

NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

**SEMESTRAL ASSESSMENT 2
2018**

BOOKLET A

Date: 29th October 2018

Duration: 1 h 45 min

Name: _____ ()

Class: Primary 5 ()

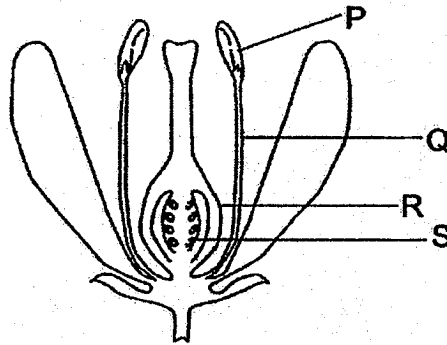
**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.**

Booklet A consists of 19 printed pages including this cover page.

Section A (28 x 2 marks = 56 marks)

For each question from 1 to 28, four options are given. One of them is the correct answer. **Indicate your choice and shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.**

1. The diagram below shows a flower.



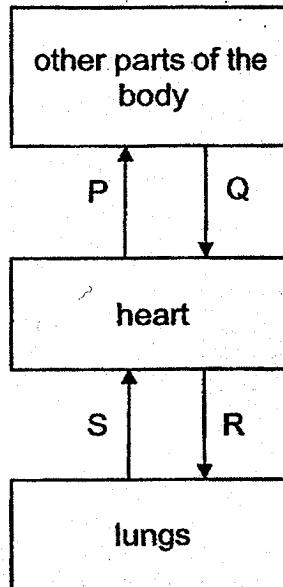
Which of the following is correct after pollination and fertilisation have taken place?

	Will develop into a seed	Will develop into a fruit
(1)	P	Q
(2)	Q	S
(3)	R	P
(4)	S	R

2. Which one of the following characteristics is **not** inherited from the parents?

- | | |
|---------------------|----------------------|
| (1) Dimples | (2) Length of nails |
| (3) Type of eyelids | (4) Type of earlobes |

3. Study the diagram below. P, Q, R and S represent blood vessels.

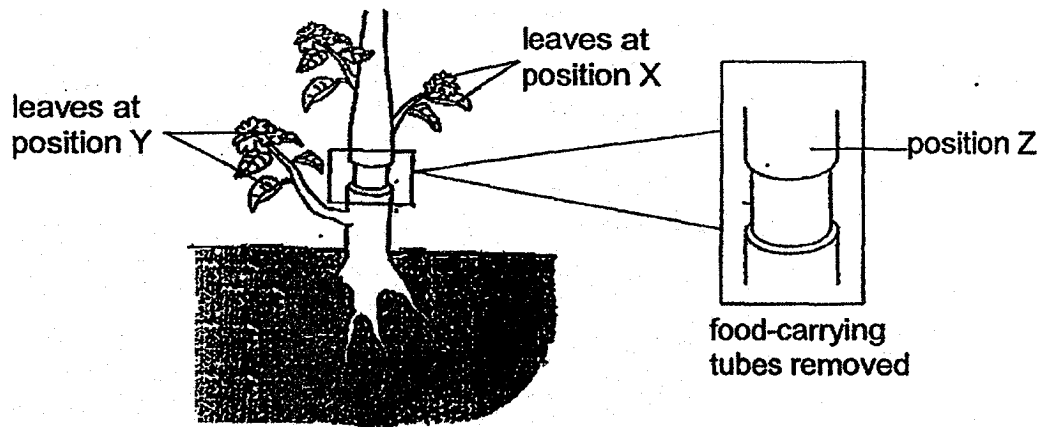


Direction of blood flow in a human

Based on the diagram above, which one of the following statements is correct?

- (1) R contains more oxygen than S.
- (2) Q and R contain only carbon dioxide.
- (3) R contains more digested food than Q.
- (4) Q contains more carbon dioxide than S.

4. Sally removed the food-carrying tubes of a plant as shown in the diagram below.



Sally observed the plant after one week and made the following statements. Which of the following statements are correct?

- A The leaves at position X will remain green.
- B The food-carrying tubes at position Z will swell.
- C The leaves at position Y will die due to the lack of food.

- | | |
|------------------|------------------|
| (1) B only | (2) A and B only |
| (3) A and C only | (4) A, B and C |

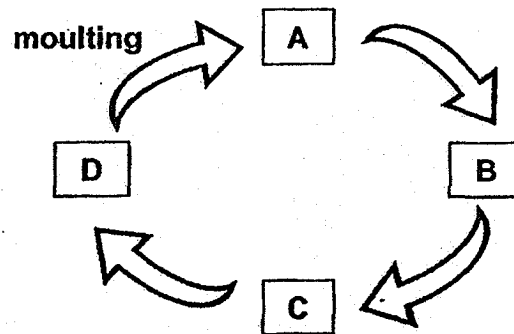
5. The diagram below shows a cell.



Which part of a living thing is this cell likely to be taken from?

- | | |
|--------------------------|---------------------|
| (1) hair of a cat | (2) root of a tree |
| (3) leaf of a rose plant | (4) skin of a human |

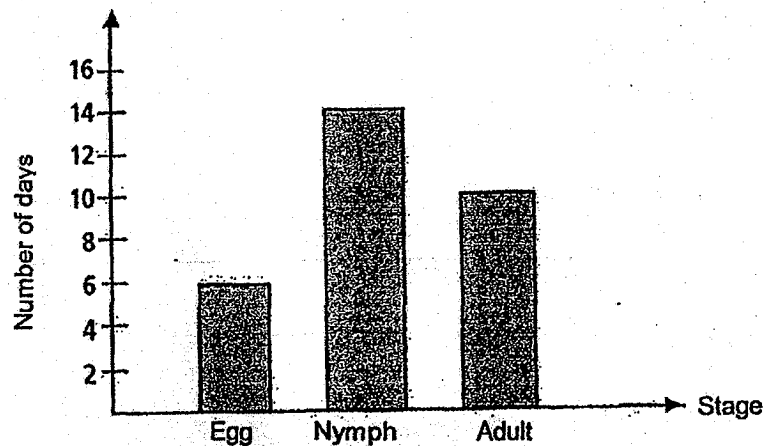
6. The diagram below shows the stages in the life cycle of a mosquito.



Which one of the following correctly represents A, B, C and D based on the diagram above?

	A	B	C	D
(1)	Egg	Larva	Pupa	Adult
(2)	Pupa	Adult	Egg	Larva
(3)	Adult	Egg	Larva	Pupa
(4)	Larva	Pupa	Adult	Egg

7. The graph below shows the number of days insect G spent in each stage of its life cycle.

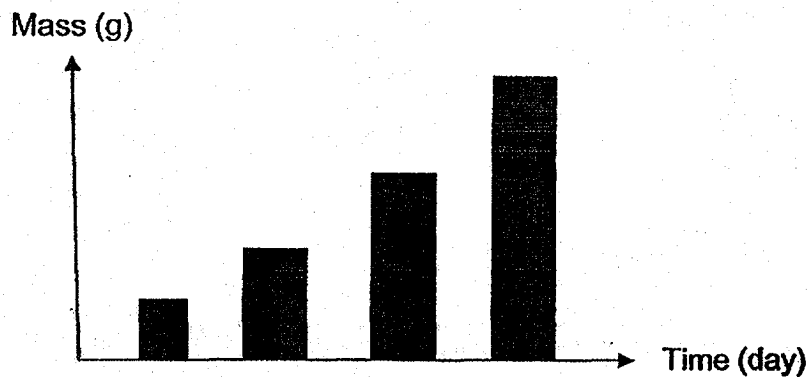


Based on the graph above, which of the following statement(s) is/are true of the life cycle of insect G?

- A There are three stages in its life cycle.
- B The number of days spent in the adult stage is shorter than in the nymph stage.
- C After the egg hatches, insect G takes another 24 days to become an adult.

