SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

PRELIMINARY EXAMINATION 2009

NAME:_____( ) DATE:_____

CLASS: PRIMARY 6SY / C / G / (S)E / P

SCIENCE

BOOKLET A

30 questions

60 marks

Total time for Booklets A & B: 1 h 45 min

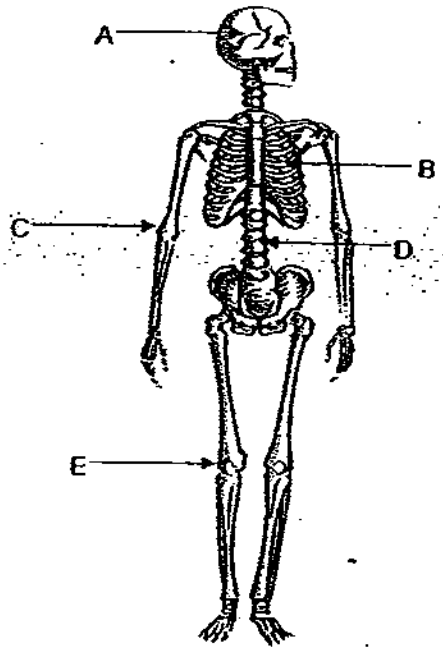
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

Part I (60 marks)

For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Which parts of the skeletal system protect the body's vital organs?



1) A and B only
2) B and D only
3) A, B and D only
4) B, C and E only

2. Which of these statements about how our bodies react when we exercise are true?

A: More oxygen is produced.
B: Blood is circulating at a faster rate.
C: The heart is beating at a faster rate.
D: The body needs more food and oxygen to provide energy.

1) A, B and C only
2) A, C and D only
3) B, C and D only
4) A, B, C and D

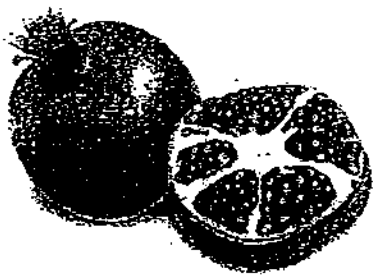
3. The diagram below shows a part of a plant growing at the backyard.

Which of the following statements about this plant are correct?

A: It has no roots.
B: It has weak roots.
C: It has weak stems.
D: It reproduces by seeds.

1) A and C only
2) A and D only
3) B and C only
4) C and D only

4. The diagram below shows a cross-section of a pomegranate fruit.



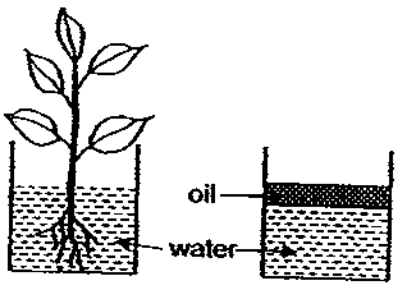
Which of the following statements are most likely <u>true</u> about the flower which this fruit has developed from?

A: The flower has many ovaries.
B: The ovary of the flower contains many ovules.
C: The fruit was developed from a plant with many female parts.
D: The flower went through pollination before the fruit was developed.

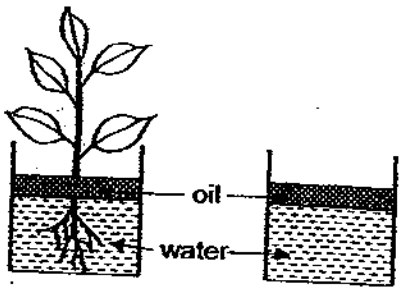
1) A and B only
2) A and D only
3) B and C only
4) B and D only

5. Josh wanted to find out if plants take in water. Which of the following setups should he use in order to ensure a fair test?

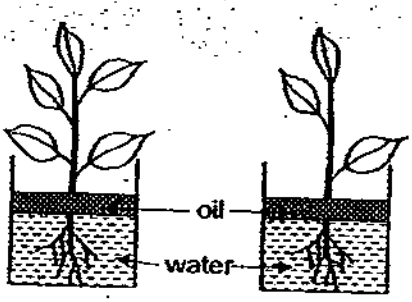
1)



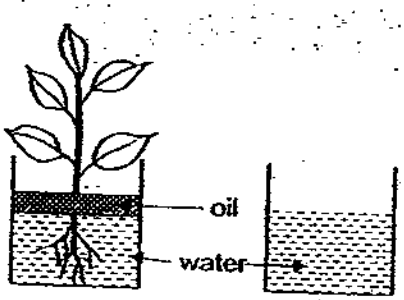
3)



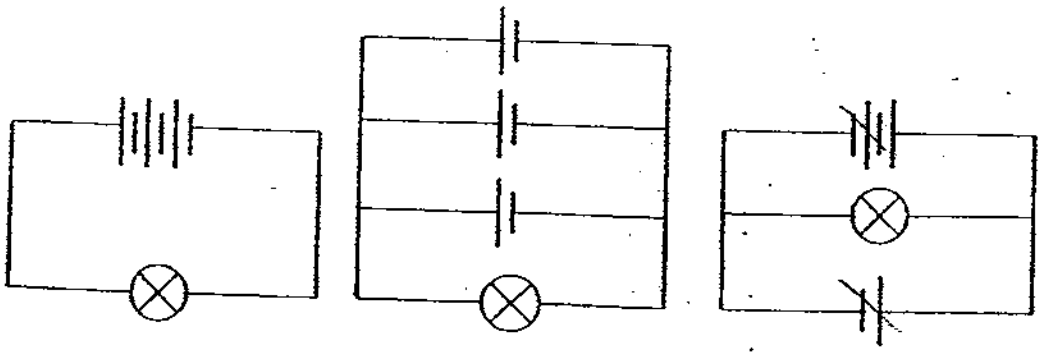
2)



4)



6. Suki sets up three electrical circuits as shown below. She uses three batteries for each circuit. What can she conclude?



A: The least amount of electricity flows through Bulb B.
B: The most amount of electricity flows through Bulb A.
C: The same amount of electricity flows through Bulb B and C.
D: A greater amount of electricity flows through the wires in Bulb B than in Bulb A and C.

1) A and B only
2) B and C only
3) A, B and C only
4) B, C and D only

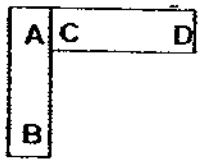
7. The diagram below shows a hex-key that is commonly used to set up self-assembled furniture. It works in the same way as a cross spanner.

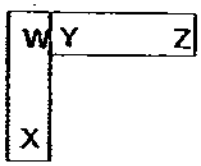
Which of the following statement/s is/are **true**?

A: The direction of the force is changed.
B: The effort applied is smaller than the load.
C: The direction of the force remains unchanged.
D: The distance moved by the effort is always longer than that moved by the load.

1) A and B only
2) B and C only
3) B and D only
4) B, C and D only

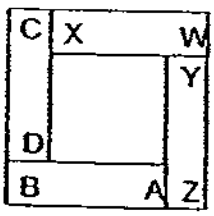
8. Two pairs of magnets are attracted to each other as shown below.



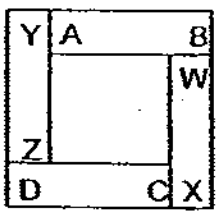


If A and W are south poles, which of the following is the most likely arrangement?

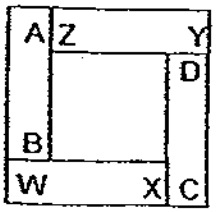
1)



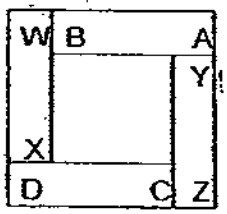
3)



2)



4)



9. An environmentalist discovers that air pollution levels are on the rise. Which of the following is/are **not** a cause of this problem?

