanted to heat up some frozen soup for lunch. She placed the soup in a glass container with thick walls into a basin of hot water immediately after taking it out from the freezer.



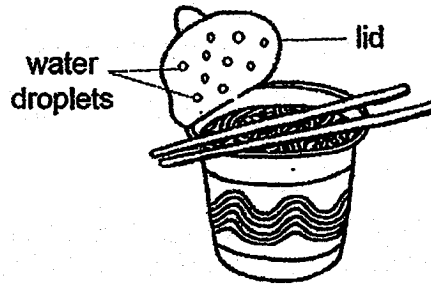
- (b) Explain why the glass container of frozen soup cracked after it was placed into the basin of hot water.

[1]



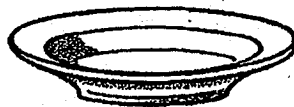
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- 38 Tim made some cup noodles by pouring hot water into the container and closed the lid. After 3 minutes, he opened the lid of the cup noodles and noticed some water droplets on the underside of the lid as shown below.

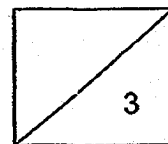


- (a) Explain how the water droplets on the underside of the lid were formed. [2]

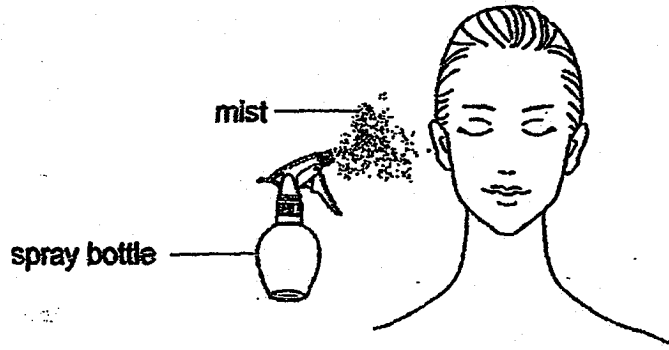
Tim was in a rush to finish the cup noodles but it was too hot. His brother suggested pouring the noodles onto a plate as shown below.



- (b) Explain why Tim's brother gave that suggestion. [1]



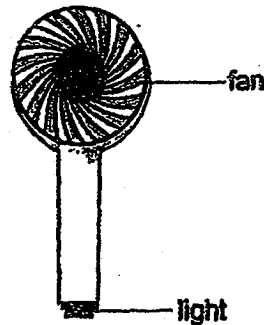
- 39 Sheryl took out a spray bottle containing some water from her bag on a hot day. When she sprayed the water on her face, tiny water droplets in the form of mist came into contact with her skin and she felt cool.



- (a) Explain why Sheryl's face felt cool after she sprayed some water on it.

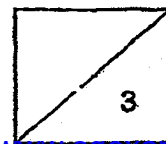
[2]

After spraying the water on her face, Sheryl switched on her handheld fan as shown below.



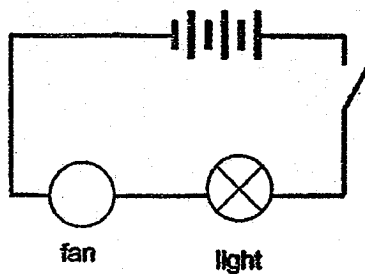
- (b) Why did Sheryl's face feel cooler when she held the fan near it?

[1]



8

The handheld fan has a light bulb which functions as a torch. The light bulb is connected to the handheld fan at the bottom. The circuit is as shown below.

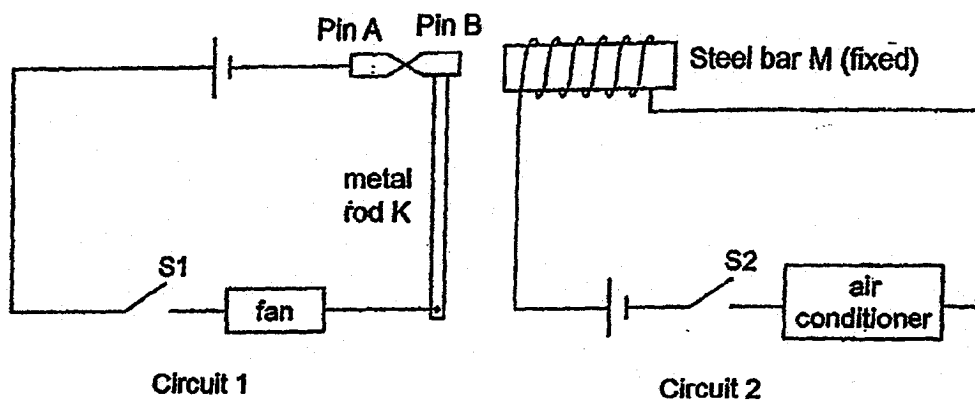


- (c) What is the arrangement of the fan and light in the circuit shown above? Suggest one disadvantage of this arrangement.