- (1) A only
- (2) A and B only
- (3) B and C only
- (4) A, B and C

8. The graph below shows the changes in the mass of one part of a seedling as it develops into an adult plant.

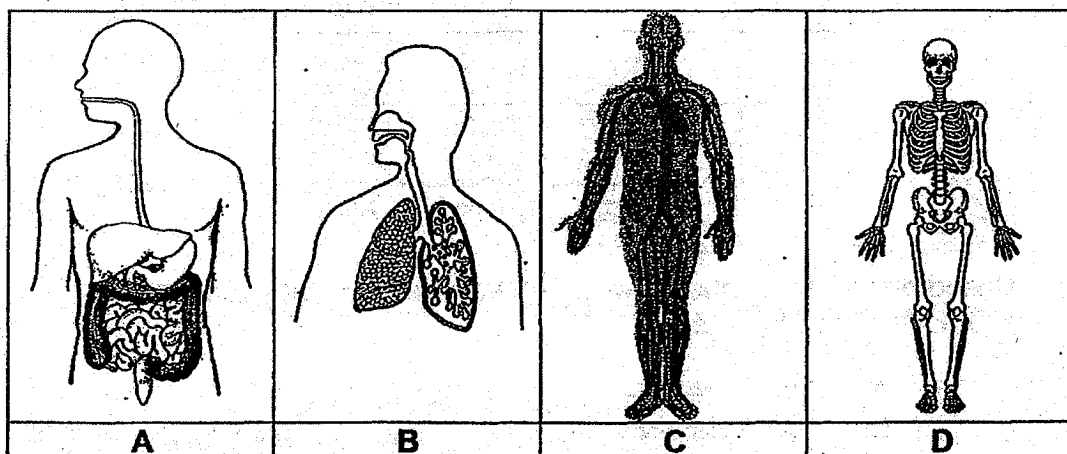


Which of the following are the possible parts of the seedling that the graph above represents?

- A root
- B shoot
- C seed leaf

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

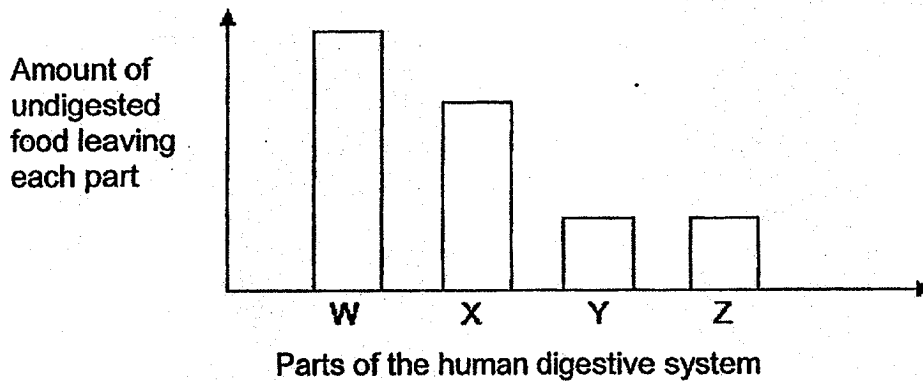
9. Study the diagrams below.



Which one of the systems, A, B, C and D, are at work when Jacob is taking a nap after his lunch?

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

10. The graph below shows the amount of undigested food found leaving the different parts of the human digestive system. Parts W, X, Y and Z are in sequence.



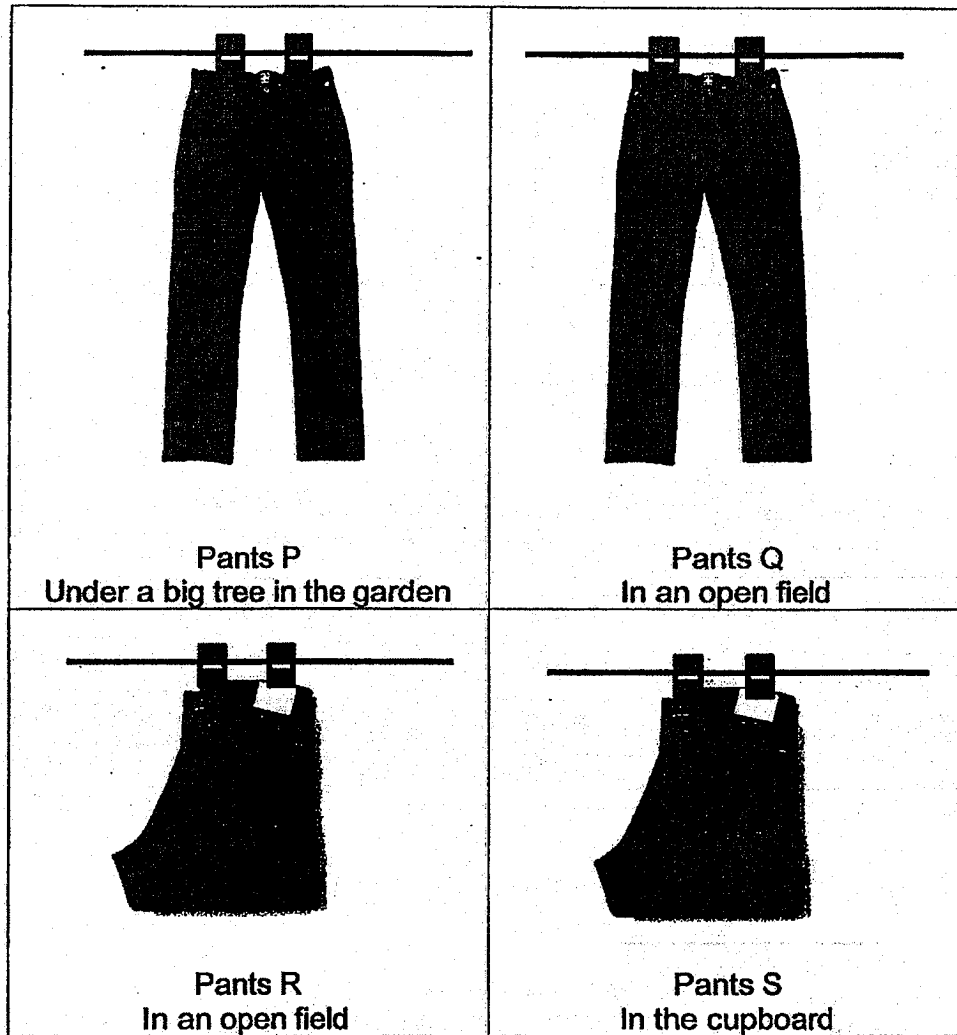
Which of the following correctly identify parts W, X, Y and Z?

	W	X	Y	Z
(1)	mouth	gullet	stomach	small intestine
(2)	mouth	gullet	small intestine	large intestine
(3)	gullet	stomach	small intestine	large intestine
(4)	gullet	small intestine	large intestine	stomach

11. Which one of the following actions helps to conserve water?

- (1) Fixing a leaking tap
- (2) Using the water hose to wash a car
- (3) Turning off the lights when you leave the room
- (4) Switching off and unplugging appliances when not in use

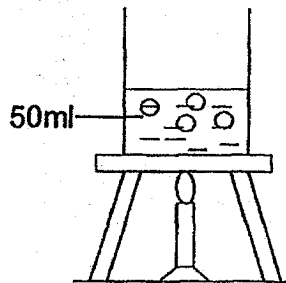
12. John poured the same amount of water on four identical pants, P, Q, R and S. He hung the pants to dry in different conditions as shown in the diagrams below.



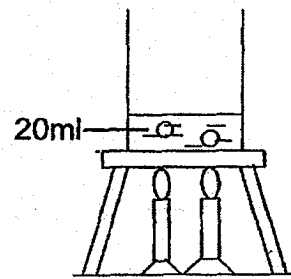
Based on the information above, which of the following statements are correct?

- A Evaporation takes place only in pants P, Q and R.
 - B Evaporation takes place faster in pants P than pants Q.
 - C Evaporation takes place faster in pants Q than pants R.
 - D Evaporation takes place faster in pants R than pants S.
- (1) A and B only (2) C and D only
(3) A, B and D only (4) B, C and D only

13. Janice poured different amounts of pure water at room temperature into beakers A and B. Both beakers were heated until the water boiled as shown in the diagram below. The temperature in each beaker was measured over time and the readings were plotted on a graph.



