NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

SEMESTRAL ASSESSMENT 2
2015

BOOKLET A

Date : 27th October 2015
Duration : 1 h 45 min

Name : _____ **( )**

Class: Primary 5 ( )

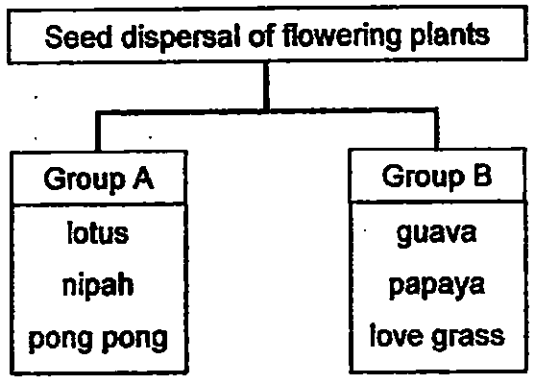
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet A consists of 21 printed pages including this cover page.

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Section A (30 x 2 marks = 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 provided.**

1. The classification table below shows how some plants are grouped according to the way their seeds are dispersed.

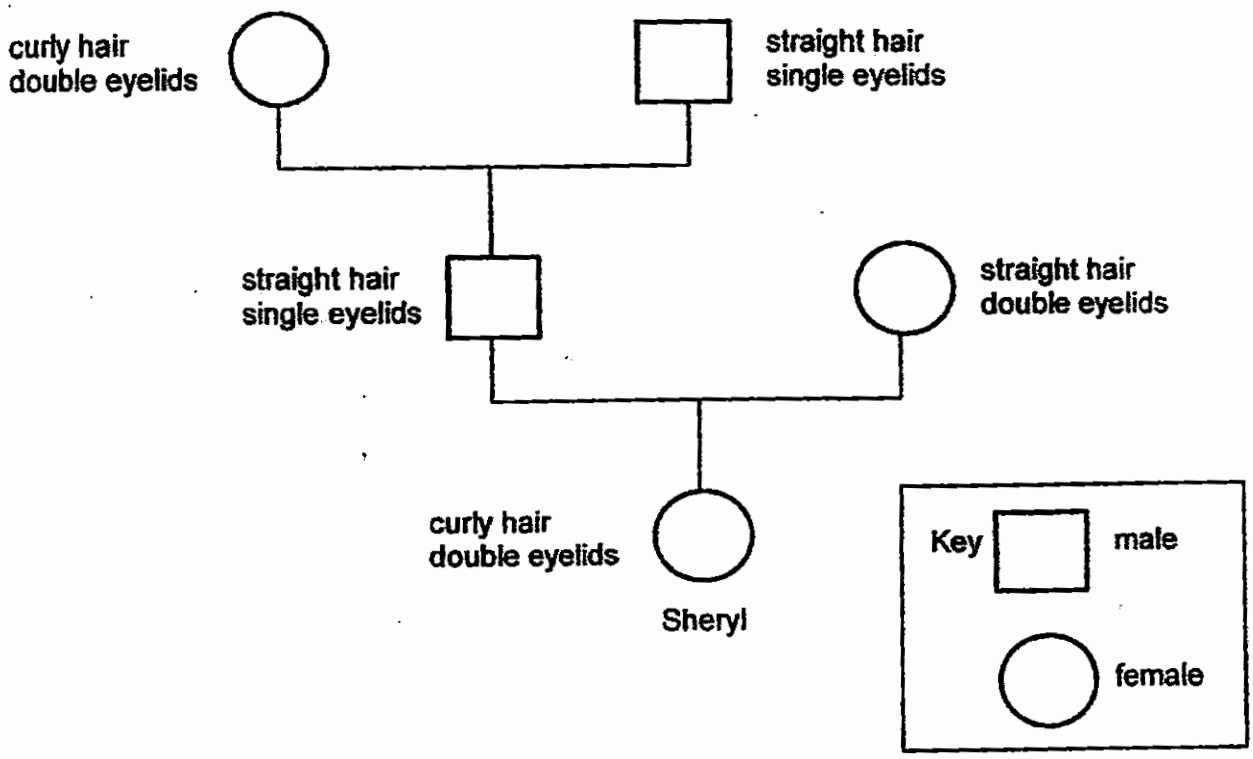


Which one of the following is the most suitable sub-heading for Groups A and B respectively?

	Group A	Group B
(1)	By splitting	By wind
(2)	By water	By animals
(3)	By wind	By water
(4)	By water	By wind

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2. The diagram below shows Sheryl's family tree.

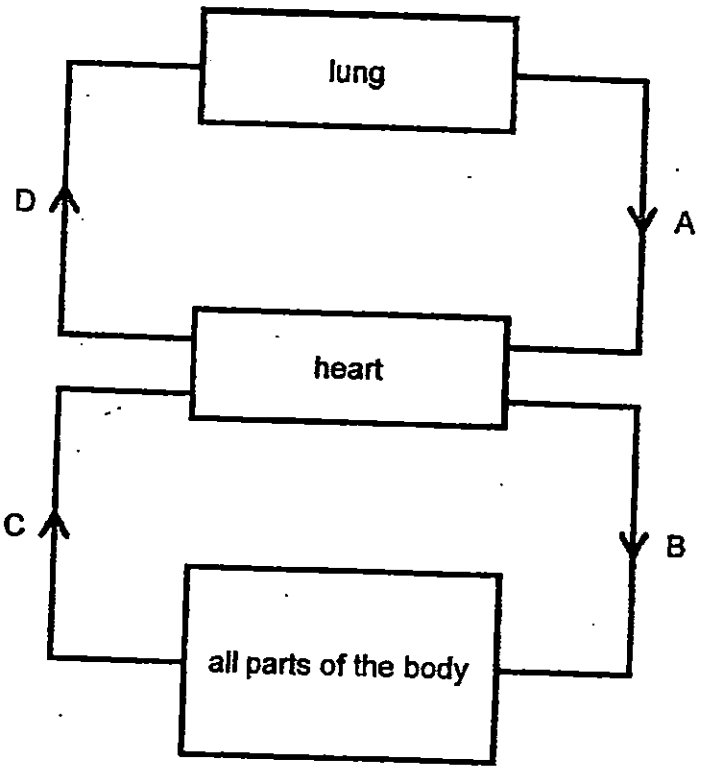


Based on the diagram above, which characteristic does Sheryl have that is not present in her parents?

(1) straight hair
(2) curly hair
(3) single eyelids
(4) double eyelids

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3. The diagram below shows the flow of blood in blood vessels A, B, C and D in certain parts of the body.

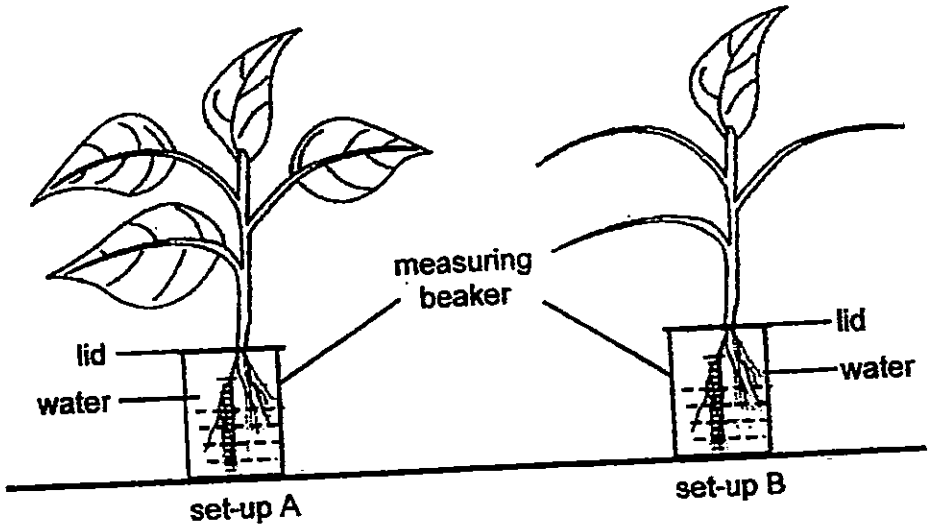


Which one of the following blood vessels contains blood that has the most amount of carbon dioxide?

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

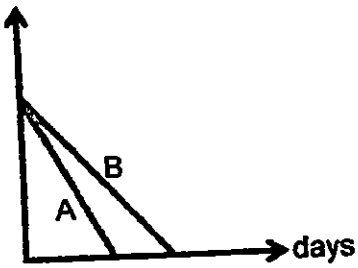
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4. Jessica prepared two set-ups using identical plants as shown below. An equal amount of water was poured into each measuring beaker before sealing it tightly with a lid. She removed most of the leaves in set-up B.

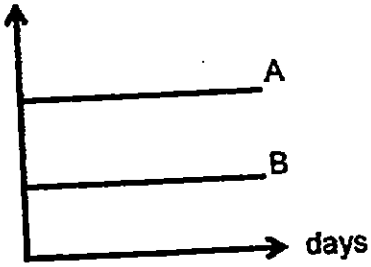


Which one of the following graphs correctly shows the amount of water in each set-up over a period of time?