[1]



- 40 Josh designed an electrical system for a fan and an air conditioner in his bedroom as shown below. The system prevents both the fan and air conditioner from being turned on at the same time.

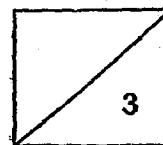


M is a steel bar placed inside a coil of wire. A and B are two steel pins in contact with each other. Pin A is fixed while Pin B is attached to metal rod K and can move sideways.

On a hot afternoon, Josh closed switch S1 to turn the fan on. Ten minutes later, he still felt very warm and closed switch S2 to turn the air conditioner on.

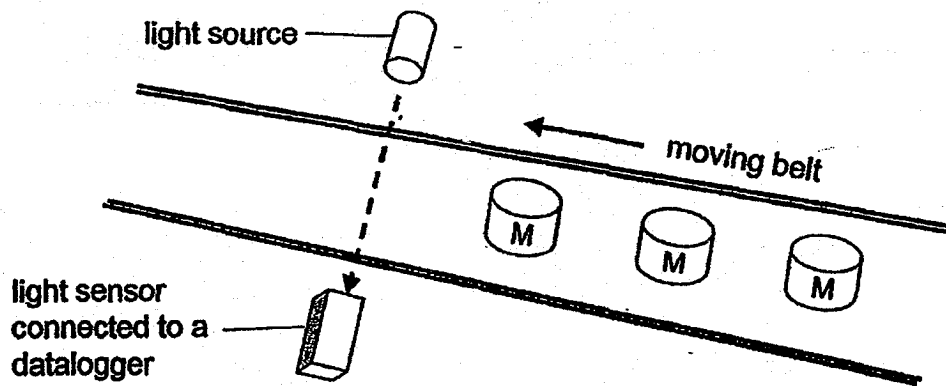
- (a) State the movement of Pin B when switch S2 was closed. [1]

- (b) What would happen to the fan when Josh closed switch S2? Explain your answer. [2]

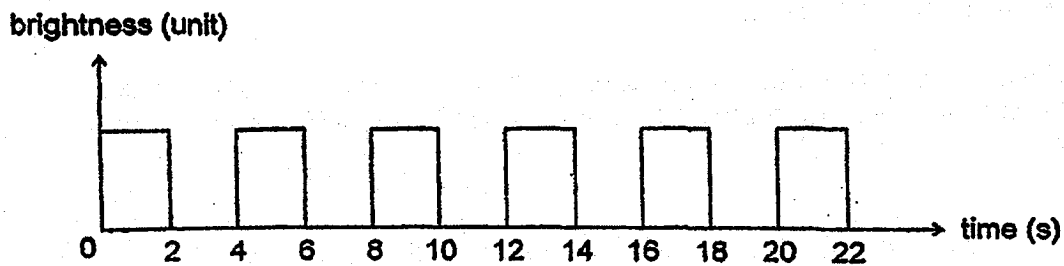


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- 41 In a factory, a light source and a light sensor were set up to count the number of identical container M on a moving belt as shown below.

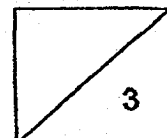


The following results were recorded as shown below.



- (a) How could the number of container M be counted using the set-up above? [2]

- (b) Based on the above results, what is the number of container M that passed the sensor in 14 seconds? [1]



SCHOOL : MGS PRIMARY SCHOOL
LEVEL : PRIMARY 5
SUBJECT : SCIENCE
TERM : 2018 SA2

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	1	3	2	1	4	3	2	3	2
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
4	3	3	2	4	3	1	2	3	4
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
1	1	4	1	2	3	4	4		

Name: _____ () Class: _____

A.C.E. your Open-ended questions!**P5 SA2 2018 Booklet B**

Qn	A.C.E	Elaboration
29a	ANALYSE	Material F is the most absorbent and Material E is the least absorbent.
	CONCEPT	A material that is absorbent will take in the most amount of water.
	EXPLAIN	Material F. The amount of water left is the least so it is the most absorbent since the head of the mop must be able to absorb water.
29b	ANALYSE	The water present on the mop allows the mould to grow.
	CONCEPT	Mould /fungus reproduce from spores in the presence of warmth, moisture and oxygen.
	EXPLAIN	The black spots are mould/fungi. The spores in the cupboard / air in the cupboard.
30a	ANALYSE	- Organism G has a 4-stage life cycle and Organism H has a 3-stage life cycle. - Organism G has the characteristics of an insect. - Compare the life cycle of Organism G and H.
	CONCEPT	The characteristics of insects.
	EXPLAIN	Organism G is an insect. It has 6 legs / 3 body parts / feelers.
30b	ANALYSE	Similar to 30a.
	CONCEPT	The similarities and differences between the life cycle of a 4-stage life cycle and a 3- stage life cycle.
	EXPLAIN	Similarity: Both their young does not look like the adult. Difference: Organism G has 4 stages in its life cycle but Organism H has 3 stages in its life cycle.