Beaker A



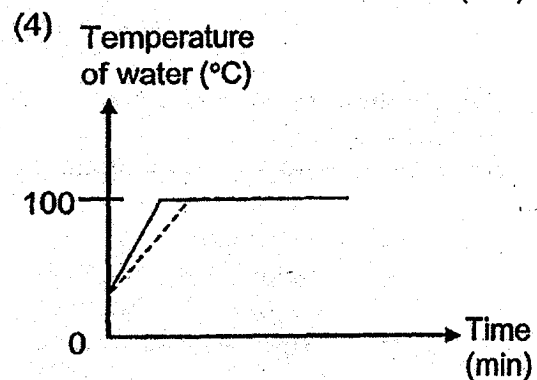
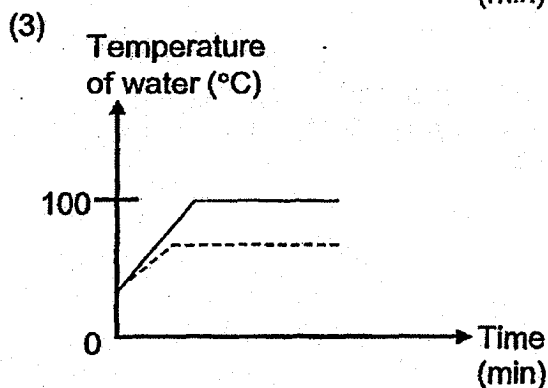
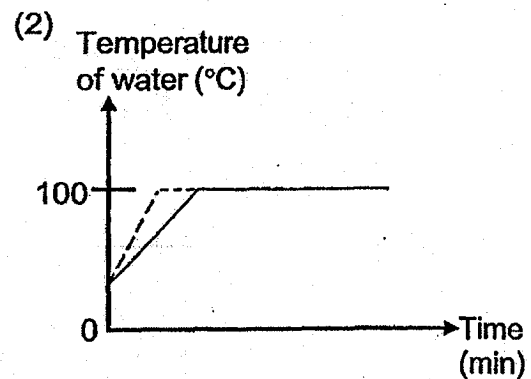
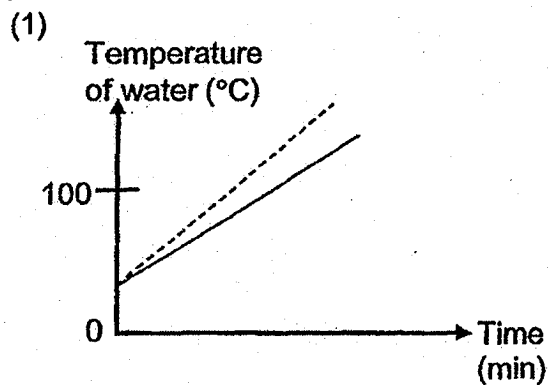
Beaker B

Which one of the following graphs correctly shows the temperature of water over a period of time?

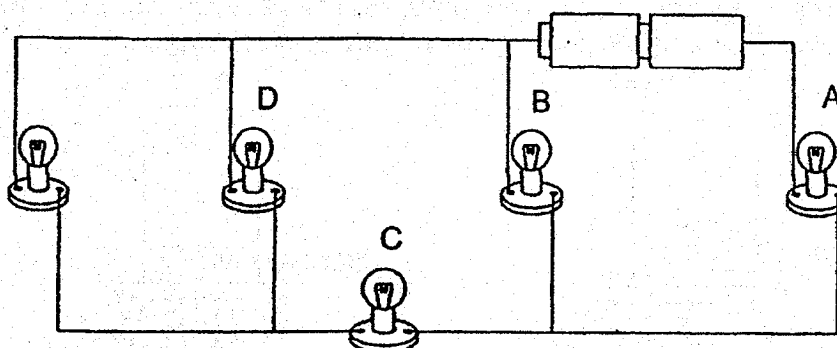
Key:

Beaker A _____

Beaker B - - - - -

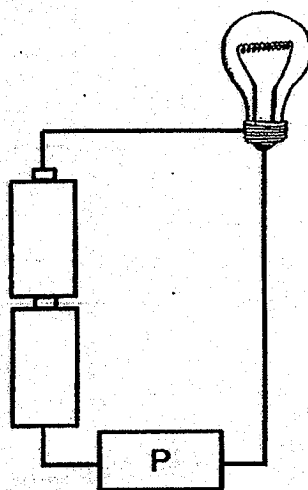


14. The diagram below shows five identical bulbs connected to two batteries. One of the bulbs was faulty and only two bulbs remained lit up.



Which bulb, A, B, C or D, was faulty?

- | | |
|-------|-------|
| (1) A | (2) B |
| (3) C | (4) D |
15. Ruth sets up an electric circuit using a bulb, some batteries and an object P, as shown below.

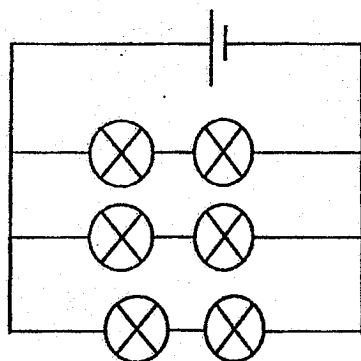


She wants to find out how the number of bulbs arranged in series affects the brightness of each bulb. In order to ensure a fair test, which of the following variables must she keep constant?

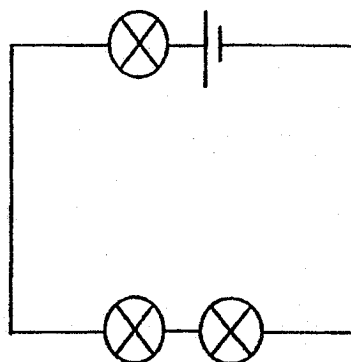
- | | |
|---|-------------------------------|
| A | Number of bulbs |
| B | Brightness of bulbs |
| C | Number of batteries |
| D | Type of material for object P |

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

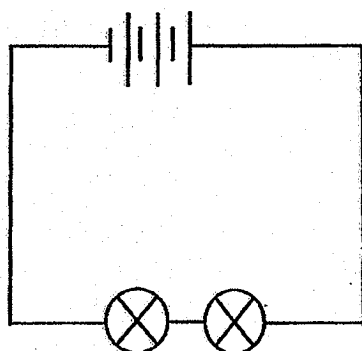
16. Study the circuit diagrams below.