A: Installation of more street lights.
B: Burning down trees that are in the city area.
C: Limiting the number of cars travelling on the road.
D: Closing down of factories in the central area of the country.

1) A only
2) B and D only
3) A, B and D only
4) A, C and D only

10. Which of the following shows desired and possible genetic engineering of a type of grapes?

1)	Disease-resistant and seedless	+	Not disease-resistant and seedless	=	Disease-resistant and with seeds
2)	Disease-resistant and with seeds	+	Not disease-resistant and with seeds	=	Disease-resistant and with seeds
3)	Disease-resistant and seedless	+	Not disease-resistant and seedless	=	Not disease-resistant and with seeds
4)	Disease-resistant and with seeds	+	Disease-resistant and seedless	=	Disease-resistant and seedless

11. The table below shows the populations of Organisms D, E and F over a period of 5 months. The figures were recorded at the end of the month.

Organism	March	April	May	June	July
D	140	153	168	170	179
E	9000	13000	6500	6300	6400
F	3500	3800	900	800	750

A drought occurred in May. Which of the following statements are true?

A: Organism E was able to recover faster than Organism F from the drought.
B: Organism D survived well in an environment that is prone to droughts.
C: Organisms E and F were not able to thrive in an environment that is prone to droughts.
D: The drought caused the temperature to increase drastically and this led to the decrease in all the populations of organisms.

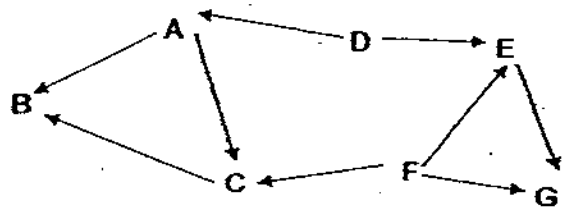
1) A and B only
2) B and D only
3) A, B and C only
4) B, C and D only

12. A scientist decided to put a young and healthy crocodile in the arctic to see if it was able to adapt to the cold environment. The crocodile died a few days later. What could have been the reason/s for its death?

A: The crocodile was easily spotted by predators.
B: The crocodile was unable to get access to enough water.
C: The crocodile was not able to find a suitable place to breed.
D: The crocodile was unable to obtain enough heat in the arctic.

1) D only
2) B and D only
3) A, B and D only
4) A, B, C and D

13. Study the food web below:



How many food chains are there in this food web?

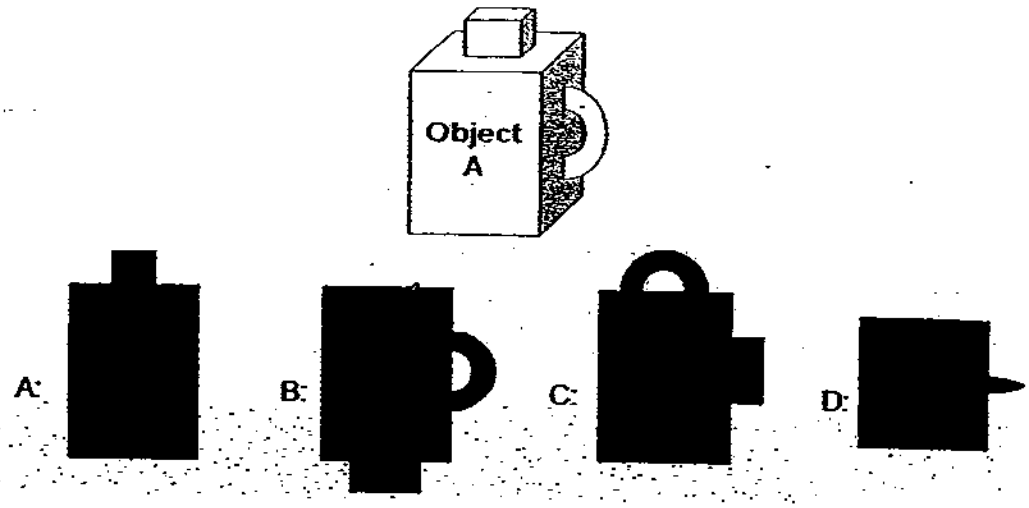
1) 6
2) 5
3) 3
4) 4

14. The equation below shows the process of respiration.

Oxygen + A ⟶ B + C + water vapour

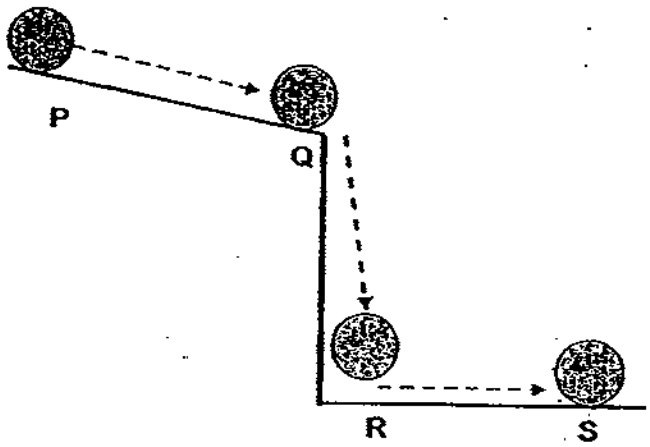
	A	B	C
1)	Energy	Sugar	Carbon dioxide
2)	Starch	Carbon dioxide	Energy
3)	Glucose	Energy	Carbon dioxide
4)	Water	Carbon dioxide	Starch

15. Which of the following shadow **CANNOT** be formed by Object A?



1) A only
2) C only
3) A and C only
4) B and D only

16. A ball at P was pushed towards Q. It rolls off Q and lands on R and continued rolling until it stopped at S.

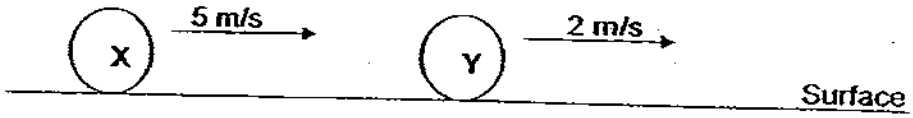


Which of the following statement/s is/are **true** based on the above?

A: The ball has the most kinetic energy at R.
B: The ball has the most potential energy at P.
C: Kinetic energy of the ball increases from R to S.
D: Potential energy of the ball decreases from Q to R.

1) A and B only
2) B and D only
3) A, B and D only
4) B, C and D only

17. Two identical balls, X and Y, are moving in the same direction but at different speeds on a surface.

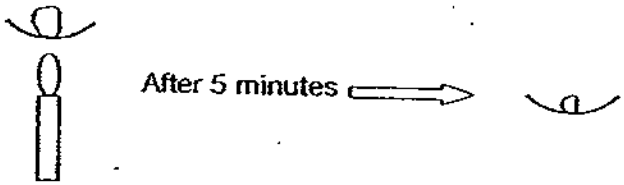


Which of the following will happen after Ball X collides with Ball Y?

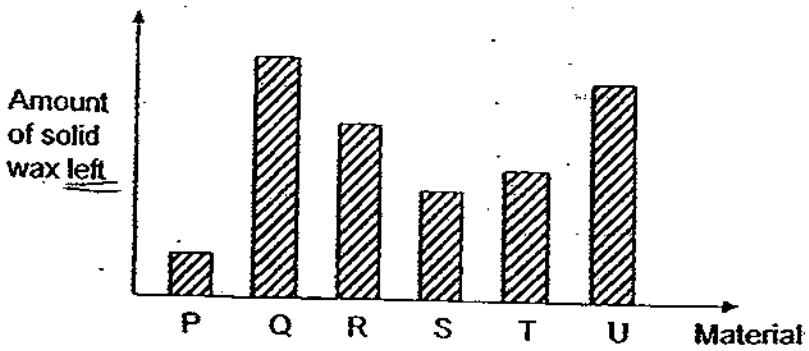
A: Ball X and Ball Y will move in the same direction.
B: Ball X and Ball Y will move in opposite directions.
C: Ball X will slow down and Ball Y will move faster.
D: Ball X and Ball Y will both slow down and move at the same speed.