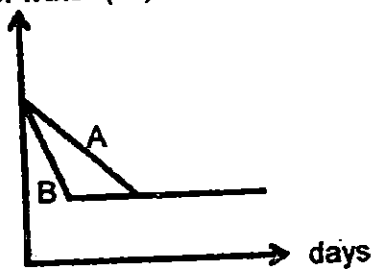
(1)



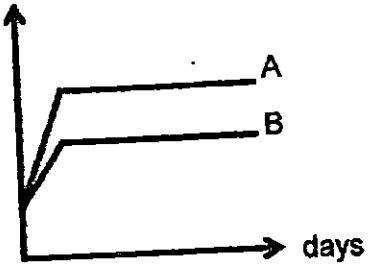
(2)



(3)

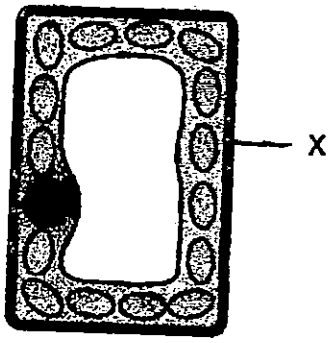


(4)



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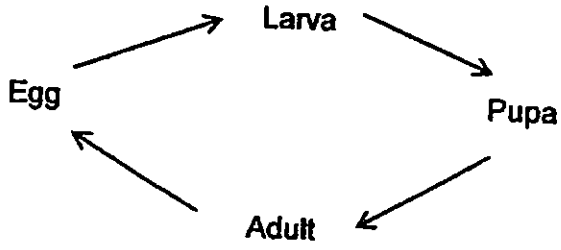
5. The diagram below shows a cell.



What is the function of X?

(1) It makes food for the plant.
(2) It gives the plant its fixed shape.
(3) It controls substances entering and leaving the cell.
(4) It allows substances to move around within the cell.

6. Study the life cycle below.



Which of the following organisms have a similar life cycle as the one shown above?

A Frog
B Mosquito
C Grasshopper
D Mealworm beetle

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

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7. Which one of the following does not follow a cycle?

(1) A chick growing into a hen.
(2) A papaya tree producing fruits.
(3) The movement of clouds in the sky.
(4) The shadow cast by a building at different times of the day.

8. Mary carried out an experiment with seeds A, B, C, D and E to find out the necessary conditions for seeds to germinate. She recorded her investigations in the table below.

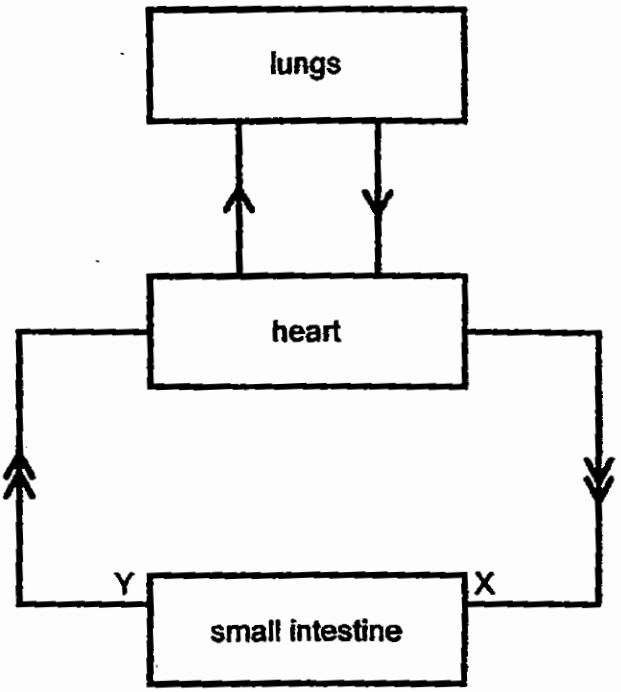
Seed	Mineral salts	Water	Light	Air	Warmth
A	Present	Present	Absent	Present	Present
B	Present	Present	Present	Absent	Present
C	Absent	Present	Present	Present	Present
D	Present	Absent	Present	Present	Absent
E	Absent	Present	Absent	Present	Present

Which of the seeds above will most likely germinate?

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

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9. The diagram below shows how blood flows in certain parts of the body a few hours after a meal.



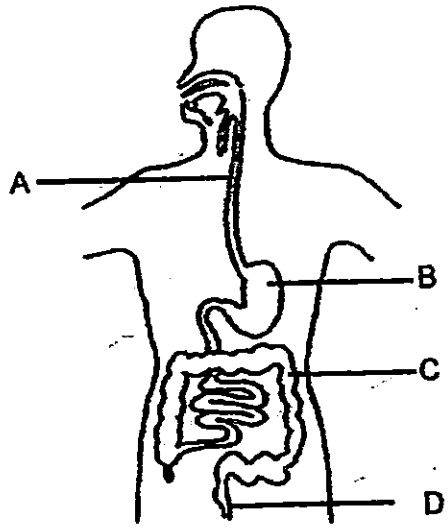
Which of the following statement(s) is/are true of the blood flowing in blood vessels located at X and Y?

A Blood in X contains more waste than blood in Y.
B Blood in Y contains more digested food than blood in X.
C Blood in X contains more dissolved oxygen than blood in Y.
D Blood in Y contains more dissolved carbon dioxide than blood in X.

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

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10. The diagram below shows the human digestive system.



In which part A, B, C or D is digestive juices produced?

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

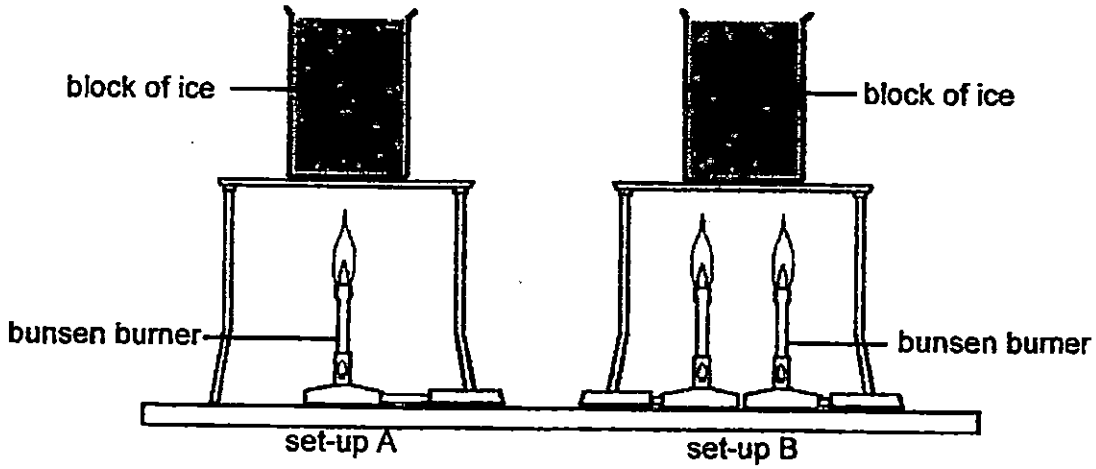
11. Which of the following methods help to conserve water?

A Using a hose to wash the floor.
B Turning off the tap when one is soaping the body.
C Using tap water instead of rain water to wash the car.
D Using the washing machine only when the load is full.

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

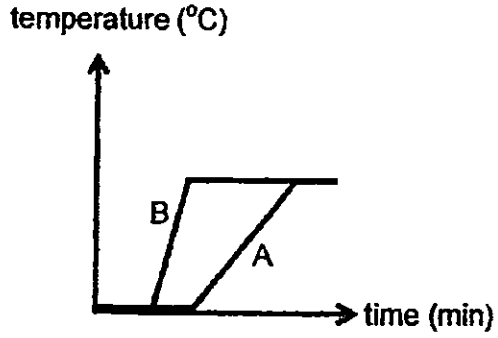
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12. The set-up below shows two similar beakers filled with a block of ice. The beakers were heated with bunsen burners. The ice in the beakers eventually melted and boiled.

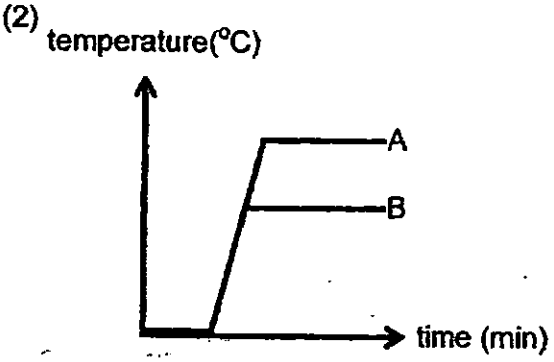


Which one of the following graphs correctly shows the temperature of water inside the beaker throughout the experiment?