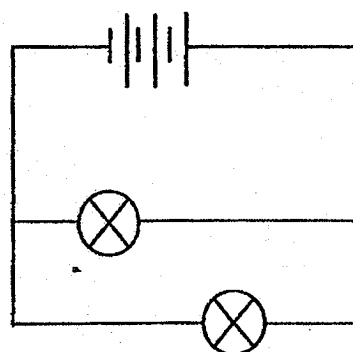
circuit E



circuit F



circuit G

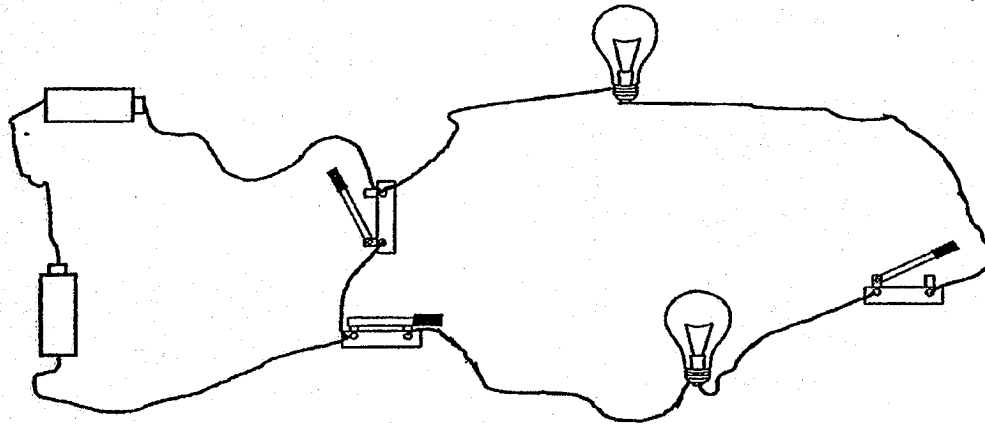


circuit H

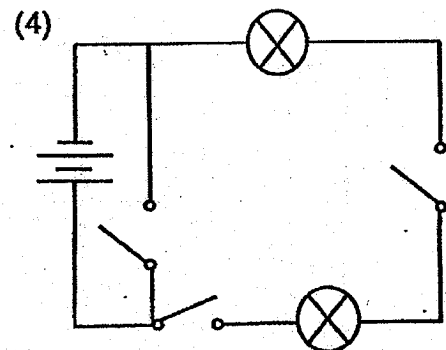
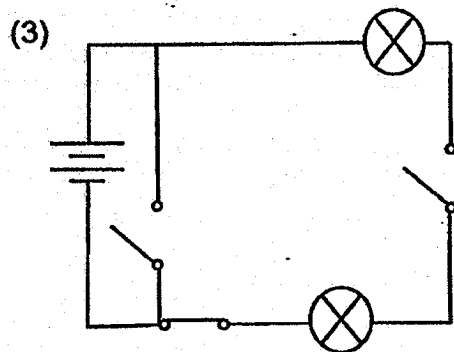
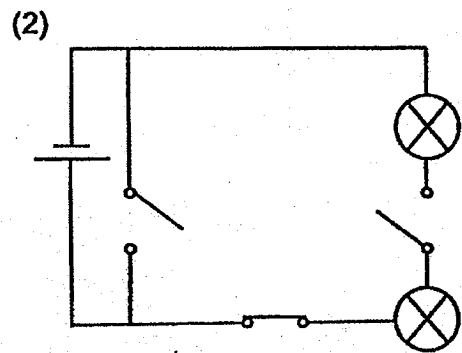
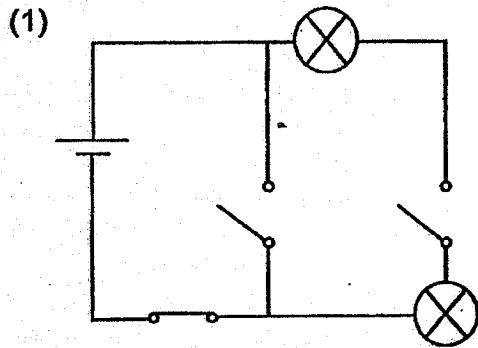
Which one of the following correctly arranges the bulbs in each circuit from the dimmest to the brightest?

	Dimmest → Brightest			
(1)	E	F	G	H
(2)	F	E	G	H
(3)	F	H	G	E
(4)	H	G	E	F

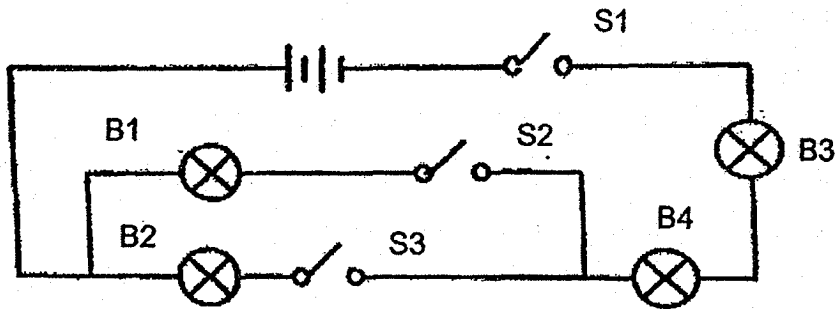
17. Study the circuit below.



Which one of the following circuit diagrams correctly represents the set-up above?



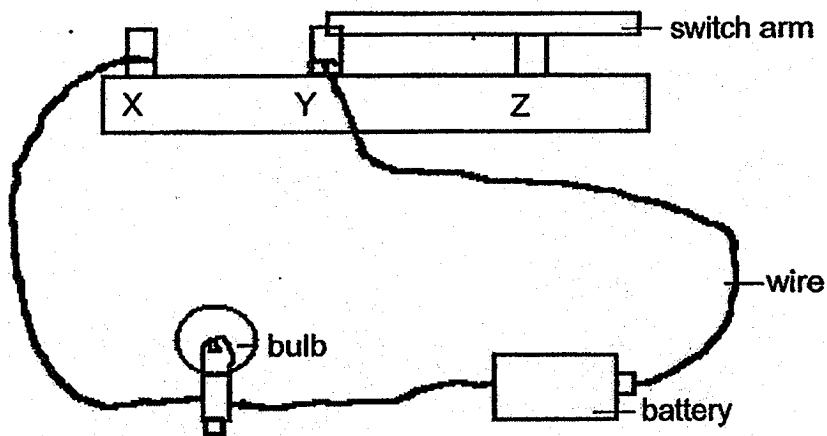
18. Study the circuit below.



Which one of the following is correct?

	Switches closed	Bulbs that would light up
(1)	S1 only	B3 only
(2)	S1 and S3	B2, B3 and B4 only
(3)	S2 and S3	B1 and B2 only
(4)	S1, S2, S3	B1, B2 and B3 only

19. Keith connected the circuit as shown below using a battery, a bulb, a switch and some wires which were all in working condition. He observed that the bulb did not light up.



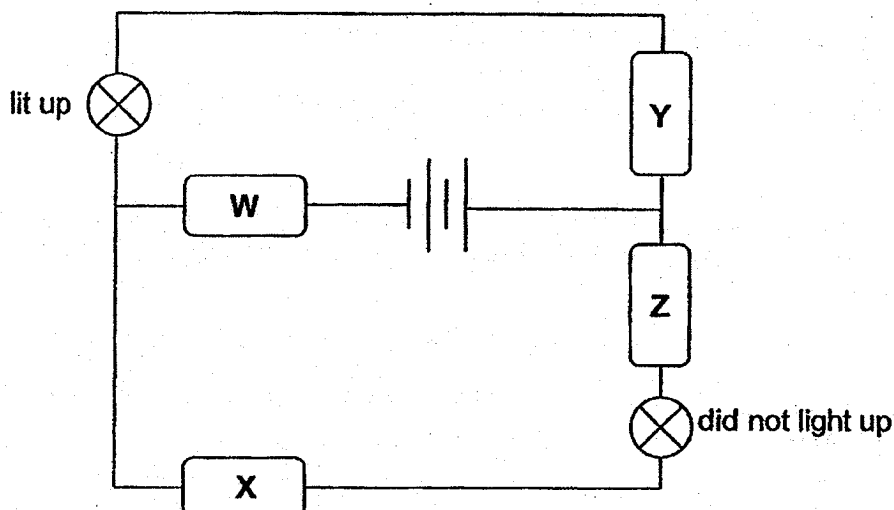
What should Keith do to get the bulb to light up?

- A Swing the switch arm from point Z to X.
- B Connect the wire from point Y to point Z.
- C Connect one of the wires to the metal tip of the bulb instead of connecting both to the metal casing.

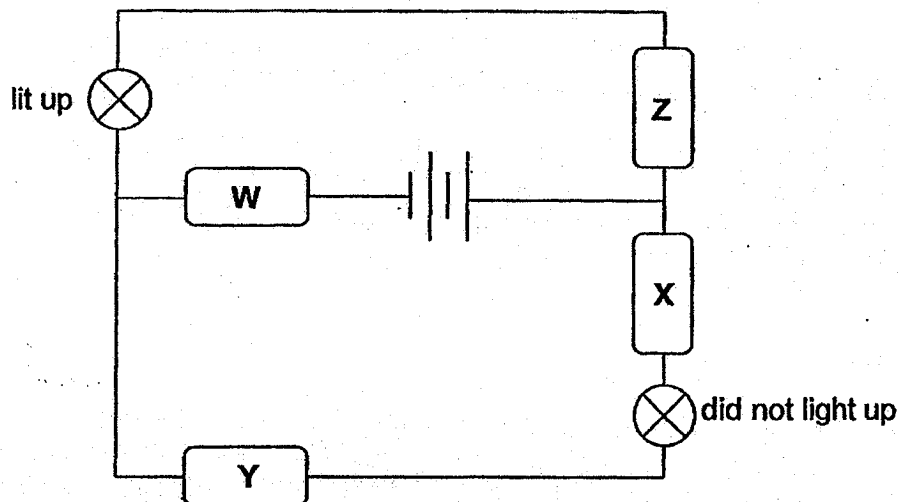
- (1) A only
- (3) B and C only

- (2) A and C only
- (4) A, B and C

20. Emilie had four bars of different materials, W, X, Y and Z. She connected them in a circuit and recorded her observations as shown in the diagram below.



She then rearranged the positions of the 4 bars as shown in the diagram below and recorded her observations again.



Based on her results, which of the following show the possible materials that bars W, X, Y and Z could be made of?