1) A and C only
2) A and D only
3) B and C only
4) B and D only

18. Siti took six similar size pieces of wax and heated each of them in curved dishes made of different materials, P,Q,R,S,T and U. The materials consist of metals and non-metals.



She heated the wax for 5 minutes and observed the amount of solid wax left on the dish. The data was plotted on the graph below.



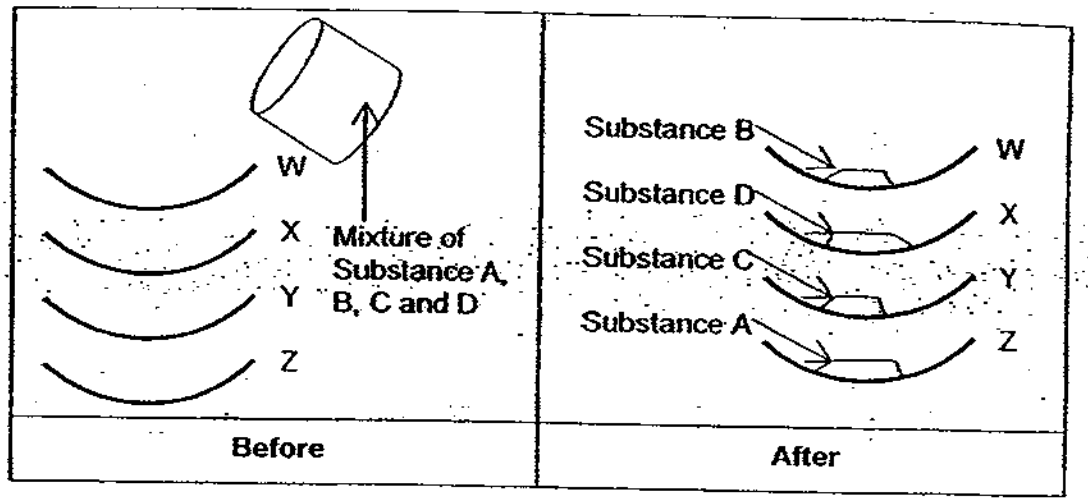
Which of the following statements are true?

A: Material P and S could be metals.
B: Material Q and R could be non-metals.
C: Material S is a better conductor of heat than T.
D: Material U is a poorer conductor of heat than Q.

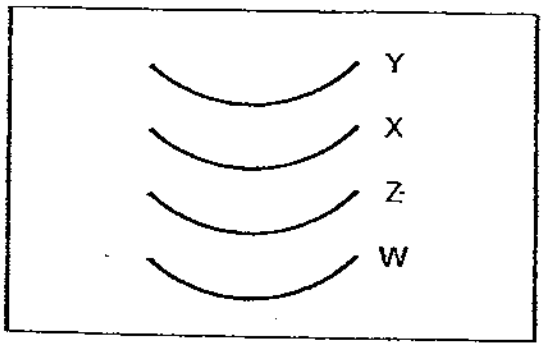
1) A, B and C only
2) A, B and D only
3) B, C and D only
4) A, B, C and D

19. Beng Huat placed 4 different Filters W, X, Y and Z one above another as shown in the diagram below. He then poured a mixture of Substance A, B, C and D over the filters.

He observed that Substance B is retained by Filter W, Substance D is retained by Filter X, Substance C is retained by Filter Y and Substance A is retained by Filter Z.



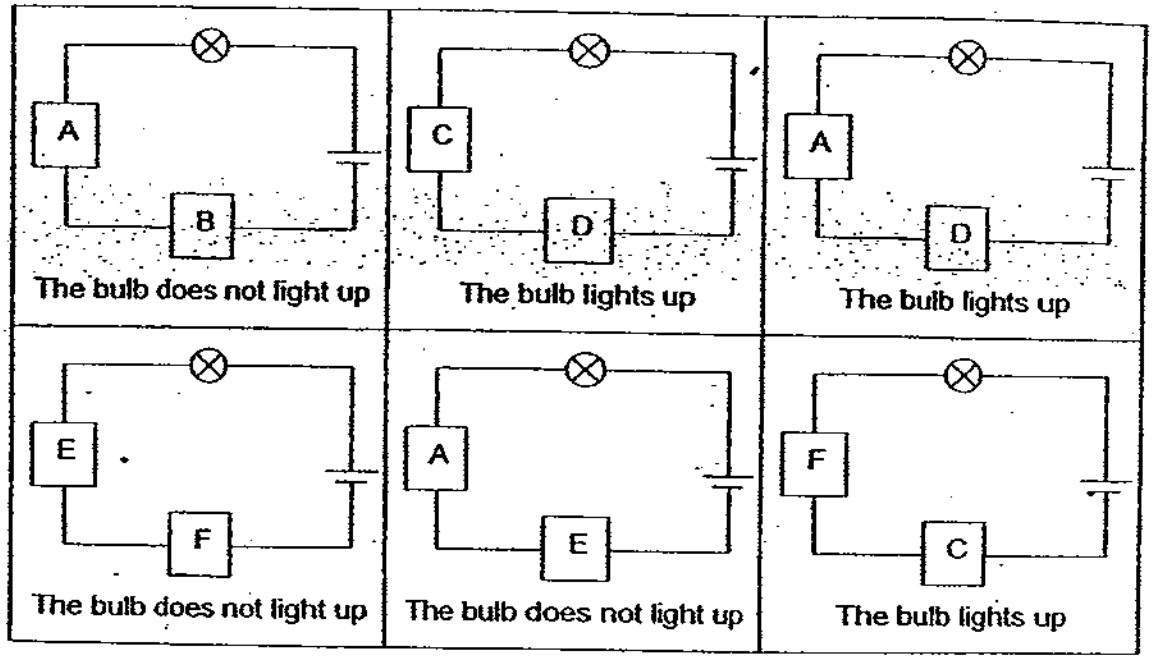
Beng Huat repeated the experiment by repositioning the filters as shown below. He then poured the mixture of Substance A, B, C and D over the filters.



Which of the following correctly indicates the substances that are retained by each filter in his new experiment?

	Filter Y	Filter X	Filter Z	Filter W
1)	Substance C	Substance D	Substance A	Substance B
2)	Substance B and D	Nil	Substance C	Substance A
3)	Substance A	Substance C	Substance D	Substance B
4)	Substance B, C and D	Nil	Substance A	Nil

20. A few circuits have been set up to find out if Objects A, B, C, D, E and F conducts electricity. The set-ups and observations are shown below.



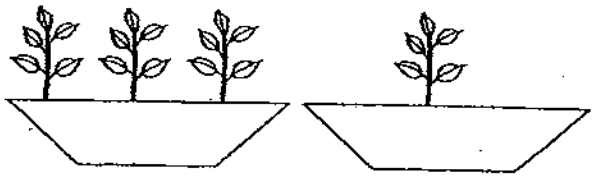
Based on their observations of the circuits above, 4 pupils made the following conclusions.

Pupils	Conclusions
Susan	B, C, D can conduct electricity but A, E and F cannot.
Peter	A and F can conduct electricity but B, C, D and E cannot.
Sanjit	C and D can conduct electricity but A, B, E and F cannot.
Mohammad	A, C, D and F can conduct electricity but B and E cannot.

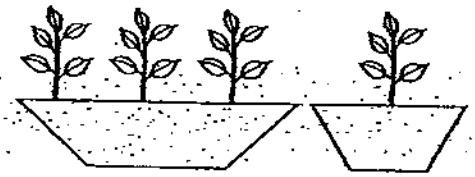
Whose conclusion is correct?