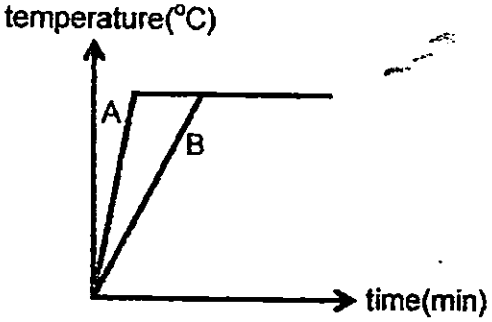
(1)



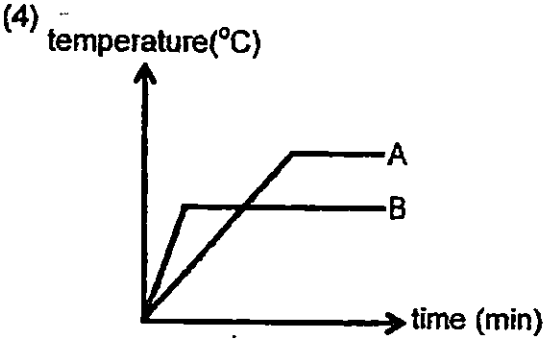
(2)



(3)

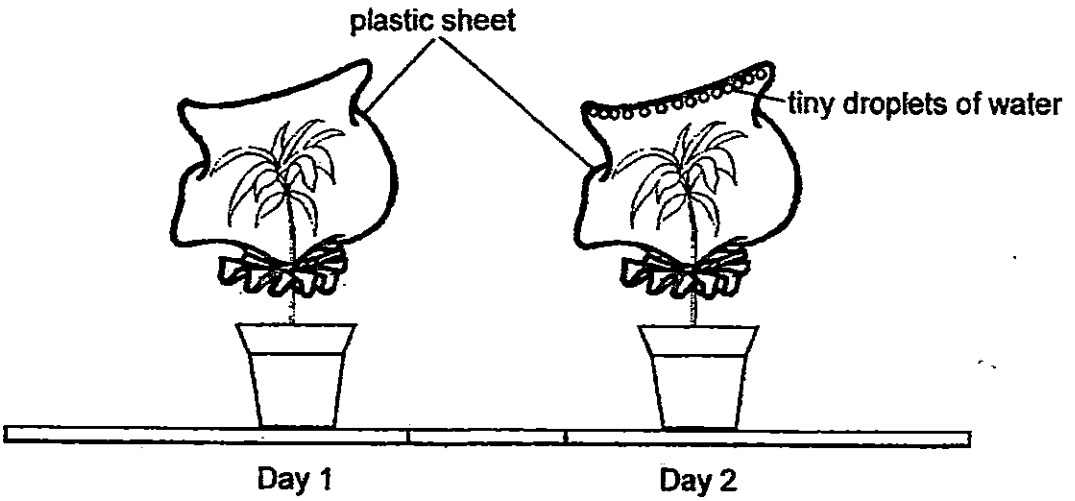


(4)



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13. Joy wrapped a sheet of clear plastic around a potted plant on day 1 as shown below. She left the potted plant overnight in the balcony.



On day 2, she observed tiny droplets of water on the inside of the plastic sheet as shown in the diagram.

Which of the following statement(s) possibly explained her observation?

A The plants released droplets of water through its leaves.
B Water in the soil evaporated and condensed to form water droplets.
C Water vapour inside the plastic sheet came into contact with the cooler plastic sheet.
D Temperature of the plastic sheet during the night was higher than that of the gases inside it.

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

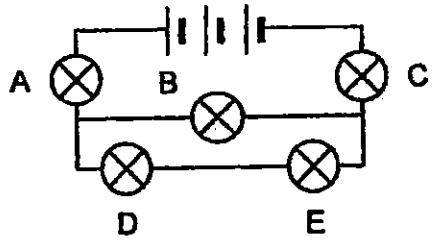
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14. Which of the following are sources of electricity?

A motor
B battery
C lightning
D light bulb

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

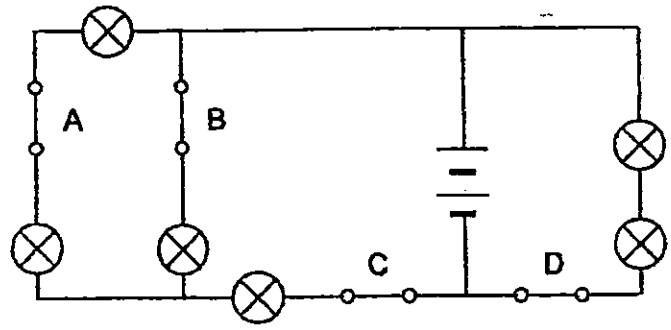
15. Study the circuit below.



Which of the bulbs will still light up when bulb E fuses?

(1) A and C only
(2) A, B and C only
(3) A, B, C and D only
(4) None of the bulbs

16. Jimmy set up a circuit as shown below.



All six bulbs were lit when all four switches A, B, C and D were closed. He wanted the fewest number of bulbs to be lit by opening only one switch.

Which switch should he open?

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

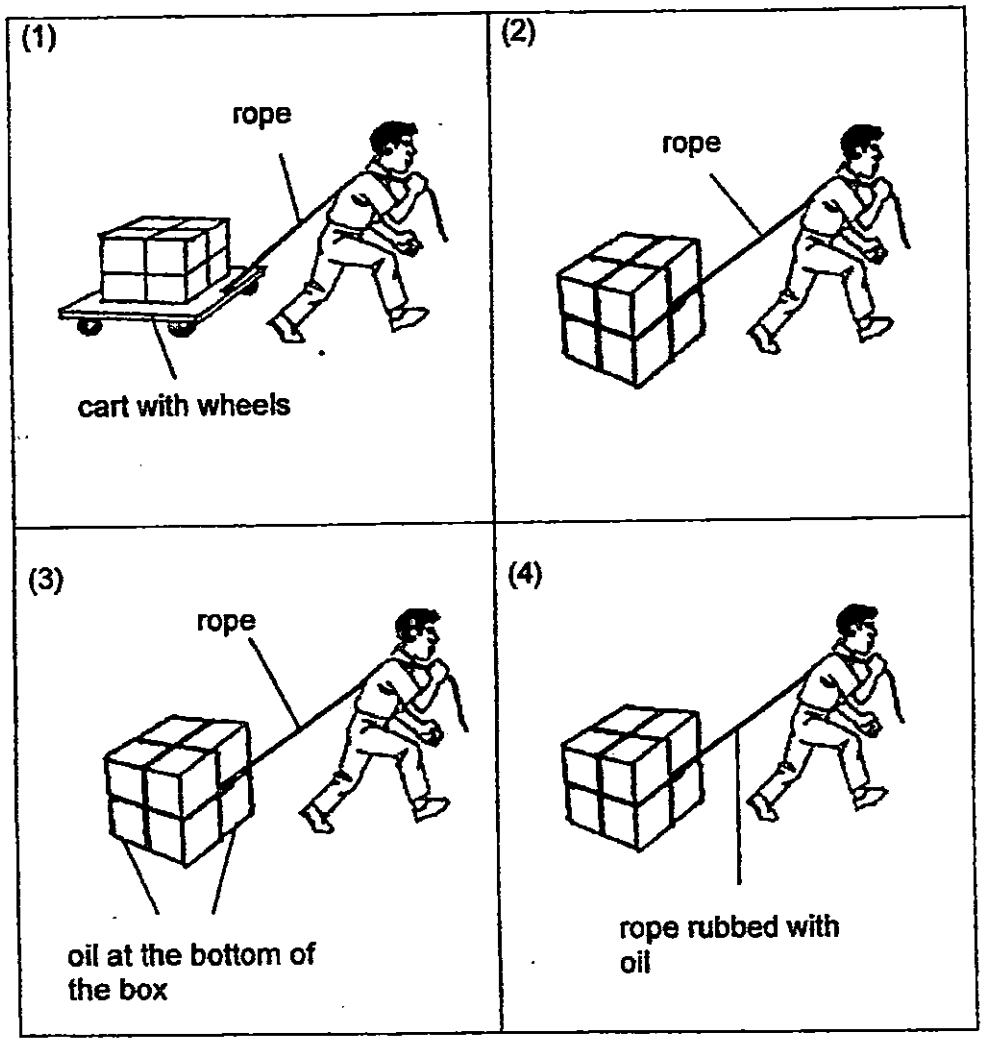
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24. Which of the following are ways that we can conserve electrical energy?

A Use air- conditioners.
B Use energy-saving light bulbs.
C Switching on the water heater only when you are using it.
D Switching off the electrical appliances when they are not in use.

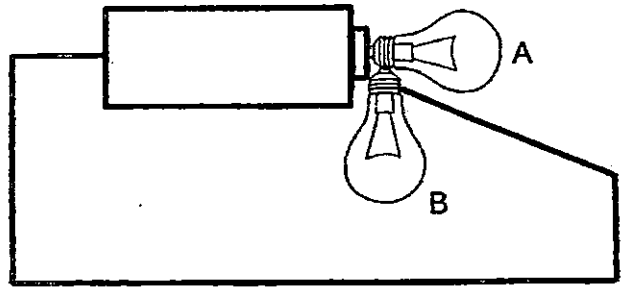
(1) A and B only
(2) B and C only
(3) A, C and D only
(4) B, C and D only

25. Kenneth is trying to move 4 similar boxes along the same stretch of floor using similar ropes as shown below. All 4 boxes have the same mass and size. In which scenario will Kenneth find it the most difficult to move the box along the floor?



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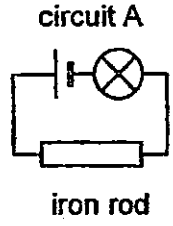
21. Two bulbs, A and B, are connected to a battery as shown below.