	Bar W	Bar X	Bar Y	Bar Z
(1)	aluminium	glass	copper	iron
(2)	plastic	rubber	glass	aluminium
(3)	glass	plastic	wood	iron
(4)	copper	wood	iron	rubber

21. Which one of the following statements is an example of safety in using electricity?

- (1) Switch off the lights when not in use.
- (2) Plug in multiple appliances into the same socket.
- (3) Use energy-saving electrical appliances.
- (4) Dry your hands before handling electrical appliances.

22. The table below shows the amount of electricity used in one minute by an ordinary light bulb and a LED bulb to produce different degrees of brightness.

Brightness (units)	Amount of electricity used per minute	
	One ordinary light bulb (units)	One LED bulb (units)
450	40	10
800	60	15
1100	75	20

Based on the table above, which one of the following can be concluded?

- (1) The ordinary light bulb is able to last longer than the LED bulb.
- (2) The ordinary light bulb conserves more electricity than the LED bulb.
- (3) The LED bulb is dimmer than the ordinary light bulb as it uses less electricity.
- (4) The LED bulb produces the same brightness as the ordinary light bulb but it uses less electricity.

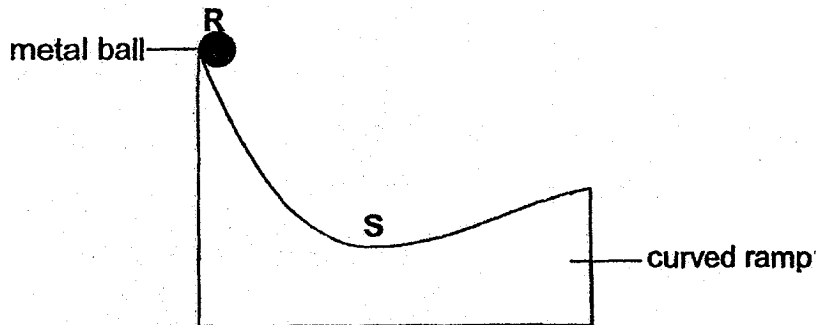
23. Study the following actions.

- A Push a 5 kg bag of flour up a slope over a distance of 2 m.
- B Push a 2 kg bag of flour on a flat ground over a distance of 2 m.
- C Push a 5 kg bag of flour on a flat ground over a distance of 2 m.
- D Push a 2 kg bag of flour in a trolley on a flat ground over a distance of 2 m.

Arrange the above actions according to the amount of force required to perform each action, starting with the action that uses the most amount of force.

	Most force —————>Least force			
(1)	A,	B,	C,	D
(2)	A,	C,	B,	D
(3)	D,	B,	C,	A
(4)	D,	C,	B,	A

24. Mr Lim set up the experiment as shown in the diagram below to find out how liquids, A, B, C and D, will reduce the amount of friction between the ball and the surface of the curved ramp.



He coated the ramp with a certain amount of liquid A and released the metal ball from point R. The ball rolled up and down the curved ramp for some time before it came to rest at point S.

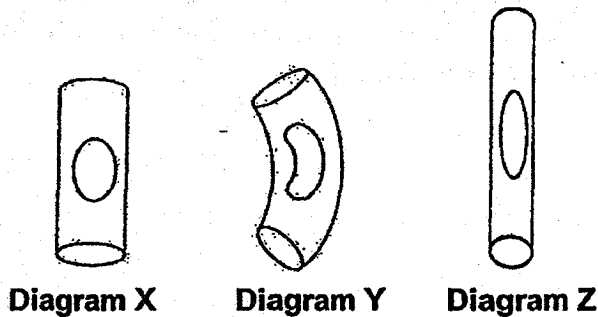
He repeated the test with liquids B, C and D, and recorded the time taken for the ball to come to rest in the table below.

Liquids	Time taken for the ball to come to rest (s)
A	10
B	9
C	26
D	38

Which liquid should Mr Lim choose to apply to a door hinge so that he could open the door most smoothly?

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

25. Wen Jun was playing with a piece of rubber tube as shown in diagram X below.



He bent and stretched the tube as shown in diagram Y and Z respectively.

Which of the following statements are correct about what has happened to the rubber tube?

- A Both pulling and pushing forces were applied on the tube.
- B Both pulling and pushing forces had changed the mass of the tube.
- C Both pulling and pushing forces had changed the shape of the tube.

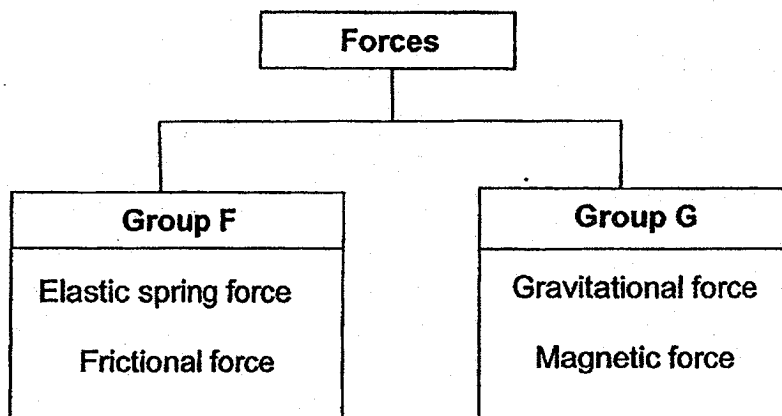
- | | |
|------------------|------------------|
| (1) A and B only | (2) A and C only |
| (3) B and C only | (4) A, B, and C |

26. Which of the following activities require friction to be present?

- A Climbing the stairs
- B Driving on the road
- C Running on the track

- | | |
|------------------|------------------|
| (1) A and B only | (2) A and C only |
| (3) B and C only | (4) A, B and C |

27. Study the classification chart below.



Which of the following is the most suitable heading to represent Groups F and G?

	Group F	Group G
(1)	Cause objects to have mass	Cause objects to have weight
(2)	Contact forces	Forces act at a distance
(3)	Do not produce heat	Produce heat
(4)	Push force	Pull force

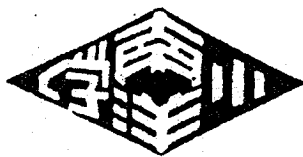
28. The diagram below shows a man surfing.



Which one of the following changes **cannot** be caused by the waves on the surfboard?

- (1) Change in mass
- (2) Change in speed
- (3) Change in position
- (4) Change in direction of movement

End of Booklet A



NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

**SEMESTRAL ASSESSMENT 2
2018**

BOOKLET B

Date: 29th October 2018

Duration: 1 h 45 min

Name : _____ ()

Class: Primary 5 ()

Marks Scored:

Booklet A:		56
Booklet B :		44
Total :		100

Any query on marks awarded should be raised by 5th November 2018. We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.

Parent's signature: _____

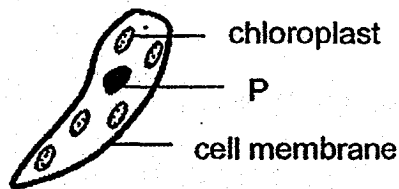
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FOLLOW ALL INSTRUCTIONS CAREFULLY.**

Booklet B consists of 16 printed pages including this cover page.

Section B (44 marks)

Write your answers to questions 29 to 40 in the spaces provided.

29. The diagram below shows a single-celled organism.



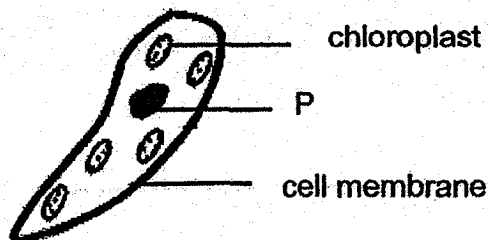
- (a) Part P controls all cell activities. Identify part P. [1]

- (b) Other than the function stated in (a), state another function of part P. [1]

- (c) State one difference between the organism above and a leaf cell. [1]

Study the diagram below. [1]

- (d)(i) Label the cytoplasm, in the diagram below.



- (ii) State the function of the cell membrane.

30. Mrs Lim measured Elaine's heart rate after Elaine had engaged in two different activities for 10 minutes. They repeated each activity 3 times and recorded the results in the table below.