1) Susan
2) Peter
3) Sanjit
4) Mohammad

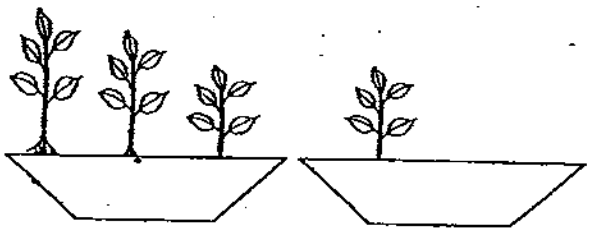
21. Four pupils, Siew Lee, Rahman, Joseph and Tim carried out an experiment to find out the effects of overcrowding. They setup the following.



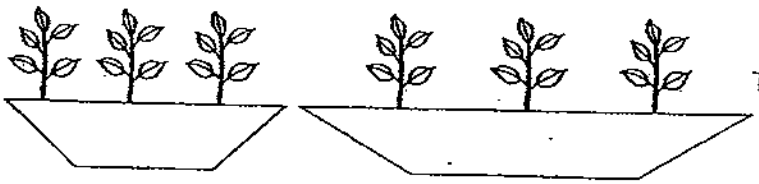
Siew Lee's setup



Rahman's setup



Joseph's setup



Tim's setup

Who conducted a fair test?

1) Siew Lee only
2) Rahman only
3) Siew Lee and Tim only
4) Joseph and Tim only

22. Mrs Lee compared the volumes of Substance P, Q and R before and after heating. The results of her experiment are as shown below.

Substance P	Volume before heating	Volume after heating
1st trial	$20cm^3$	$32cm^3$
2nd trial	$40cm^3$	$65cm^3$
3rd trial	$60cm^3$	$97cm^3$

Substance Q	Volume before heating	Volume after heating
1st trial	$20cm^3$	$25cm^3$
2nd trial	$40cm^3$	$49cm^3$
3rd trial	$60cm^3$	$78cm^3$

Substance R	Volume before heating	Volume after heating
1st trial	$20cm^3$	$45cm^3$
2nd trial	$40cm^3$	$88cm^3$
3rd trial	$60cm^3$	$131cm^3$

Given that liquid expands more than solids when heated and gases expand more than liquids when heated, what are Substances P, Q and R?

	Substance P	Substance Q	Substance R
1)	Solid	Liquid	Gas
2)	Liquid	Solid	Gas
3)	Gas	Solid	Liquid
4)	Solid	Gas	Liquid

23. Which of the following factor/s cause/s the Sun to appear to change its position during different times of the day?

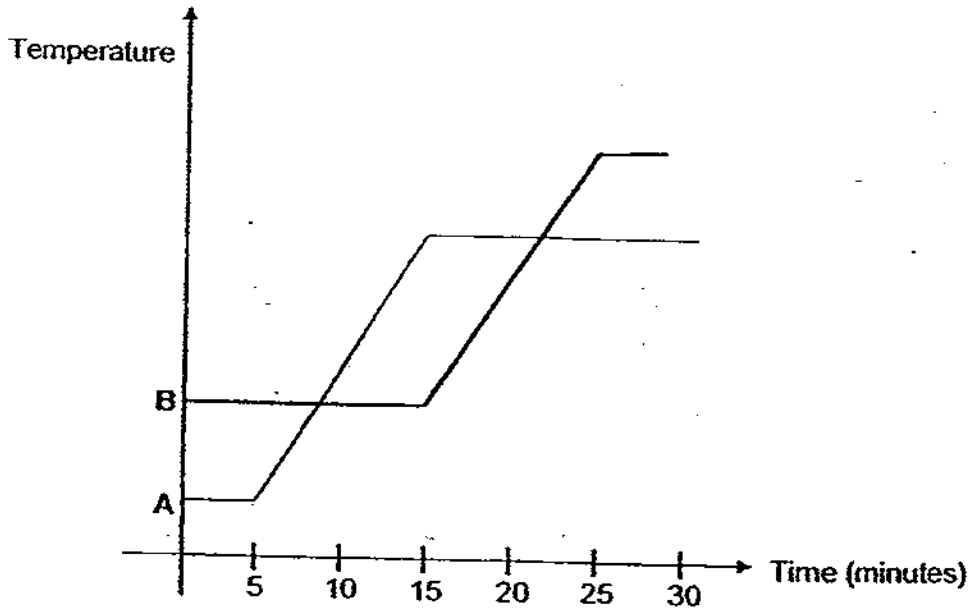
A: The Sun's revolution around the earth.
B: The Earth's revolution around the sun.
C: The Earth's rotation about its own axis.
D: The Moon's revolution around the earth.

1) B only
2) C only
3) B and D only
4) C and D only

24. Mrs. Lim makes two holes on top of a can of full cream milk. Her reason was that it helps the milk to flow out faster. How does this work?

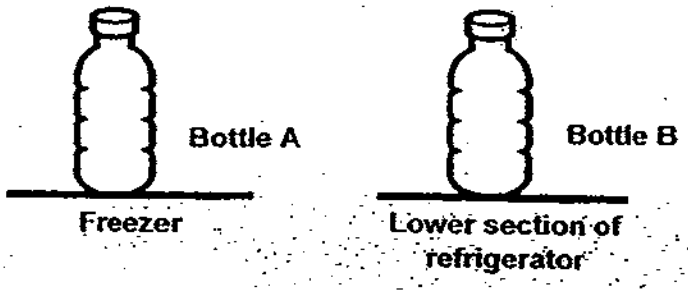
1) The milk can flow out from both holes at the same time.
2) One hole allows the air to enter, pushing the milk out of the other hole.
3) One hole allows the milk to flow out while the other allows the air to escape.
4) Both holes allow more air to enter the can and the milk can flow out at a faster rate.

25. A and B are liquids and are heated up at the same rate. At which time period are both A and B in the gaseous state?



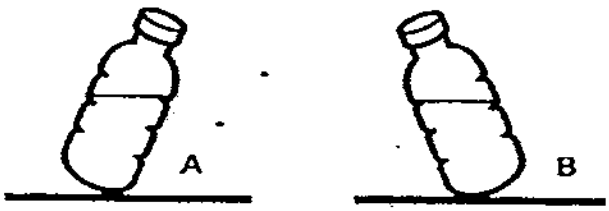
1) At the 15th minute
2) At the 22nd minute
3) After 25 minutes
4) Between 15 to 22 minutes

26. Roger filled half of bottle A and half of bottle B with water. He then put bottle A in the freezer and bottle B in the lower section of the refrigerator.

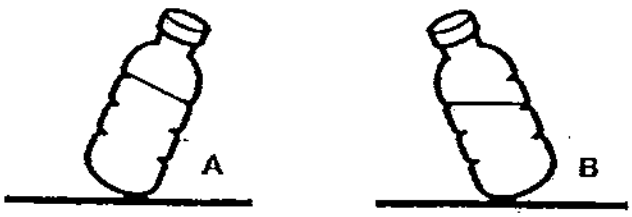


Which of the following shows the correct water levels in the two bottles after they have been taken out from the refrigerator and placed on the kitchen table as follows?