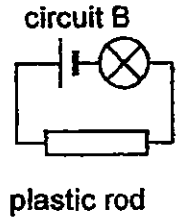


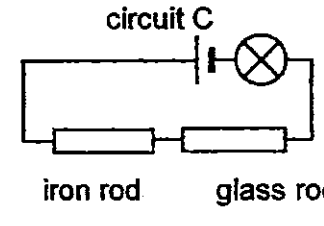
Which one of the following statements is correct?

(1) Both bulbs light up.
(2) Only bulb A lights up.
(3) Only bulb B lights up.
(4) Both bulbs did not light up.

22. Three circuits, A, B and C as shown below were connected with rods made of different materials.





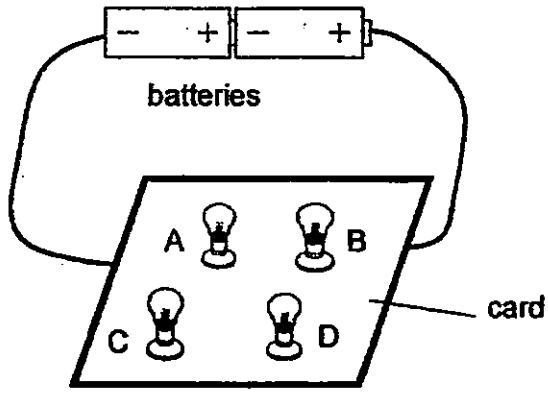


Which of the above circuit(s) would the bulb light up?

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

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23. Judy created a circuit board game for a Science Fair. The game consisted of 2 batteries and 4 light bulbs placed in bulb holders. The wires were hidden behind the board.

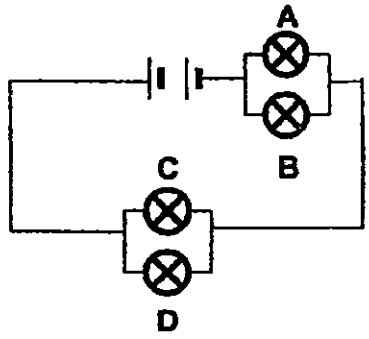


In this board game, all the bulbs are lighted in the beginning. A participant is required to remove one bulb at a time to observe the effect on the other bulbs. The results are shown below.

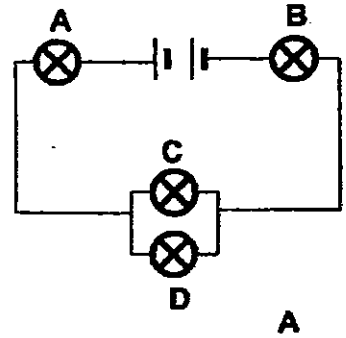
Bulb removed	Findings
A	Bulbs B, C and D did not light up
B	Bulbs A, C and D did not light up
C	Bulbs A, B and D remained lighted
D	Bulbs A, B and C remained lighted

Which one of the following shows the correct circuit for the board game?

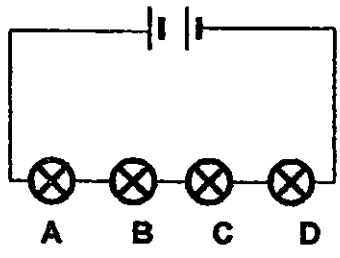
(1)



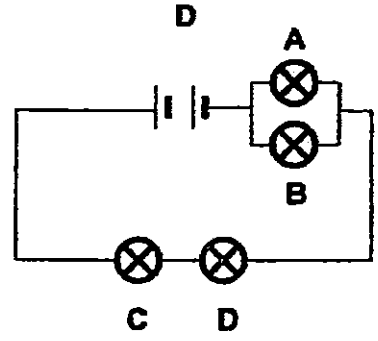
(2)



(3)



(4)



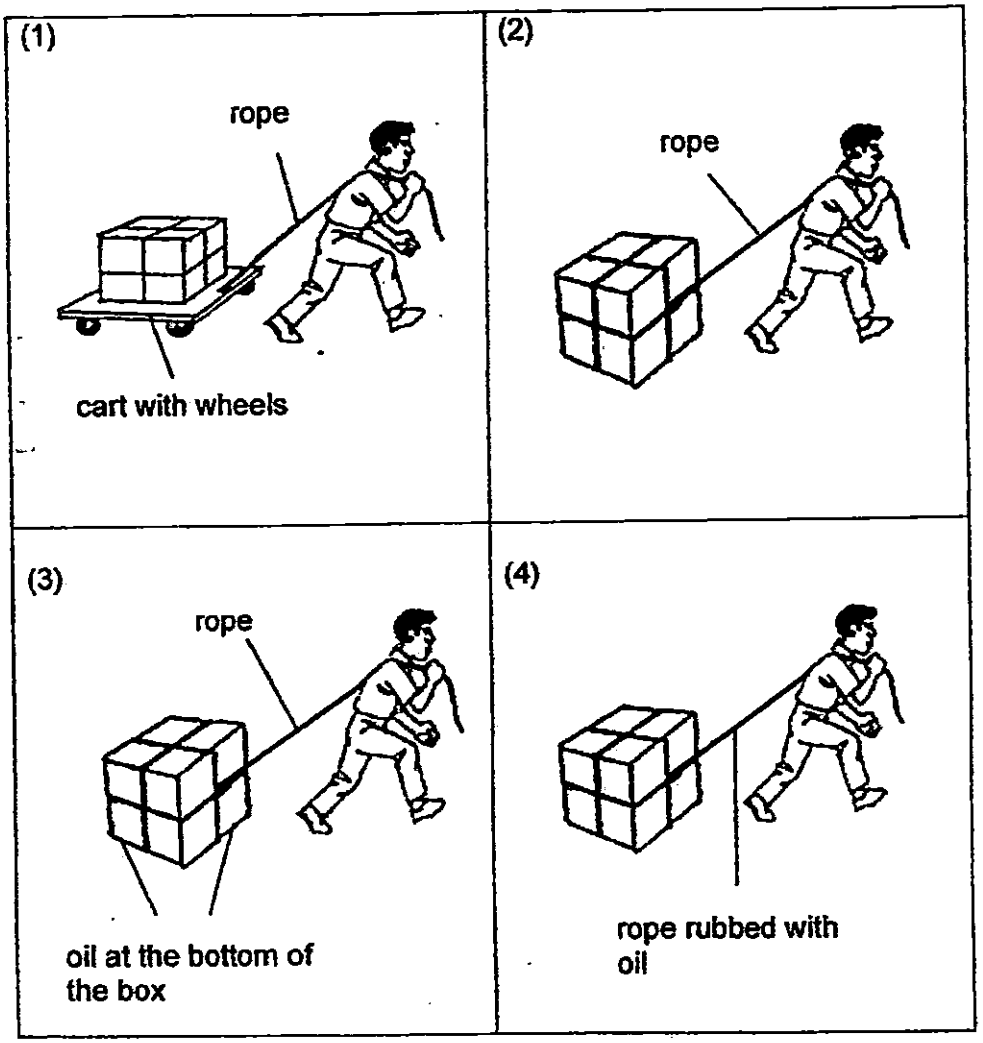
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24. Which of the following are ways that we can conserve electrical energy?

A Use air- conditioners.
B Use energy-saving light bulbs.
C Switching on the water heater only when you are using it.
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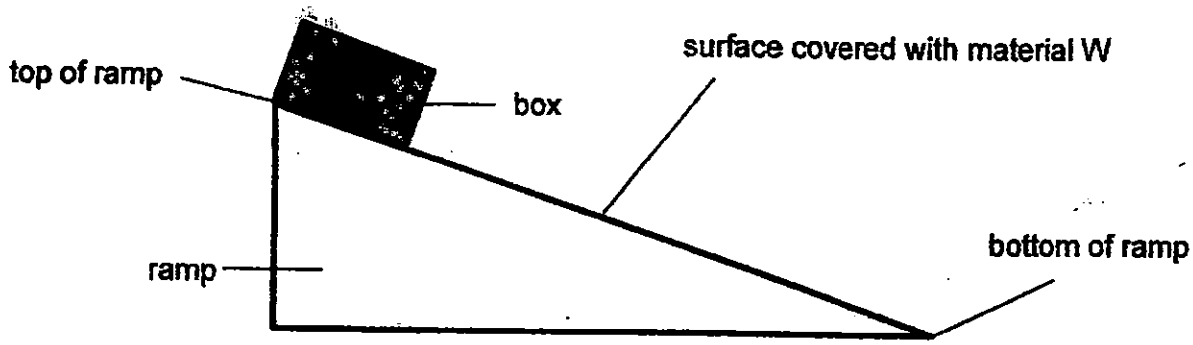
(1) A and B only
(2) B and C only
(3) A, C and D only
(4) B, C and D only

25. Kenneth is trying to move 4 similar boxes along the same stretch of floor using similar ropes as shown below. All 4 boxes have the same mass and size. In which scenario will Kenneth find it the most difficult to move the box along the floor?



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26. Mary covered the surface of the ramp with material W. Then, she released a box at the top of the ramp. She recorded the time taken for the box to reach the bottom of the ramp.



She repeated the experiment with another 3 identical ramps of different materials, X, Y and Z, covering the surfaces. She recorded the results in the table below.