Activities	Heart rate (beats per minute)		
	1 st try	2 nd try	3 rd try
Reading	68	70	71
Cycling	95	100	120

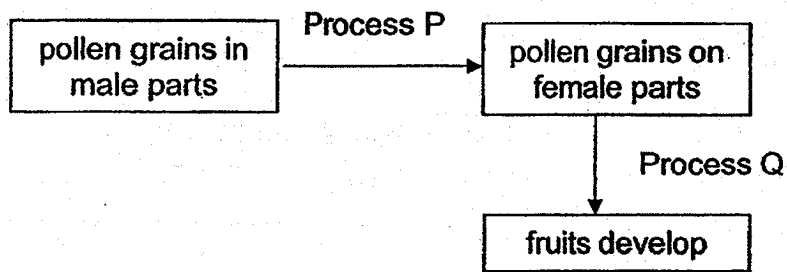
- (a) State the aim of their experiment.

- (b) Based on the results above, **compare** and **explain** the differences in Elaine's heart rate during the two activities. [2]

Elaine went on a holiday to City X. The air in City X contains lower oxygen level than the air in Singapore. When she reached City X, she realised that her breathing rate had increased.

- (c) Based on the information above, explain why Elaine's breathing rate had to increase when she reached City X. [1]

31. Study the diagram below.



(a) Identify processes P and Q.

[1]

Process P: _____

Process Q: _____

(b) Describe what happen during processes P and Q.

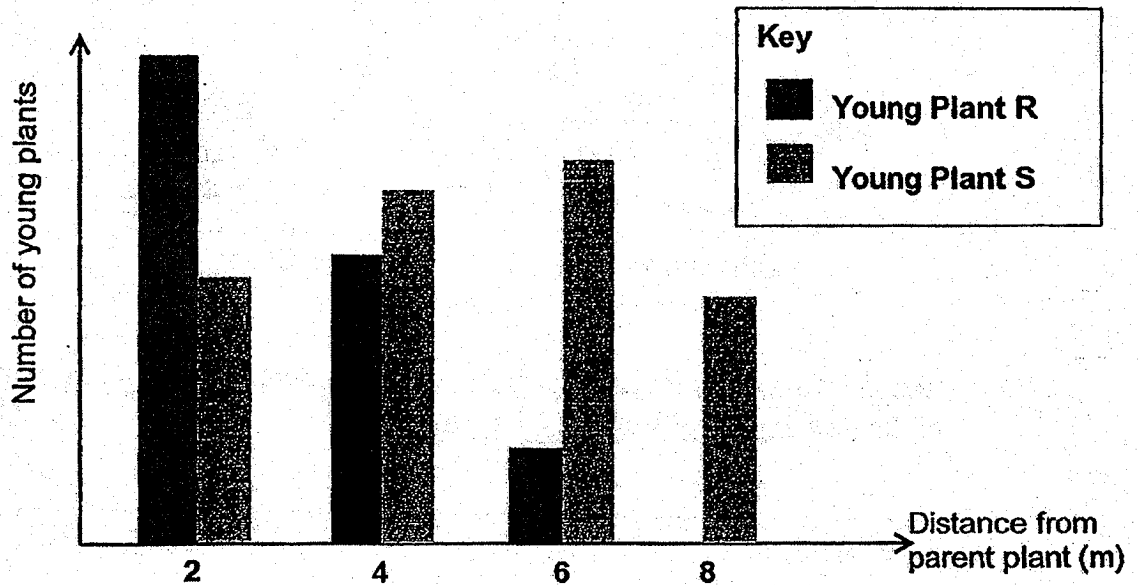
[2]

Process P:

Process Q:

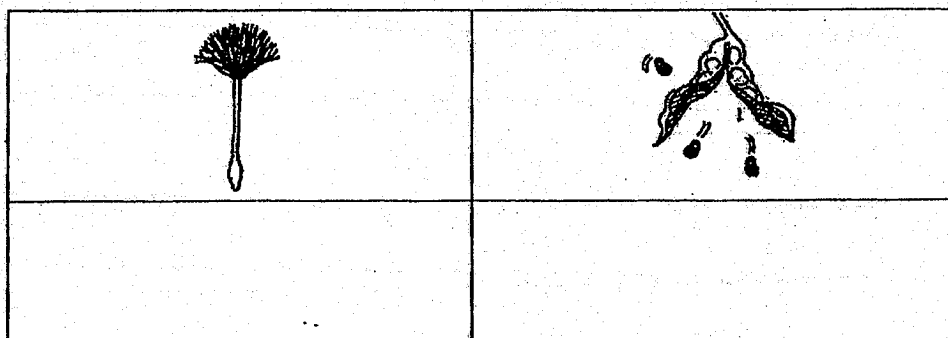
(Continue Question 31)

Jun Qi carried out an experiment with two types of young plants, R and S. She measured the number of young plants at different distance from their parent plants in a garden. The results are shown in the graph below.



(c)(i) Put a tick (✓) in the box that most likely represents the fruit of Plant R.

[1]



(c)(ii) Using the results shown in the graph above, explain your answer in part (i).

[1]

32. The life cycles of a frog and a cockroach are shown in diagrams 1 and 2 below.

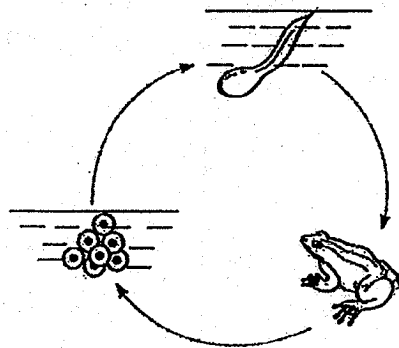


Diagram 1

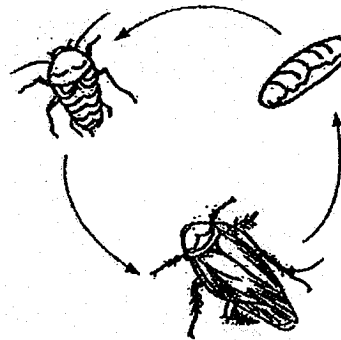


Diagram 2

- (a) Based on the diagrams above, state one similarity between the life cycle of the frog and the life cycle of a cockroach. [1]

- (b) Based on the diagrams above, state two differences between the life cycle of the frog and the life cycle of a cockroach. [2]

i) _____

ii) _____

- (c) In what way is the life cycle of the cockroach different from the life cycle of a mosquito? [1]

33. Shi Qi carried out the following steps for her Science project.

Step	Method
1	Put the same type and amount of soil into five similar pots
2	Plant five soya bean seedlings in each pot
3	Place the pots in the same area in her garden
4	Water each pot with the same amount of water each day

Shi Qi added different amount of fertilisers to each of the pots daily. She then measured and recorded the height of the seedlings in each pot on the tenth day.

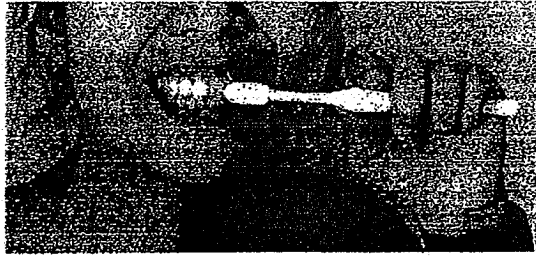
The table below shows the results.

Pot	A	B	C	D	E
Amount of fertiliser given per day (ml)	10	20	30	40	50
Average height of seedlings in each pot (cm)	8	11	14	10	7

- (a) What was the changed variable in Shi Qi's experiment? [1]

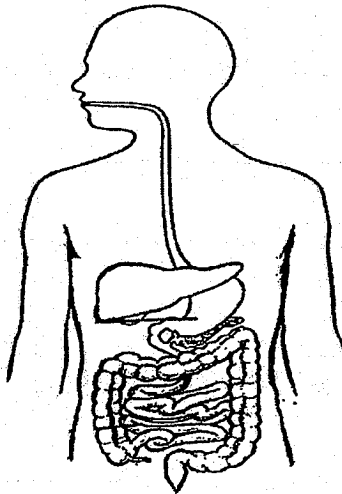
- (b) Using the table above, state the relationship between the average height of seedlings in each pot and the amount of fertiliser given per day? [2]

34. The diagram below shows Kelly brushing her teeth.



Explain how the muscular system and skeletal system work together to enable Kelly to brush her teeth. [2]

35. The diagram below represents the human digestive system.



- (a) In the diagram above, label all the parts to show where digestion takes place. [2]
- (b) State what happens to the digested food when digestion had been completed. [1]

(Continue from Question 35)

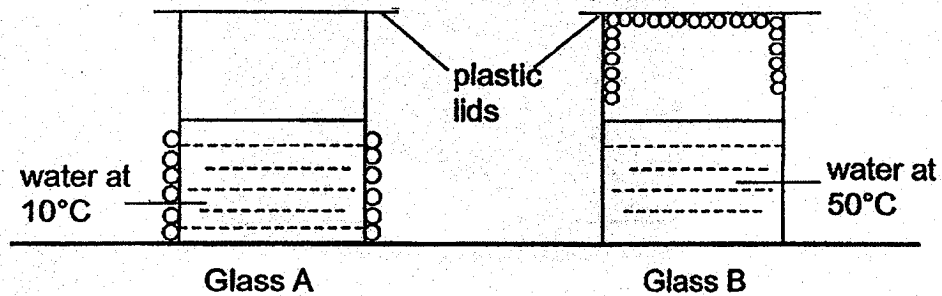
A baby's digestive system is not fully developed. Many baby food are cut into smaller pieces before feeding them to the baby.