Name: _____ ()

Class: _____

31a	ANALYSE	- Process S – pollination - Process T – fertilisation
	CONCEPT	The processes that need to occur for flowering plants to reproduce are pollination and fertilisation. Fertilisation is a common process for the reproduction of humans and flowering plants.
	EXPLAIN	T, fertilisation
31b	ANALYSE	Similar to 31a
	CONCEPT	Pollination needs to take place in order for fertilisation to occur.
	EXPLAIN	The pollen grain needs to be transferred from the anther to the stigma of the flower in order for fertilisation / Process T to take place.
31c	ANALYSE	The young plants are found in one direction, similar to the direction of the wind.
	CONCEPT	The characteristics of fruits and seeds determine the methods of fruits and seed dispersal.
	EXPLAIN	They are dispersed by wind. It has a feathery structure / wing-like structure / is light so it can be easily carried by the wind.
31d	ANALYSE	Parents and their young share similar characteristics.
	CONCEPT	Characteristics are passed down from parents to young during reproduction.
	EXPLAIN	The traits/characteristics of the fruits are stored in the nucleus of the cell of the adult plant and they are passed down/inherited by the new plants.
32a	ANALYSE	Leaves make food and transports via the stem to the rest of the plant.
	CONCEPT	Food is transported via the stem to all parts of the plant.
	EXPLAIN	Leaves stem ↓ roots
		Flower

Name: _____ () Class: _____

33c	ANALYSE	Similar to 33b
	CONCEPT	During rest/sleep, our heart rate is constant.
	EXPLAIN	Line Y as the heart rate is constant (at 60 beats per minute) when he is resting.
34a	ANALYSE	- Changed variable is the roots wrapped in plastic bag as it does not allow the roots in the plant to absorb water. - The set-ups chosen must have the same variables except for the changed variable.
	CONCEPT	For a fair test, only the variable to be measured should be changed.
	EXPLAIN	Set-up W and Y. The roots in set-up W can absorb water but not the roots in set-up Y and this is the only variable change in the experiment.
34b	ANALYSE	There are other factors that affect the amount of water in the set-up.
	CONCEPT	A layer of oil on water helps to prevent evaporation of water.
	EXPLAIN	Roots absorb water. To prevent evaporation of the water so that any change in the amount of water is due to the absorption of water by the roots.
34c	ANALYSE	Recall other functions except the one stated in the question.
	CONCEPT	Roots anchor plants firmly to the ground.
	EXPLAIN	To anchor the plant firmly to the ground. OR To store food for the plant.

Name: _____ () Class: _____

32b	ANALYSE	- The stem contains the water-carrying tubes and food-carrying tubes. - The food-carrying tube must be damaged as the growth of roots are damaged.
	CONCEPT	Food from the leaves cannot be transported to the different parts of the plant if the food-carrying tubes are damaged.
	EXPLAIN	The food carrying tubes (phloem) will be damaged so food / sugar made in the leaves cannot be transported to the roots.
32c	ANALYSE	Cell X does not have chloroplasts.
	CONCEPT	There are many parts of a plant cell that have different functions.
	EXPLAIN	Cell X. it does not have chloroplasts as roots do not make food for the plant.
33a	ANALYSE	The organs from the respiratory and circulatory systems work together to ensure that the oxygen reaches his legs.
	CONCEPT	Air enters the nose and moves through the windpipe to the lungs, where it is absorbed into the blood and pumped by the heart to all parts of the body.
	EXPLAIN	Air (oxygen) from the surrounding enters the nose/mouth and windpipe into the lungs. Oxygen is absorbed into the blood and the heart pumps the oxygenated blood/blood rich in oxygen through the blood vessels to the legs.
33b	ANALYSE	- Line W – starts from 60 to 85 bpm - Line X – starts from 0 to 75 bpm - Line Y – maintains at 60 bpm
	CONCEPT	During exercise, the heart rate increase as the heart pumps faster so as to pump more digested food and oxygen to all parts of the body.
	EXPLAIN	Line W. When Nathaniel cycles, his heart pumps faster / heart rate increases to allow blood to reach the different parts of his body more quickly so that his body could get more oxygen and digested food.