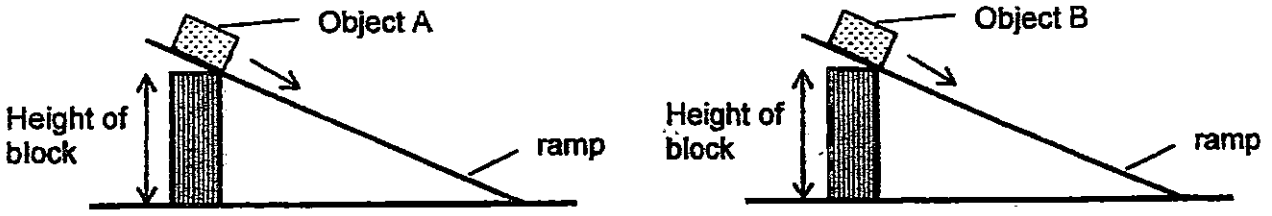
Type of surface	Time taken for the box to move from top to bottom of ramp (seconds)
W	20
X	35
Y	18
Z	47

Which material, W, X, Y or Z, is the most suitable to be used to make an anti-slip bathroom mat?

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

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27. Xie Min wanted to find out if the mass of an object would affect the time taken for it to reach the end of the ramp. She set up the experiment as shown below. She then pushed objects A and B down the ramp.

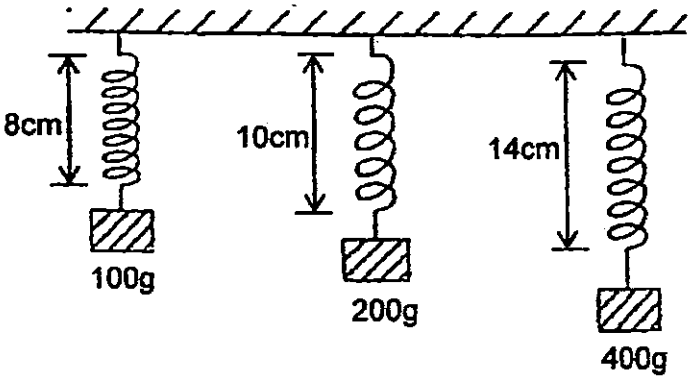


Based on the above experiment, which of the following variables should be kept the same?

A Height of the block
B Mass of the objects used
C The material used to make the ramp
D The starting position from which the objects were released

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

28. The diagram below shows how the length of a spring changes when different weights are hung on it. The spring returns to its original length when the weights are removed.

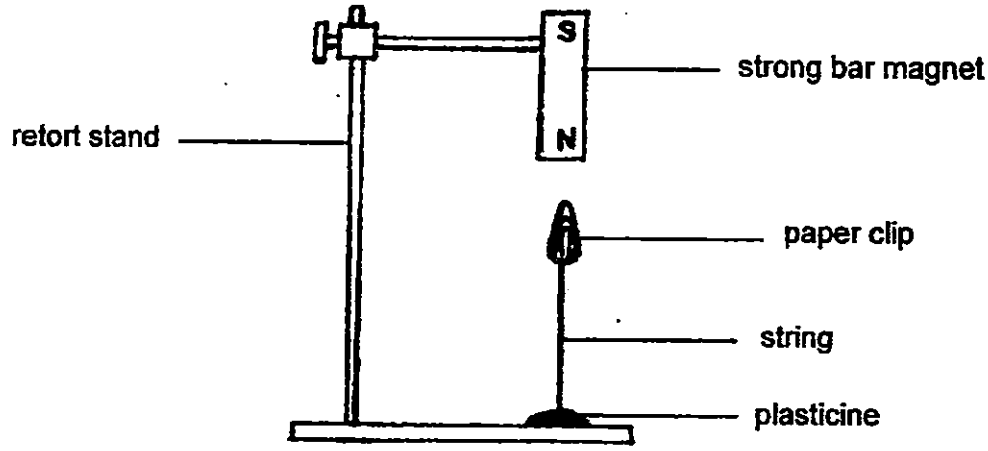


What is the original length of the spring, without any weights hung on it?

(1) 2 cm
(2) 4 cm
(3) 6 cm
(4) 8 cm

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29. Miss Yacob sets up an experiment using a strong bar magnet and a paper clip, as shown in the diagram below. The paper clip appears to be suspended in mid-air.



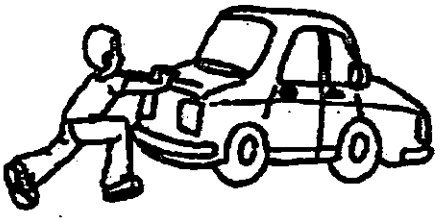
What will happen to the paper clip when she cuts the string?

(1) The paper clip will drop.
(2) The paper clip will break.
(3) The paper clip will be attracted to the magnet.
(4) The paper clip will remain suspended in mid-air.

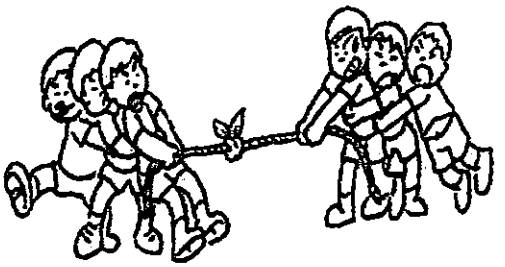
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30. Which of the following actions involve a pull?

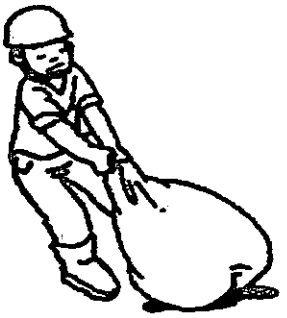
(A) Moving a car forward



(B) Playing a game of tug of war



(C) Dragging a heavy bag of rubbish



(D) Cutting the fingernails with a nail clipper



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

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NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

SEMESTRAL ASSESSMENT 2
2015

BOOKLET B

Date : 27th October 2015

Duration : 1 h 45 min

Name : _____ **( )**

Class: Primary 5 ( )

Marks Scored:

Booklet A:		**60**
Booklet B :		**40**
Total :		**100**

Any query on marks awarded should be raised by 6 November 2015. 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: ....

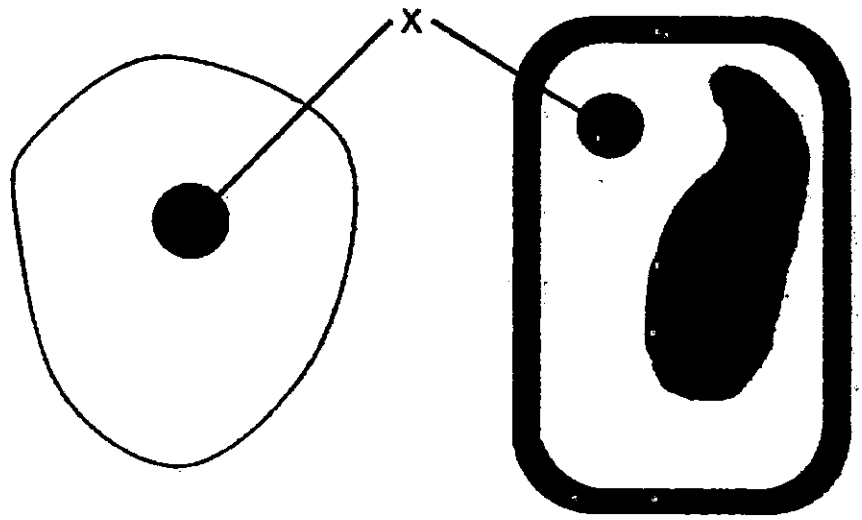
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FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet B consists of 17 printed pages including this cover page.

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Section B (40 marks)
Write your answers to questions 31 to 44 in the spaces provided.

31. Rick was asked to observe two different types of cell as shown below.



cell A cell B

(a) What is the function of part X? [1]

_____

(b) Based on the diagrams above, which cell A or B is an animal cell? Explain your answer. [1]

_____

_____

(c) Give a reason why it is important for organisms to produce new cells. [1]

_____

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32. Ravi conducted an experiment to find out how his pulse rate varied with different activities. He measured his pulse rate immediately after each activity and recorded the results in the table below.

Activity	Pulse rate per minute
A	80
B	90
C	100
D	120

(a) Suggest one variable with regard to the **activities** that Ravi had to keep constant to ensure a fair test. [1]

_____

_____

(b) The pulse rate of a person who is reading a book is approximately 65 per minute. Explain why Ravi's pulse rate increased to 120 beats per minute after engaging in activity D. [2]

_____

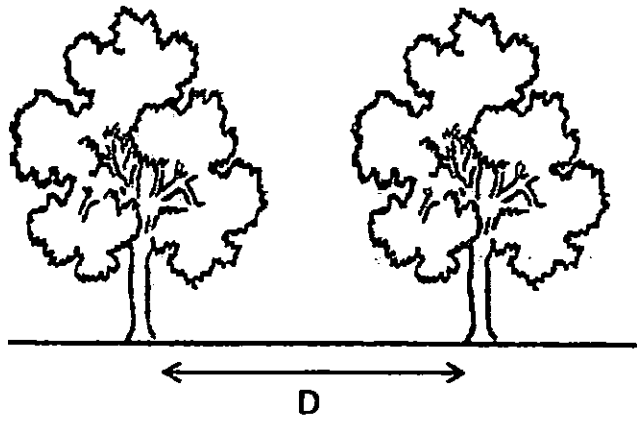
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33. Farmer Peter owned an apple farm. He planted apple trees in rows as shown in the diagram below.