(c) Explain how cutting the food into smaller pieces help in their digestion.

[1]

36. Mark put two identical glasses, A and B, on the table in his garden. He poured the same amount of water into each glass. The temperatures of the water in glasses A and B were 10°C and 50°C respectively. After 10 minutes, he observed that there were tiny water droplets as shown in the diagram below.



- (a) Based on his observation, state a possible surrounding temperature in his garden. [1]

- (b) Based on your answer in (a), explain how the water droplets in glass A and B were formed. [2]

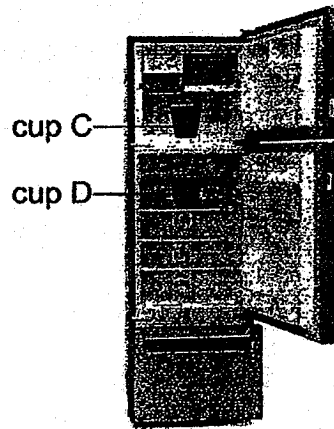
Glass A: _____

Glass B: _____

(Continue Question 36)

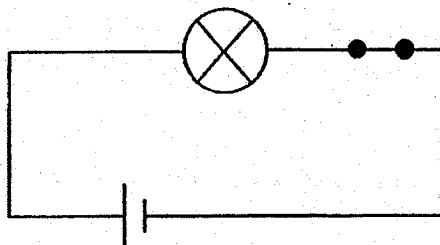
Mary has two identical cups of water, C and D, as shown in the diagram below. She placed cup C in the freezer and cup D in the chiller compartment of the refrigerator.

After five hours, she observed that the water in cup C turned into ice while the water in cup D remained in the liquid state.



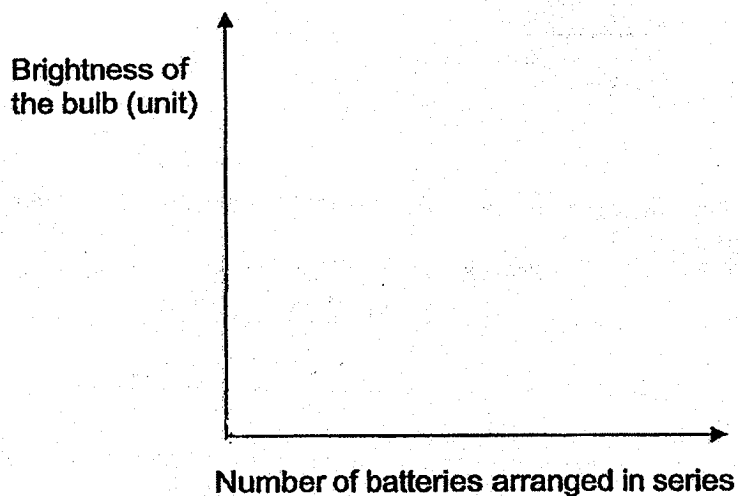
- (c) Explain why the water in cup C turned into ice while the water in cup D remained in the liquid state. [1]

37. Keshia set up the circuit as shown below.



She added one battery at a time, in series, to the circuit. She measured the brightness of the bulb with a datalogger and light sensor until she had used four batteries in total. The datalogger still detected light at this point.

- (a) Draw a line graph below to show the relationship between the number of batteries arranged in series in the circuit and the brightness of the bulb. [1]

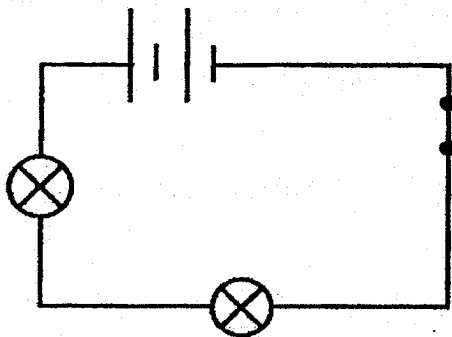


- (b) When she added the fifth battery, the brightness of the bulb became zero. Explain her observation. [1]

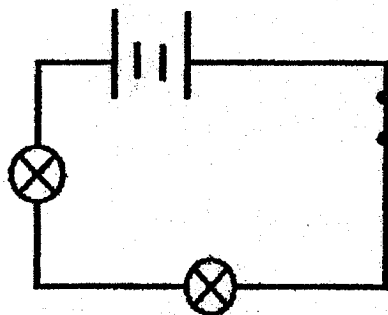
38. During a Science competition, students were asked to construct circuit B such that:

- all the bulbs, batteries and switch are used in the circuit
- the brightness of each bulb in circuit B is the same as each bulb in circuit A.

(a) Using symbols, draw a circuit diagram in the box below to represent circuit B. [2]

Circuit A	Circuit B
Items given: • two batteries • two bulbs • some wires • one switch	Items given: • two batteries • four bulbs • some wires • one switch
	(a)

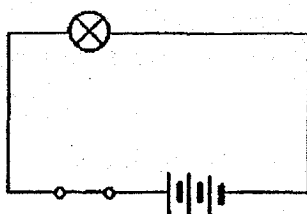
Circuit A was re-arranged to form circuit C as shown in the diagram below.



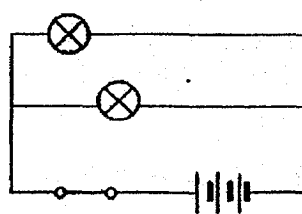
Circuit C

(b) Give a reason why the bulbs in circuit C did not light up.

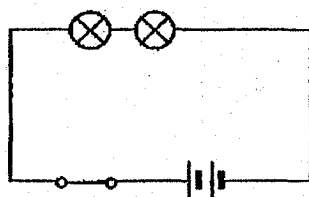
39. Four electric circuits, A, B, C and D, using identical batteries and bulbs are shown below.



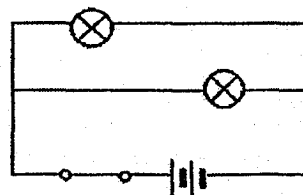
Change A



Change B



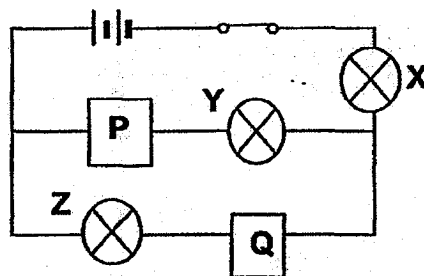
Change C



Change D

- (a) Based on the diagram above, which two electrical circuits are the bulbs of equal brightness? [1]

Malcom constructed another circuit with two rods, P and Q, of unknown materials as shown in the diagram below. He observed that bulb X and Z lighted up but bulb Y did not light up.