Name: _____ ()	Class: _____
35a	ANALYSE • The pot was lifted what the switched was closed. CONCEPT An iron rod can become a temporary magnet using the electrical method. EXPLAIN Only magnets can repel. Magnets repel when their like poles are facing each other. It is a magnet. The iron rod becomes magnetized/ an electromagnet and repels object Q because the like poles are facing each other.
35b	ANALYSE • The magnetic strength of the electromagnet needs to be reduced. CONCEPT To reduce the magnetic strength of an electromagnet, we can EXPLAIN (1) reduce the number of batteries (2) reduce the number of coils around the iron rod She could decrease the number of wire coils around the nail / the number of batteries in the circuit in order to reduce the magnetic strength of the electromagnet.
36a	ANALYSE • Air is present inside the cup. CONCEPT Air occupies space. EXPLAIN The paper remained dry. Air occupied space so water could not enter the glass.
36b	ANALYSE • Some water entered the glass. CONCEPT Air has no definite volume and can be compressed. EXPLAIN The water level increased (a little). Air can be compressed / has no definite volume so it allowed some water to enter the glass.
36c	ANALYSE • Relate the property of gas to the context provided. CONCEPT Air has no definite volume and can be compressed. EXPLAIN All of the containers (A, B and C). Gas does not have a definite volume or can be compressed.

Name: _____ ()	Class: _____
37a	ANALYSE • Container P – ice melt the least • Container Q – ice melt the most CONCEPT Ice in container Q melted the fastest as most water is collected so it is the best conductor of heat. EXPLAIN A frying pan needs to gain heat fast to cook the food quickly. Container Q. The amount of water collected is the most as the ice melted the fastest so it is the best conductor of heat. Thus, the food can gain heat at the fastest rate from the frying pan.
37b	ANALYSE • Heat travels from a hotter region to a cooler region. • The thick walls of the container will gain heat at different speeds and expand at different rate. CONCEPT Heat travels from a hotter region to a cooler region. The outer wall of the container is closer to the heat source as compared to the inner wall so it gained heat and expanded first. EXPLAIN The outer wall gained heat and expanded first/faster causing the glass to crack.
38a	ANALYSE • There will be a change of state of water when there is a temperature difference. CONCEPT Water vapour would lose heat upon contact with a cooler surface and condense. EXPLAIN The warm water vapour in the cup came into contact with the cooler inner surface of the lid. It lost heat and condensed into water droplets.
38b	ANALYSE • Pouring the noodles onto a plate increases the exposed surface area. CONCEPT Increasing the exposed surface area of the noodles will increase heat loss to the surrounding. EXPLAIN Pouring the noodles onto a plate increases the exposed surface area of the noodles so it lost heat to the surroundings faster.

Name: _____ () Class: _____

40b	ANALYSE	Circuit 1 will be an open circuit.
	CONCEPT	An electromagnet will attract magnetic materials. An open circuit will not allow current to pass through.
	EXPLAIN	M will become an electromagnet/magnetised and will attract Pin B. This creates an open circuit and the fan will be switched off.
41a	ANALYSE	An opaque object will result in a zero reading by the datalogger.
	CONCEPT	Light will be completely blocked by an opaque object.
	EXPLAIN	When object M is between the light sensor and the light source, it blocks the light from reaching the sensor. The number of times the light sensor cannot detect any light/reading is zero would be the number of object M counted.
41b	ANALYSE	Similar to 41a.
	CONCEPT	The objects can be counted when light is completely blocked by it using a sensor.
	EXPLAIN	3

Name: _____ () Class: _____

39a	ANALYSE	- Heat source – Sheryl's face - When the water droplets gained heat, Sheryl's face lost heat.
	CONCEPT	Water will gain heat and evaporate. The source of heat (object) will lose heat and decrease in temperature.
	EXPLAIN	The water droplets gained heat from Sheryl's face and evaporated, causing her face to lose heat and became cool.
39b	ANALYSE	When the fan was switched on, wind was generated.
	CONCEPT	The presence of wind increases the rate of evaporation.
	EXPLAIN	The wind generated by the fan increased the rate of evaporation of the mist (tiny water droplets) causing her face to lose more heat.
39c	ANALYSE	The arrangement of the bulb and fan is arranged in series.
	CONCEPT	The bulb and fan are arranged in series in a circuit. As the bulb and fan are arranged in series, when either one is not working, the other one cannot be turned on.
	EXPLAIN	Series arrangement. When either the fan or light bulb is spoilt/not working, the other also cannot be turned on / work.
40a	ANALYSE	The electromagnet will attract Pin B.
	CONCEPT	An electromagnet is a temporary magnet that will attract magnetic materials.
	EXPLAIN	Pin B will move away from Pin A. / It will move towards Steel bar M.