Farmer Peter planted the apple trees in rows with different distances between the apple trees. He recorded the distances between the apple trees and the average number of fruits produced by each tree in the table below.

Distance between the trees (D) in metres	3	4	5	6	7	8
Number of apples produced per tree	30	40	50	55	55	55

(a)(i) Based on the table above, what is the relationship between the distance between the trees and the number of apples produced per tree? [1]

_____

_____

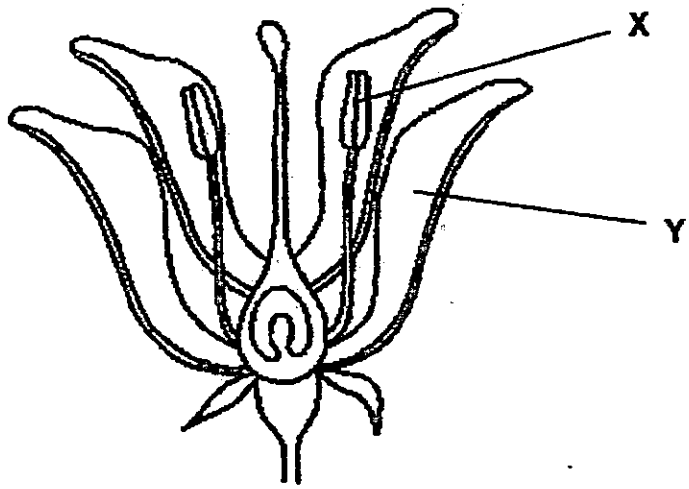
(ii) Explain why the trees produce lesser fruits when they are too near to one another. [1]

_____

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(b) The diagram below shows the cross-section of an insect-pollinated flower, similar to that of an apple tree.

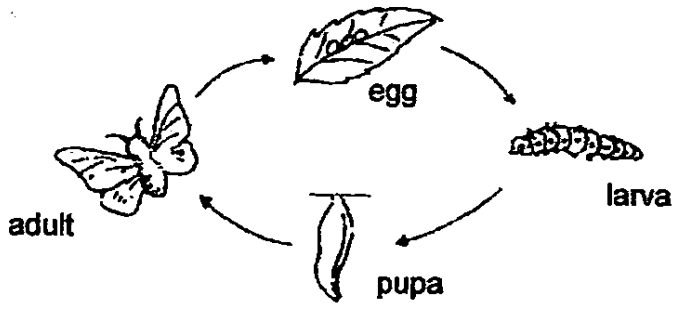


Identify parts X and Y and state their main functions in the table below. [2]

Part	Name	Function
X		
Y		

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34. The diagram below shows the life cycle of a butterfly.



(a) The larva is considered a pest to farmers. Explain why the adult butterfly is not considered a pest by the farmers. [1]

_____

_____

(b) State 2 differences between the life cycle of the butterfly and the life cycle of a cockroach. [2]

(i) _____

_____

_____

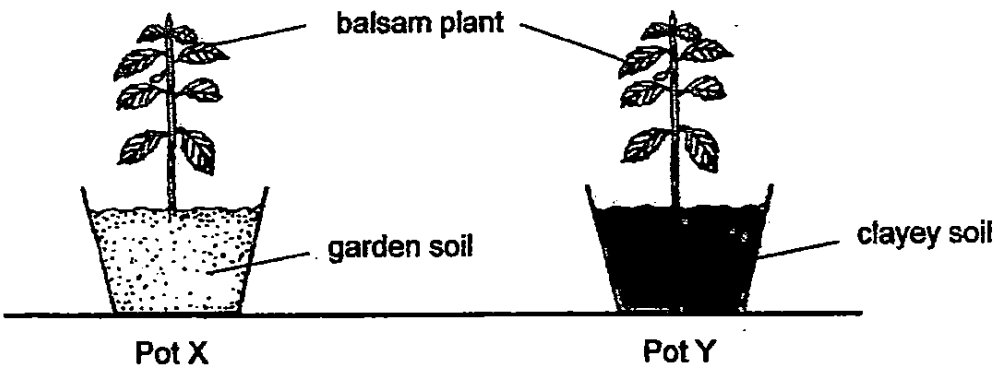
(ii) _____

_____

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35. Jia Wei wanted to find out if the presence of sunlight affected the growth of plants. He planted 2 similar balsam plants in similar pots as shown in the diagram below.



He recorded the following information in the table below.

	Type of soil	Amount of soil in pot	Amount of water per day	Location of pots
Pot X	Garden soil	750 ml	250ml	In the cupboard
Pot Y	Clayey soil	750 ml	300 ml	In the basketball court

What were 2 changes that Jia Wei had to make to ensure that his experiment was a fair one? [2]

(i) _____

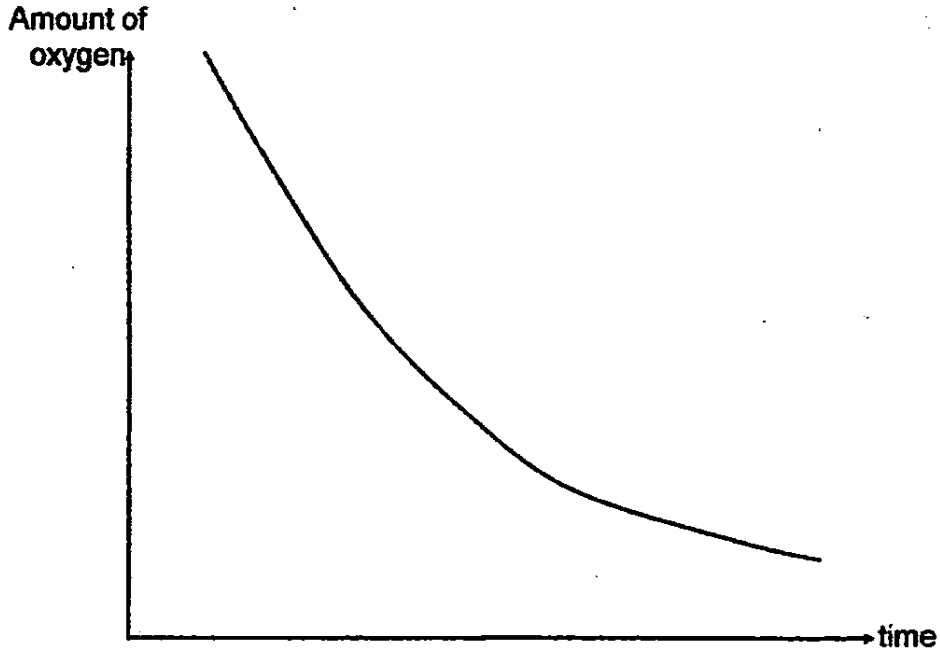
_____

(ii) _____

_____

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36. Herman was trapped in an enclosed lift with no ventilation. The graph below showed the amount of oxygen inside the lift over a period of time.



(a) Based on the information above, what was the relationship between the amount of oxygen inside the lift and the number of breaths Herman took? [1]

_____

_____

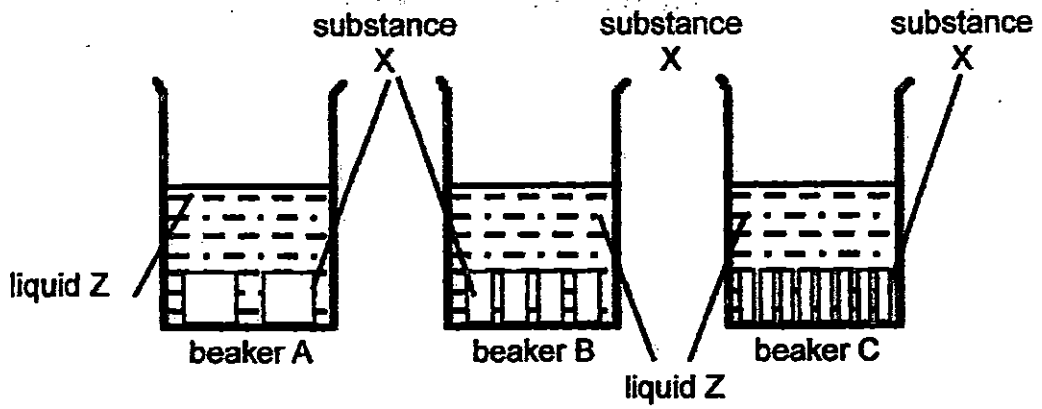
(b) Based on the answer in part (a), explain why the number of breaths Herman took changed with time. [1]

_____

_____

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37. The diagram below shows the same amount of substance X cut into different sizes and placed into beakers containing liquid Z respectively.



The table below shows the time taken for substance X to dissolve completely.