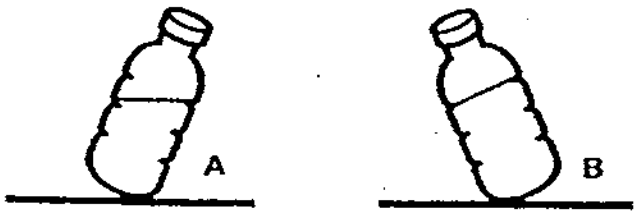
1)



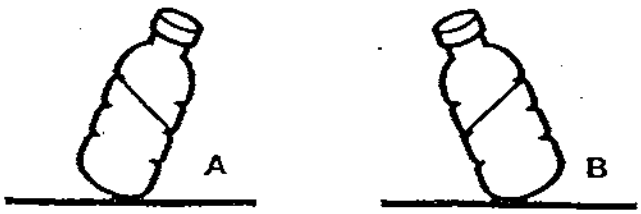
2)



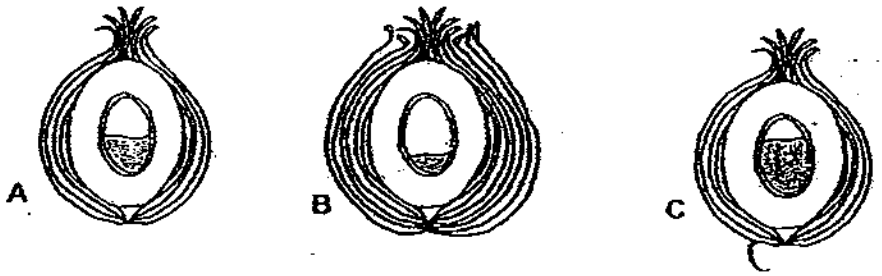
3)



4)

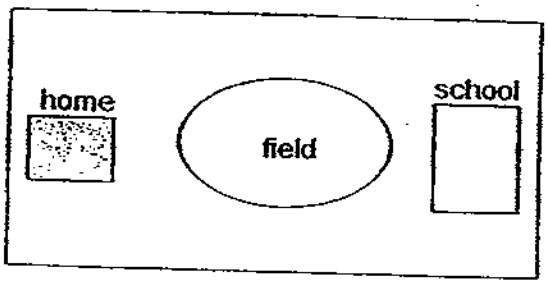


27. The diagram below shows a cross-section of a coconut. All of them contain some juice. Order the coconuts in terms of their buoyancy, starting with the one that floats best.



1) A, B, C
2) A, C, B
3) B, A, C
4) C, A, B

28. Joe notices a plant, X, growing in a field near his house. Joe has to walk across the field to get to school every day. A few weeks later, he finds out that Plant X is starting to grow outside his school. Which of the following explain this?



A: The wind may have carried the seeds of Plant X to that area.
B: The fruits of Plant X may have been scattered to that area by splitting.
C: The seeds of Plant X cling on to Joe's clothes and drop off in that area.
D: Animals may eat the fruits of Plant X and drop the seeds through their droppings.

1) A and C only
2) C and D only
3) A, B and C only
4) A, C and D only

29. During a Science lesson, Liming learnt how to identify the stomata of a plant. Her teacher asked her to look out for a pair of guard cells that surrounds each stomata. Liming then made some observations of different parts of the plant using a microscope. She put a tick (✓) in the table below for each part that is present in Plant Part X, Y and Z.

	Plant Part X	Plant Part Y	Plant Part Z
Nucleus	✓	✓	✓
Cell wall	✓	✓	✓
Guard cells			✓
Chloroplast		✓	✓
Cell membrane	✓	✓	✓

Which of the following correctly shows which part of the plant, Plant Parts X, Y and Z were obtained?

	Stem	Leaf	Root
1)	Plant Part X	Plant Part Y	Plant Part Z
2)	Plant Part Y	Plant Part Z	Plant Part X
3)	Plant Part Z	Plant Part X	Plant Part Y
4)	Plant Part Z	Plant Part Y	Plant Part X

30. Lina is asked to find out the differences between the life cycles of a moth and a toad. She wrote the statements as shown below. Which of the following comparison(s) is/are suitable?

A: The toad's young can swim but the moth's cannot.
B: The toad lays eggs in water but the moth lays eggs on land.
C: The toad's life cycle has 3 stages but the moth's has 4 stages.
D: The toad spends part of its life cycle in water but not the moth.

1) A and B only
2) C and D only
3) B, C and D only
4) A, B, C and D only

SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

PRELIMINARY EXAMINATION 2009

NAME: _____( ) DATE: _____

CLASS: PRIMARY 6SY / C / G / (SE) / P

SCIENCE

BOOKLET B

16 questions

40 marks

Total time for Booklets A & B: 1 h 45 min

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)
PRELIMINARY EXAMINATION 2009
PRIMARY 6
SCIENCE

Name: _____( ) Date: _____

Class: Primary 6 SY / C / G / SE / P Time: 1hr 45 mins

	Marks Obtained	Max. Possible Marks
Section A		60
Section B		40
Total		100

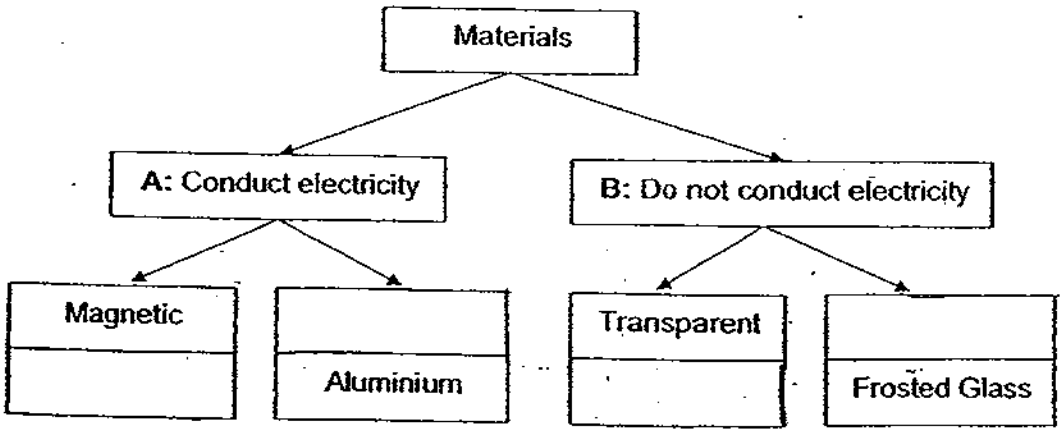
Parent's Signature

.....

Section B (40 marks)
Write your answers to questions 31 to 46 in this booklet.

31. Study the classification chart below.

a) Fill in the blanks with suitable answers. (2m)

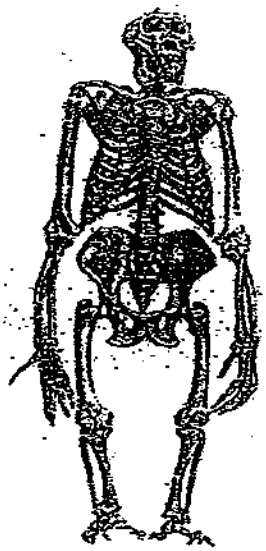


b) Write another pair of group headings suitable for A and B. (1m)

A: _____ B: _____

3

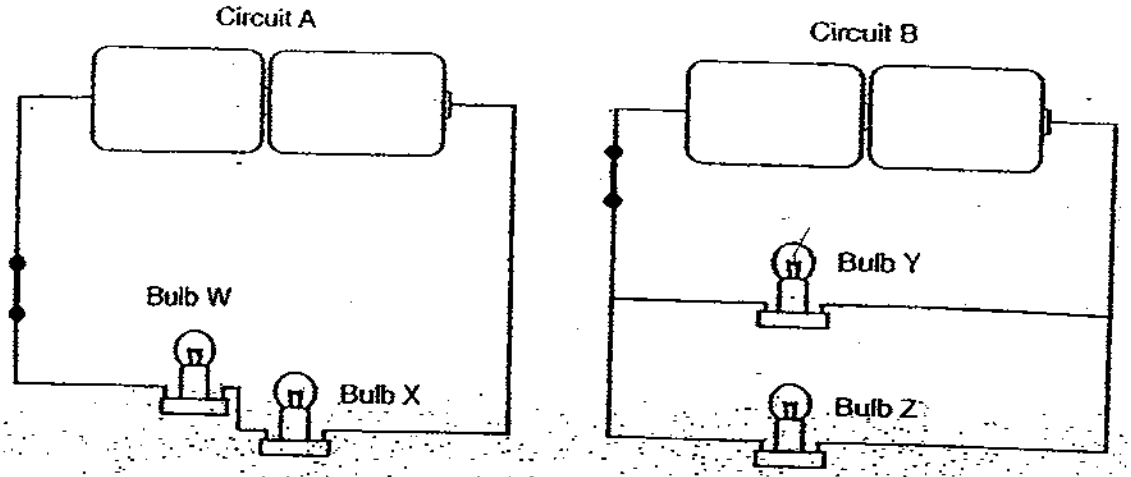
32. Richard dug up the skeleton of a creature as shown in the diagram below.