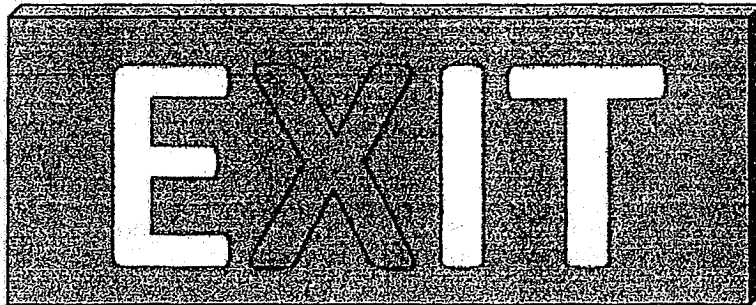


- (b) Based on the Malcom's observations, state a possible reason why bulb Y did not light up. [1]

(Continue from Question 39)

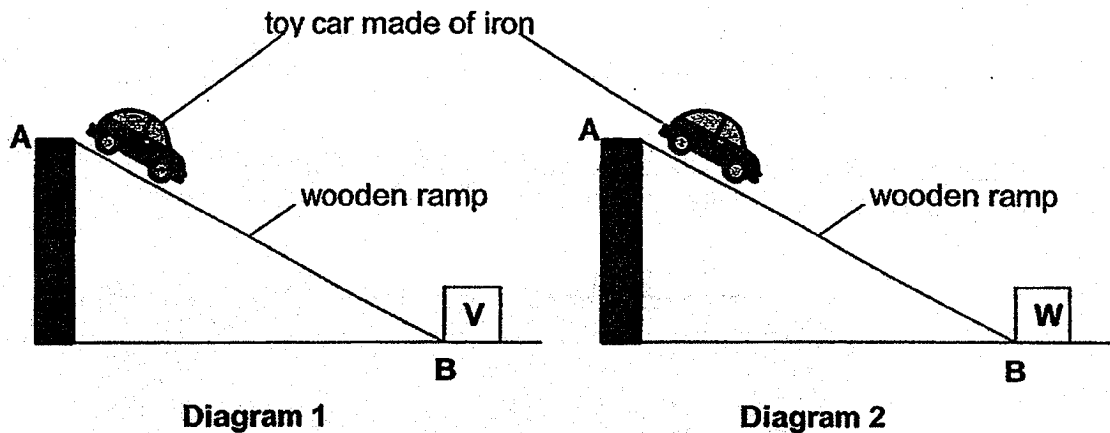
- (c) Based on your answer in (b), state the possible material of rod P. [1]

While shopping, Malcom saw a sign with a faulty signboard as shown in the diagram below. Only letters 'E', 'I' and 'T' lit up but letter 'X' was not lit up.



- (d) Explain, based on circuit arrangement, how the three letters, 'E', 'I' and 'T' could light up even though X did not light up. [2]

40. Lily conducted an experiment, as shown below, to show the effects of different type of forces. Object V and W were made of different materials.



She released the toy cars from the top of the ramp and recorded the time taken for the toy car to move from A to B.

	Time taken (s)		
	1 st try	2 nd try	3 rd try
Diagram 1	10	11	10
Diagram 2	8	7	7

- (a) State all the forces acting on the toy car in Diagram 1 when it was placed at the top of the ramp. [1]

- (b) Explain, in terms of forces, the difference in the time taken for the toy car to travel from A to B in Diagram 1 and 2. [2]

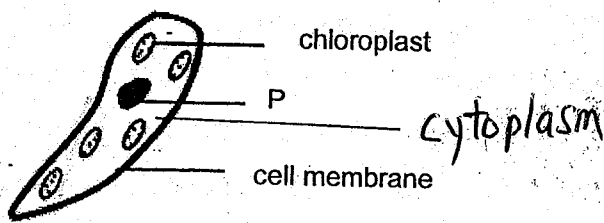
- (c) Suggest what object W could be. [1]

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 LEVEL : PRIMARY 5
 SUBJECT : SCIENCE
 TERM : 2018 SA2

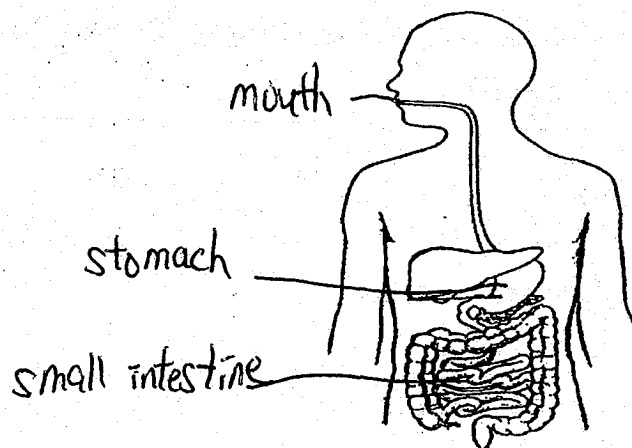
SECTION A

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

SECTION B

Q29)	a)Nucleus b)Part P contain genetic information. c)A leaf cell has a cell wall whereas the organism does not have a cell wall. d)i)  ii)The cell membrane controls the movement of substance going in and out of the cell.
Q30)	a)To find out how the heart rate is affected by the different activities. b)When Elaine was cycling, her body needs more energy. Thus, her heart rate increases to take in more oxygen and carbon dioxide

	transported by the blood vessels to all parts of the body to release more energy and to remove more carbon dioxide. c)When Alain was in City X, her heart pumps faster to take in the same amount of oxygen her body requires as in Singapore.				
Q31)	a)P : Pollination Q : Fertilisation b)Process P : The pollen grains landed on the anther will be transferred to the stigma. Process Q : The male reproductive cell fuses with the female reproductive cell. c)i) <table border="1"> <tr> <td></td><td></td></tr> <tr> <td></td><td>✓</td></tr> </table> c)ii)The distance between young Plant R and the parent plant is the 2cm. When the distance from the parent plant is longer, the number of young Plant R is lesser. Thus, it is dispersed by splitting as young Plant R is usually found near the parent plant.				✓
	✓				
Q32)	a)Both have a 3 – stage life cycle. b)i)The young of a cockroach looks like the parent while the tadpole does not look like the frog. ii)The young of frog does not resemble the adult frog but the young of a cockroach resemble the adult cockroach. c)The cockroach has three stages in their life cycles but the mosquito has four stages in their life cycles.				
Q33)	a) Different amount of fertilisers. b)The average height of the seedling increases as the amount of fertiliser given increases until it is 30ml. When the amount if fertilizer given is more than 30ml, the average height at the seedling decreases.				
Q34)	The muscular system and the skeletal system enables Kelly to move her hands and mouth when they work together.				
Q35)	a)				



b) The digested food will be absorbed into the bloodstream and transported to the heart.

c) Food are cut into smaller pieces to increase the surface area to increase digestion rate.

Q36)

a) 25°C

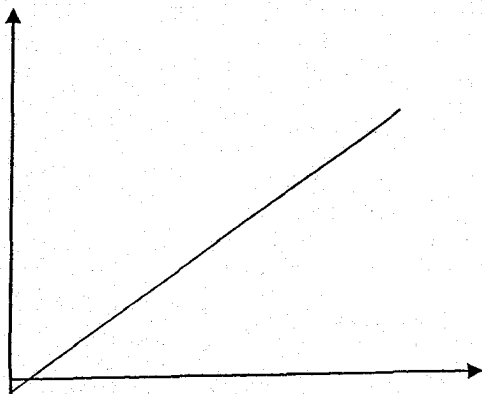
b) Glass A : The water in Glass A is 10°C . The warmer water vapour in the surrounding air will lose heat and condense on the cooler outer surface of Glass A.

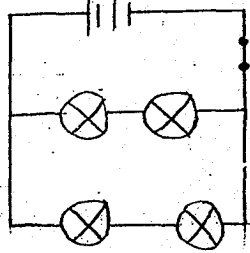
Glass B : The water in Glass B is 50°C . The hot water rises up to evaporate to form water vapour and condenses at the cooler surface of the plastic lid and lose heat.

c) The water in Cup C turned into ice as the temperature of the freezer was at 0°C which allows water to lose heat and turn into ice but the chiller is above 0°C , so Cup D's water could not turn into ice.

Q37)

a)



	b)When number of batteries were too many, it will cause the bulb to fuse and stop electric current from flowing through the bulb, forming an open circuit.
Q38)	a)  b)Both negative terminals of the batteries are facing each other.
Q39)	a)Circuit A and B. b)Rod P is an insulator of electricity. c)Plastic. d)They were in a parallel circuit meaning that when X fused E, I and T causing them to remain lit.
Q40)	a)Gravitational and frictional forces. b)The toy car in Diagram 1 had only frictional and gravitational force acting on it but the toy car in Diagram 2 had frictional, gravitational and magnetic force acting on it causing it to move faster. c)Rubber.