Beaker	Time taken for substance X to dissolved completely (minutes)
A	10
B	( )
C	3

(a) In the table above, **fill** in the blank to indicate the time needed for substance X to dissolve completely in beaker B. [1]

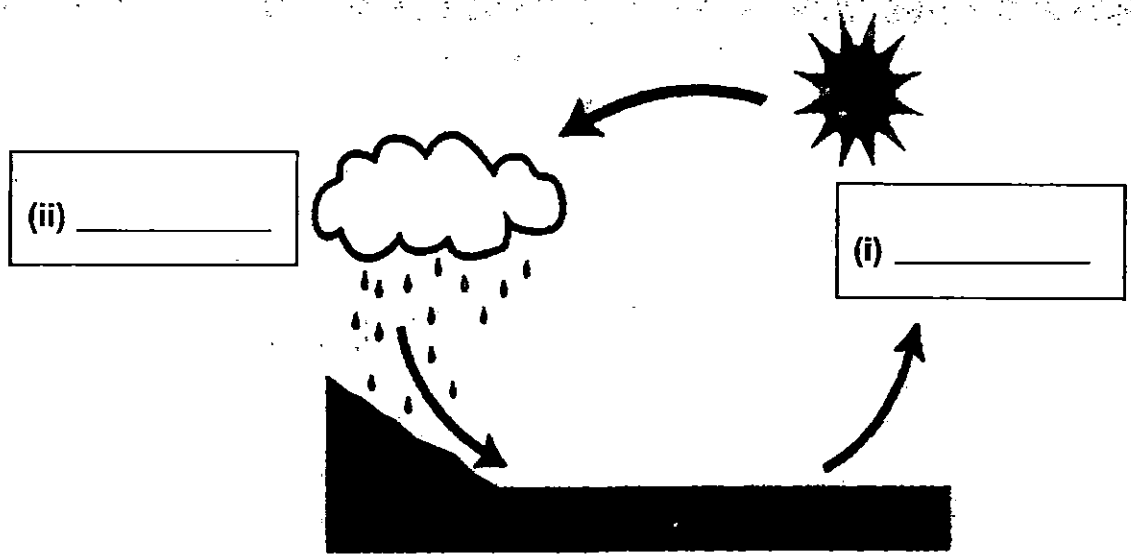
(b) How does chewing our food more times before swallowing helps in speeding up the time needed for digestion? [1]

_____

_____

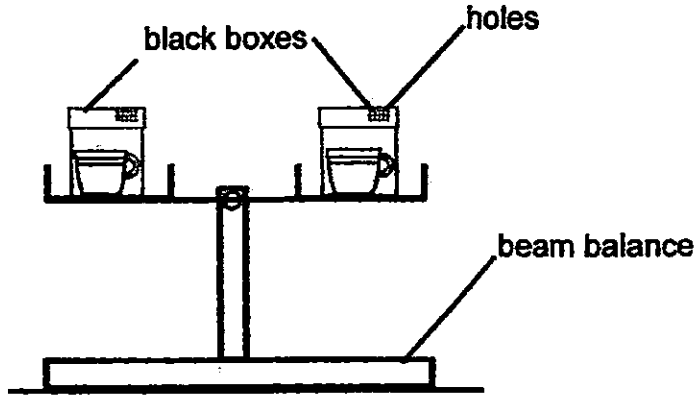
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38. The diagram below shows a water cycle.



(a) In the boxes above, identify the **state** of water found in the water cycle above. [1]

Samuel poured equal amount of hot and cold water into identical cups respectively. The temperature of the hot water and cold water was 95°C and 5°C. He placed the respective cups of water into identical black boxes and covered them with a lid that had tiny holes. Samuel put the black boxes onto a beam balance and showed it to Jack as shown in the diagram below.



(b) How was Jack able to determine which was the box that contained the cup with cold water? Explain your answer. [2]

_____

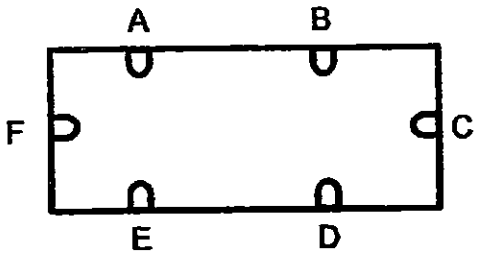
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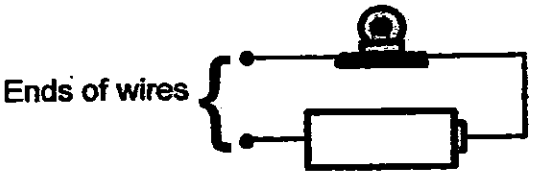
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39. Albert constructed a circuit card. The diagram below shows the circuit card with points A, B, C, D, E and F. Four of the points were connected with wires hidden behind the card.



Circuit card (Front View)

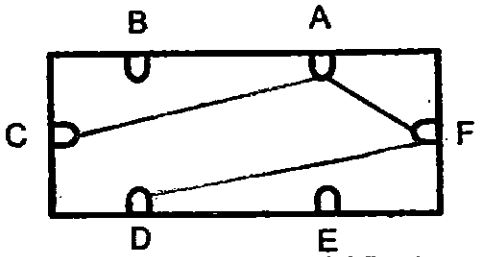


Circuit tester

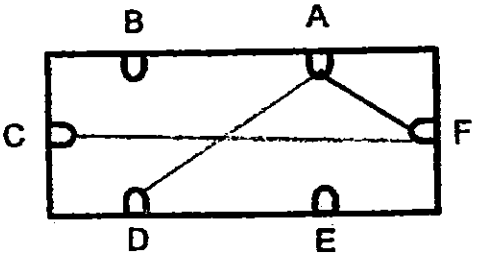
The circuit card was tested with a circuit tester. The ends of the wires of the circuit tester were connected to two points at a time. The table below shows the results.

Pair of points tested	Bulb lit up	Bulb did not light up
A and F	✓	
B and D		✓
A and C	✓	
D and F	✓	
E and F		✓
A and D	✓	

From the results above, draw **two lines** in the diagrams below to show how Albert connected the points with wires. [2]



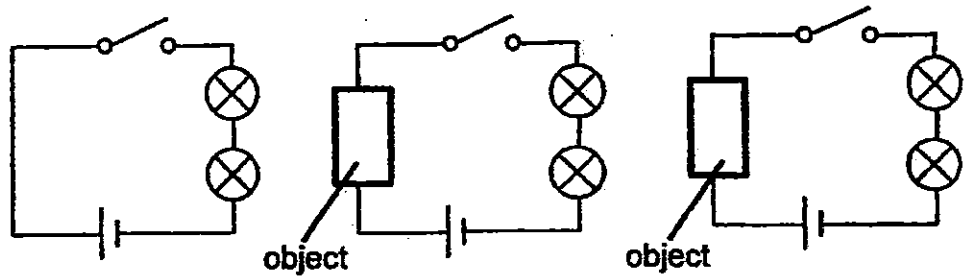
Circuit card (Back View)



Circuit card (Back View)

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40. Jonathan set up 3 circuits using identical bulbs and batteries as shown below. Two similar objects were added to setups Q and R.



He made the following observations when the three switches were closed at the same time.

Setup	Bulbs
P	Lit up
Q	Lit up brighter as compared to setup P
R	Did not light up

(a) What was the same object that was added to both setups Q and R? [1]

_____

(b) Explain why the bulbs in setup R did not light up when the object was added? [1]

_____

(c) What would happen to the brightness of the bulbs if another bulb was added in series to setup P? [1]

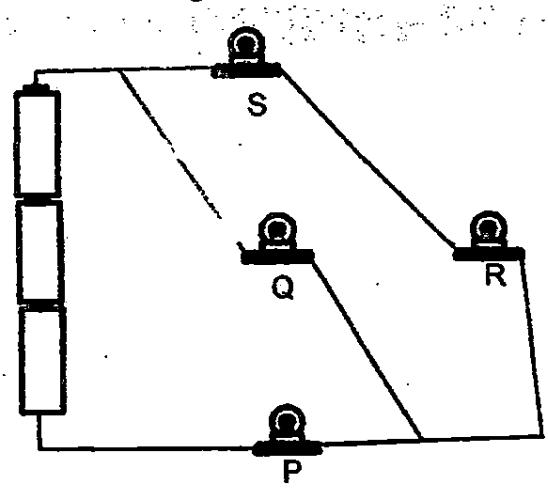
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(d) Explain why the bulbs in setup Q did not light up when Jonathan added 1 more battery. [1]

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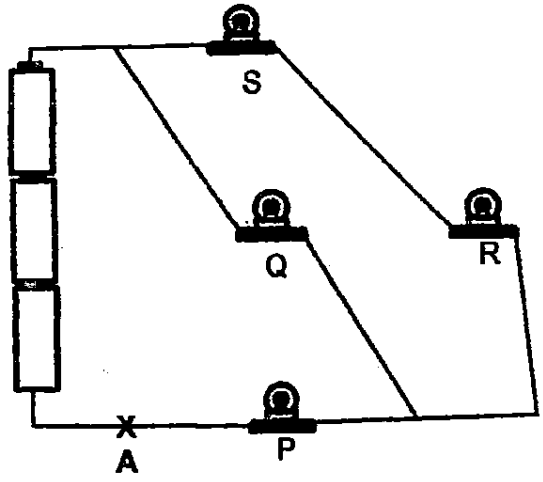
41. The diagram below shows 4 lighted bulbs P, Q, R and S in a circuit.