Based on the diagram, put a tick [✓] in the correct column for each of the following statements Richard can infer from the skeleton. (2m)

	Statement	True	False	Not Possible to Tell
a)	This creature's arms are shorter than its legs.			
b)	This creature can walk on fours.			
c)	This creature breathes through lungs.			
d)	This creature is able to bend its limbs.			

33. Wendy set up two circuits as shown below. The batteries and bulbs used in both circuits are similar.



a) What will happen to the other bulbs in the above circuits if Bulb W and Bulb Z are removed from their holders? (2m)

Bulb X: _____

Bulb Y: _____

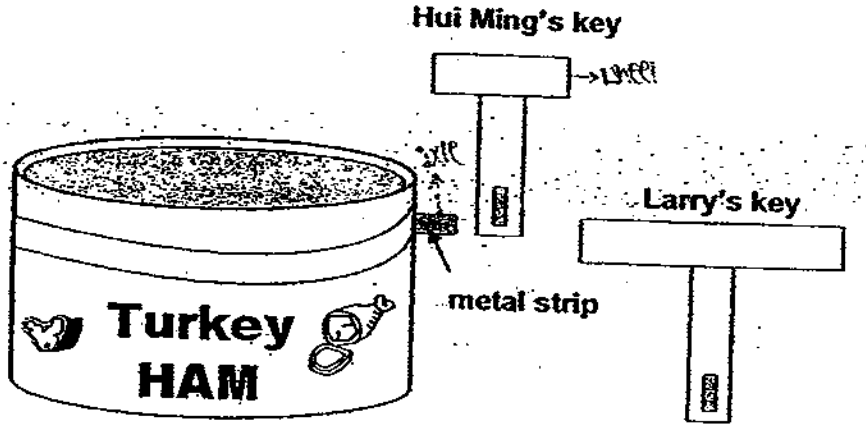
b) Will Wendy obtain the same results if Bulb W and Bulb Z fuse instead of being removed from the holders? Explain your answer. (1m)

_____

_____

3

34. Hui Ming is trying to open a tin of turkey ham. A key that is in the shape of a 'T' is provided. The metal strip is put through the hole in the key and the entire strip can be removed by turning the key. Larry asked Hui Ming to use his key because he thinks the design is much better than the one Hui Ming has.



a) Is Larry right to claim that his key is better? Explain your answer clearly. (1m)

_____

_____

b) If Hui Ming used her key and had turned about 25 times to remove the entire strip from the tin, will Larry's key make more or less rounds? (1m)

_____

35. James wanted to conduct an experiment to find which of the two wet suits made from different materials, will allow him to swim faster in water.

Wet suit A made from material x

Wet suit B made from material y

He soaked both in water for the same duration. He tabulated his results as follows:

Item	Mass before soaking	Mass after soaking	Texture	Colour
Wet suit A	600g	950g	Rough	Blue
Wet suit B	150g	210g	Smooth	Black

James went for a swim. He took 4 minutes to swim one lap in a swimming pool wearing Wet suit A. He then removed it and put on Wet suit B. He swam another lap and this time, he took 1 minute 45 seconds. Explain why there is a time difference assuming that James exerts the same amount of force for both swims. (2m)

2

36. Study the food chain below.

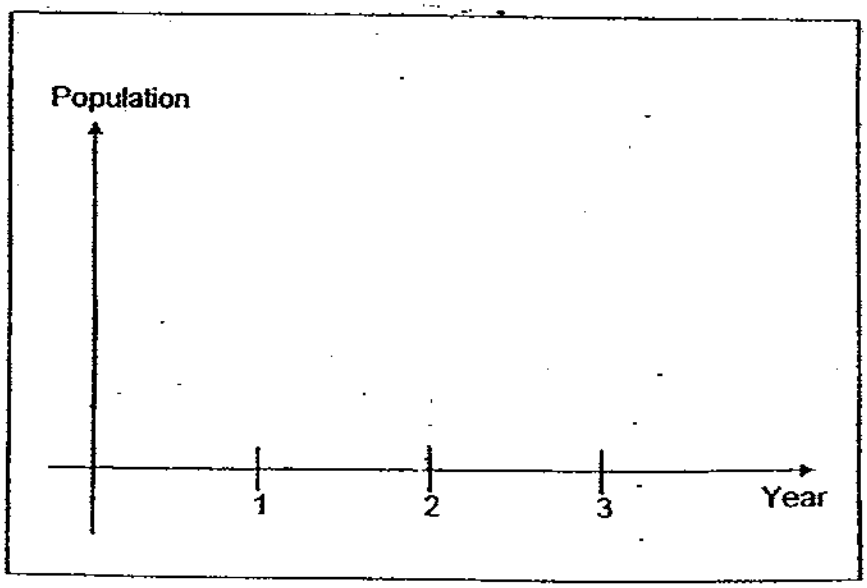
maize plant ⟶ rats ⟶ owls

a) Over a period of six years, the number of rats has increased even though the number of owls has also increased. State two reasons why this is so. (2m)

(i) _____

(ii) _____

b) If in a certain year, a disease broke out and destroyed half the owl population, what would the population of the rats be like over 2 years? Draw a line on the graph below to represent the population of rats over the period of 2 years. (1m)



c) Explain your answer in (b). (1m)

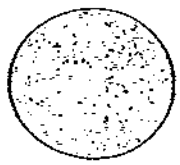
_____

_____

_____

4

37. Study the characteristics of the following oranges.



Orange A

Big, juicy, sour and has a nice shape.

Orange B

Big, juicy, sweet and does not have a nice shape.

Orange C

Small, not juicy, sweet and has a nice shape.

Orange D

Small, juicy, sour and does not have a nice shape.

a) Farmer Brown wanted to have oranges that are big, juicy, sweet and have a nice shape. Which two oranges should he pick for genetic selection? (1m)

_____

b) Farmer Brown then found out about genetic engineering. The oranges that went though genetic engineering were disease-resistant and seedless. What could be another characteristic of the oranges other than those already mentioned that Farmer Brown might see in his new crops of oranges under genetic engineering? (1m)

_____

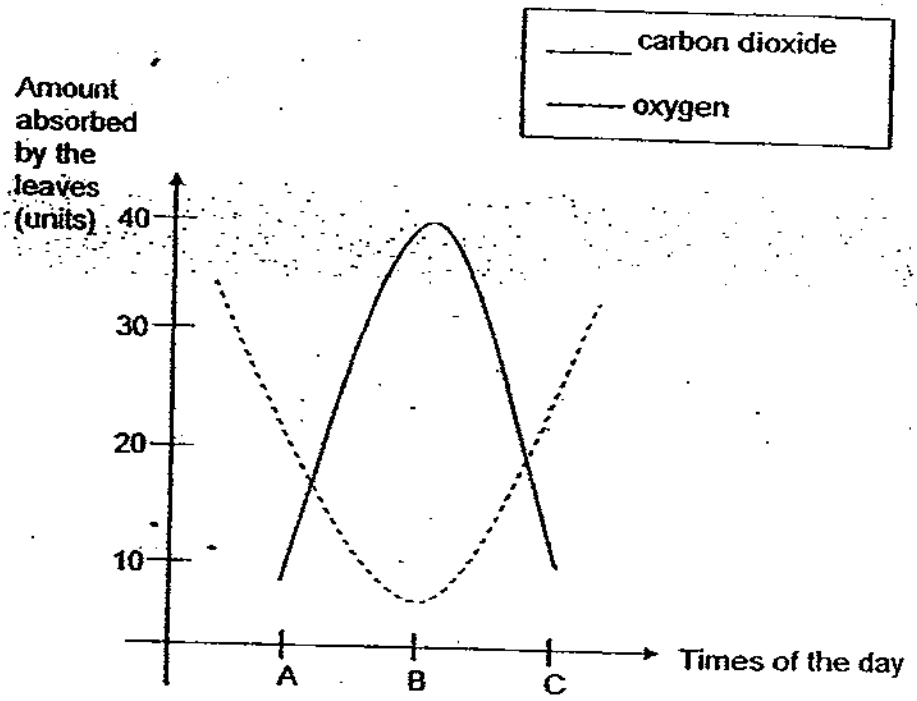
_____

c) List one **disadvantage** genetic engineering has over genetic selection. (1m)

_____

3

38. The graph below shows the amount of carbon dioxide and oxygen taken in by a green plant during different periods of the day.



a) What times of the day do B and C represent? (1m)

_____

b) Explain why the intake of carbon dioxide during B is higher than that during A. (1m)

_____

_____

39. Amin was in the outdoor swimming pool when he noticed his friend, Ken getting out of the pool and quickly putting on a thick cotton robe as shown in the picture below. Amin thought Ken was silly to wear the robe as the weather was so warm. Ken argued that he was feeling very cold especially in the breeze.

cotton robe

Explain why Ken felt cold when he was out of the water and even colder in the breeze. (2m)

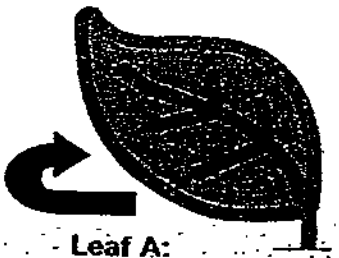
_____

_____

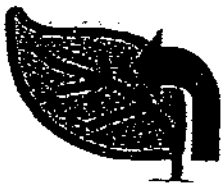
_____

2

40. The lunar moth lays its eggs on the underside of the leaf so that its young have ready food supply when it hatches.

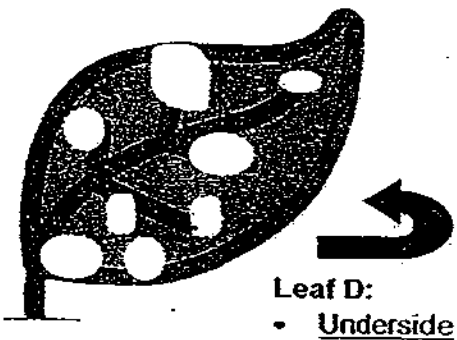


Leaf A:
- Underside of big, green leaf



Leaf C:
- On top of small, green leaf

Leaf B:
- On top of small, brown leaf



Leaf D:
- Underside of big, green leaf with holes

On which leaf should the lunar moth lay its eggs? Give 2 reasons to support your choice. (2m)

Leaf: _____

Reason (i): _____

_____

Reason (ii): _____

_____

41. Hai Ming conducted an experiment to find out what is the best temperature for seeds to germinate. He prepared five setups and in each, he placed some green beans on moist cotton wool and tabulated the results in a table as shown below.

Setup	A	B	C	D	E
Place	oven	warm room	room	fridge	freezer
Temperature	85°C	32°C	26°C	18°C	3°C

a) Which two variables must Hai Ming keep constant for this experiment? (1m)

_____

_____

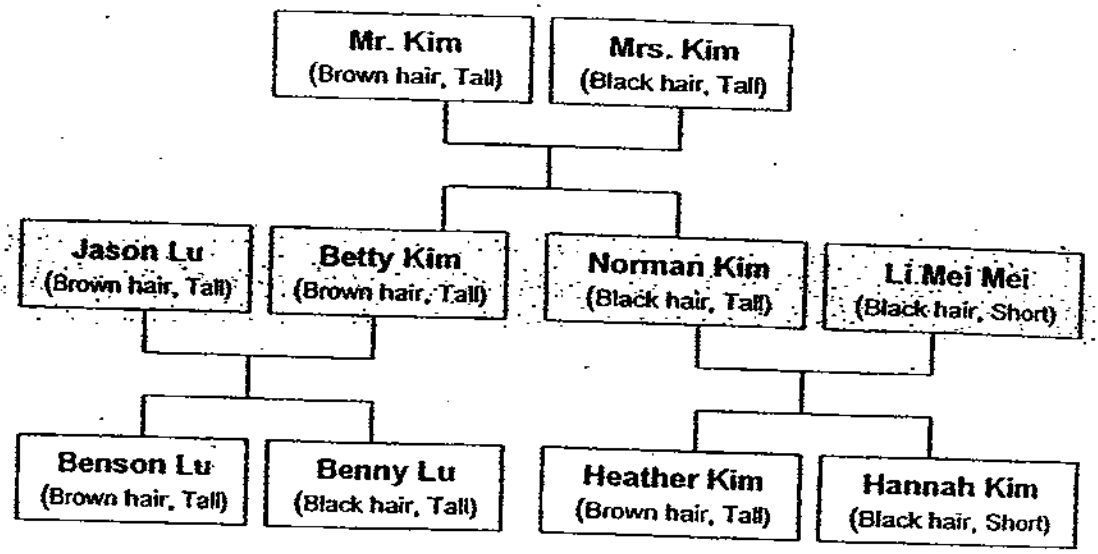
b) In which set-up/s did the green beans germinate? (1m)

_____

_____

2

42. Study the Kim family tree carefully.



a) Which characteristic/s did Heather Kim inherit from her father? (1m)

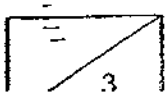
_____

b) Why did Benny Lu have black hair when both his parents have brown hair? (1m)

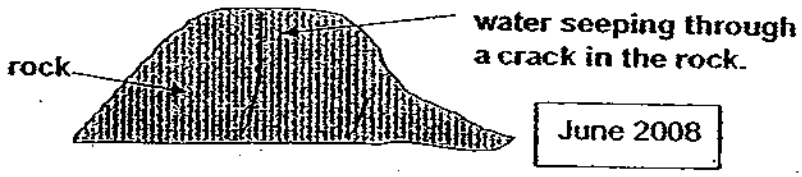
_____

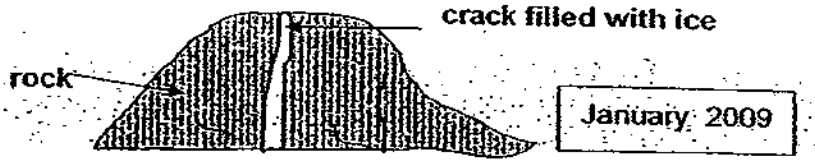
c) How many cousins and siblings does Hannah have? (1m)

_____



43. Robby watched a documentary on water and he learnt that ice could cause huge cracks in rocks and big boulders.

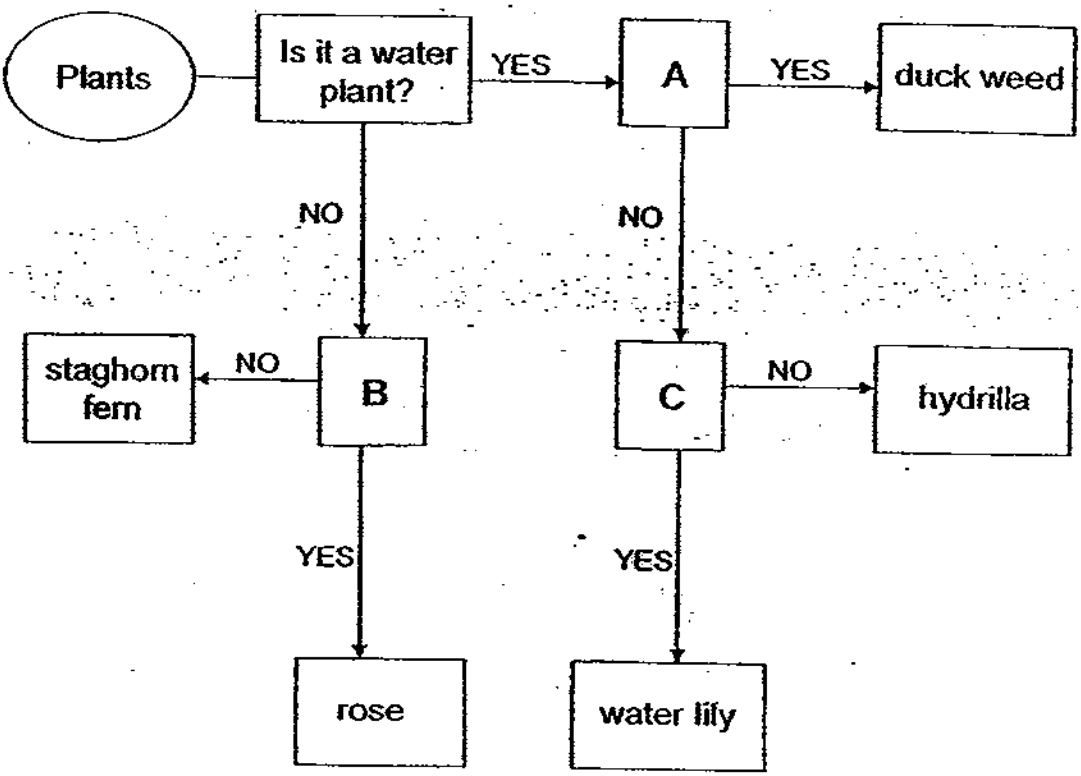




Explain how this is possible. (2m)

2

44. Study the flow chart below.



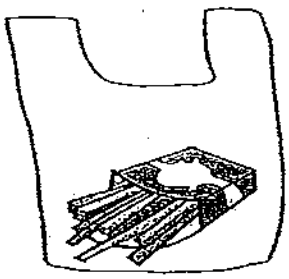
What are the possible questions for A, B and C? (3m)

A: _____

B: _____

C: _____

45.



Julie was at a fast food restaurant and she bought some fries home to eat. The pack of freshly fried fries was placed in a plastic bag. When Julie reached home, she discovered that there were drops of liquid on the inner sides of the plastic bag and the box was a little damp.

a) How did the drops of liquid form? (2m)

_____

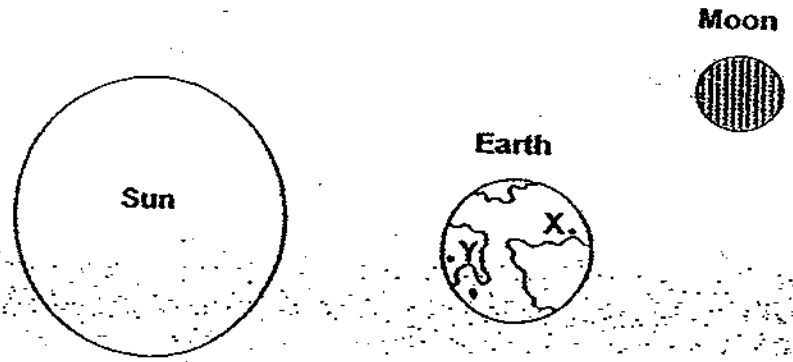
_____

b) Which action can Julie take to keep the fries crispy? Put a tick [✓] in the column. (1m)

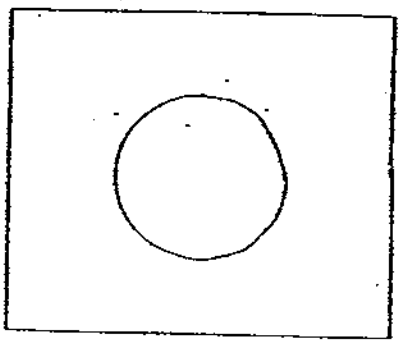
Actions	Tick
Put the fries in a plastic box.	
Put the fries in an open paper bag.	
Put the fries in a styrofoam box.	

3

46.



a) Based on the above diagram, how will the moon appear to a person at position X? Draw the moon phase in the box provided. (1m)



b) Norman concluded that a person at position Y is experiencing day and will continue to do so as the earth revolves around the sun. Is he correct? Explain your answer. (1m)

Answer Ke

EXAM PAPER 2009

SCHOOL : SCGS PRIMARY
SUBJECT : PRIMARY 6 SCIENCE

TERM : SA2

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
1	3	4	4	3	1	4	4	4	4	3	1	1	3	2	3	1

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
1	4	4	3	2	2	2	3	2	3	4	2	3

31)a)Iron, Non-magnetic, Glass, Translucent
b)A: Metals B: Non-metals

32)a)F b)Not c)T d)T

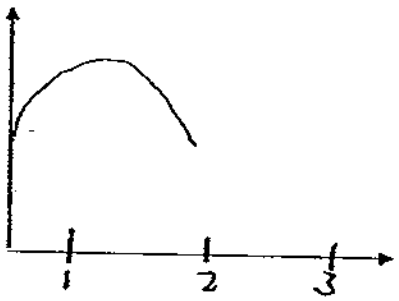
33)a)X: Bulb X would not light-up.
Y: Bulb Y would light-up.
b)Yes, Bulbs Y and Z are arranged in parallel so Bulb Y will still light up buy W and X are arranged in series so both will not light the current cannot pass the fused bulbs.

34)a)Yes. Lesser effort is required as Larry's key is bigger.
b)It would make less round.

35)Wet suit B is lighter wet suit A so there is more buoyancy for B and B is smoother that A so there is less water resistance and B does not absorb so much water.

36)a)i)The maize plant population had increased so there was more food for the rats to feet on.
ii)The birth rate of the rats was higher than owls.

36)b)



c)The population of rats will increase as there are fewer predators preying on them.

37)a)Orange A and B.
b)They are resistant to weed killers.
c)Genetic engineering products may not be safe for consumption.

38)a)B represents noon and C represents the night.
b)B is the hottest and brightest time of the day and the rate of photosynthesis was higher then when is was at night as plants cannot photosynthesize in the night.

39)When Ken came out of the water, there are water droplets on Body.As the water droplets evaporate heat is removed from his body, thus he feels cold and even colder in the breeze. Water droplets on his body evaporate removing heat from his body and the breeze increasing the rate of evaporation.

40)Leaf:A
i)Leaf A is big and has a big surface area for the young to feed on.
ii)It will hot be visible to predators.

41)a)The amount of water on the moist cotton wool and the number of beans.
b)Set-up B and C.

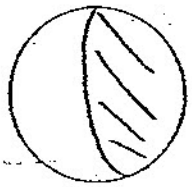
42)a)She inherited his tall height.
b)His material grandmother had black hair.
c)She has one sibling and two cousins.

43)During winter the water in the rock froze filling the crack with ice. The volume of water more as the volume water in the rock froze. During summer the ice melted and thus the huge crack as left behind.

44)A: Does it float on the water's surface?
B: Does it have flowers?
C: It is partially submerged?

45)a)The warm water vapour from the fries condenses on the cooler inner surface of the plastic bag.

46)a)



b)No. The revolution of the earth around not cause day and night but the rotation of the earth causes day and night.