(a) A switch was to be installed so that a particular bulb could be switched on or off while the other 3 remained lighted.

Mark "X" on the circuit **above** to show where you should connect the switch. [1]

Study the diagram below.



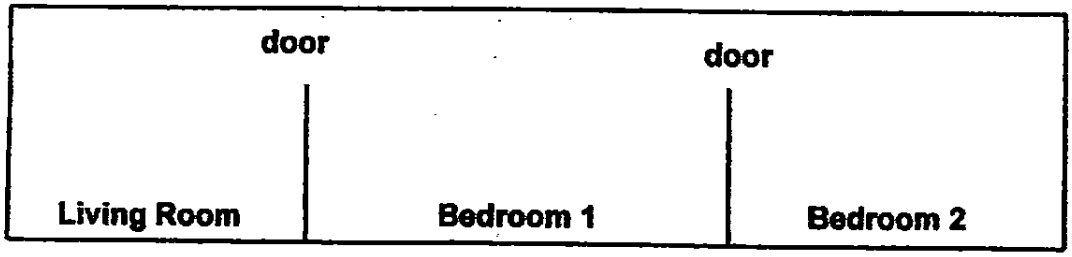
(b) Would the bulbs light up if the wire was cut at point A as indicated in the diagram above? Explain your answer. [1]

_____

_____

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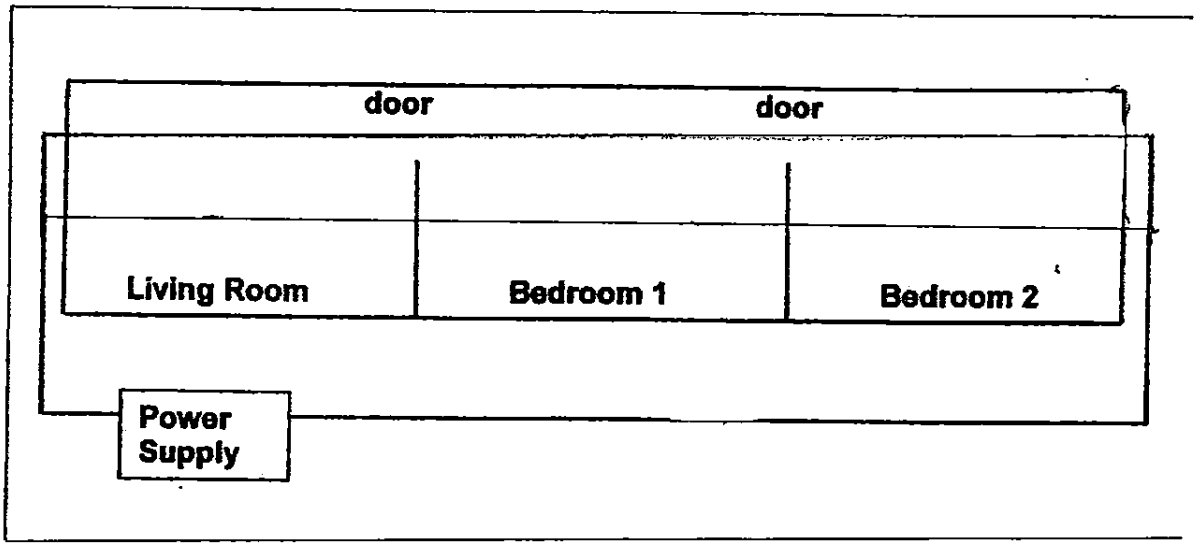
(c) Matthew wanted to install a bulb in each of his bedroom such that he could switch on or off the bulb in each room individually.



Top view of the living room and 2 bedrooms

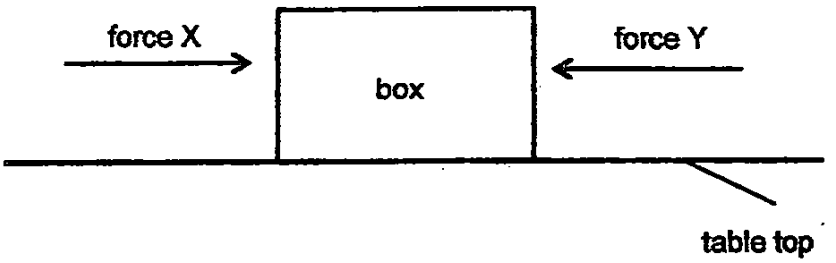
In the box below, construct a circuit diagram to show how he can use the two individual bedroom switches to control the bulbs in each of the two bedrooms. [2]

Symbols to use	
Bulb	
Switch	
Wire	



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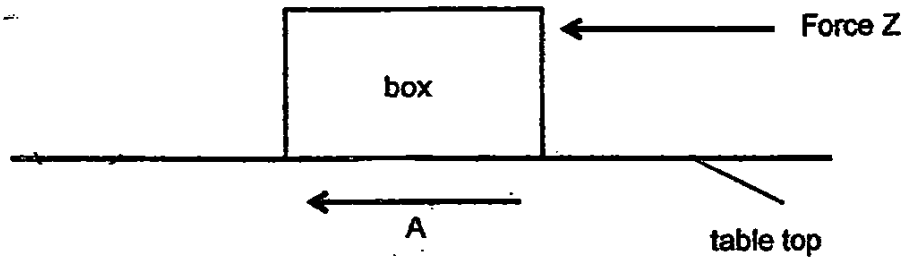
42. Forces X and Y are acting on a box as shown in the diagram below. The box is placed on a smooth table top.



(a) In the table below, fill in the value for Force Y such that the box will remain stationary. [1]

Force X (N)	Force Y (N)
20	

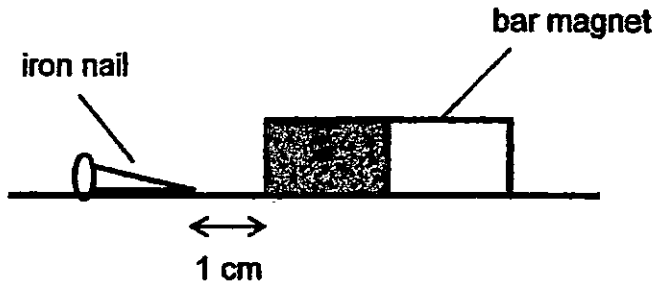
Force Z is applied to the box causing it to move in direction A as shown in the diagram below.



(b) In the diagram above, draw and label one other force which is acting on the box. [1]

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43. Daisy placed a bar magnet 1 cm away from an iron nail as shown in the diagram below. She observed that the iron nail moved towards the bar magnet.



(a) Name the force that was exerted on the nail by the magnet. [1]

_____

Daisy repeated the experiment with another small object of the same mass. She observed the result as shown in the diagram below.



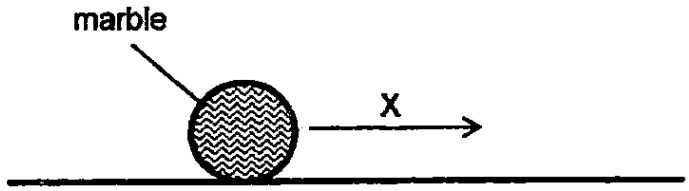
(b) Explain why the object moved in the way as shown in the diagram above. [1]

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44. Ding Jie rolled a marble on the floor in the direction as indicated by arrow X. He noticed that the marble rolled on the floor for a while and gradually stopped rolling.



(a) Explain why the marble stopped rolling. [1]

_____

_____

(b) Suggest one way in which Ding Jie could make the marble roll over a longer distance on the same floor before stopping. [1]

_____

_____

(c) Ding Jie was watching a football match at the stadium. He noticed that the players exerted forces on the moving ball using their legs. State 2 possible effects on the moving ball when a force was exerted on it. [2]

Effect 1 : _____

_____

Effect 2 : _____

_____

END

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EXAM PAPER 2015
LEVEL : PRIMARY 5
SCHOOL : NANYANG PRIMARY SCHOOL
SUBJECT : SCIENCE
TERM : SA2

Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q9	Q 10
2	**2**	**4**	**1**	**3**	**2**	**4**	**2**	**2**	**2**
Q 11	Q 12	Q 13	Q 14	Q 15	Q16	Q17	Q18	Q19	Q20
2	**1**	**1**	**1**	**2**	**3**	**1**	**3**	**4**	**2**
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
1	**1**	**2**	**4**	**4**	**4**	**3**	**3**	**3**	**2**

Q31a. Controls the cell and also contains genetic information.

Q31b. A. It does not have a cell wall.

Q31c. As the old cells are damaged, cells have to go through cell division so the cells contain hereditary traits.

Q32a. The time he took to do each activity.

Q32b. The heart had to pump faster to pump more blood rich in oxygen and digested food to other parts of the body and removes more carbon dioxide.

Q33ai) The further the distance between the trees, the more the number of apples produced per tree, but the number of fruits produced remains the same.

Q33aii) They would be overcrowded and have to compete for sunlight, water , mineral salts and oxygen when they are too near to one another.

Q33b. Part X : Anther – Produces pollen grains
Q33b. Part Y : Petals – To attract insects by their colourful petals.

Q34a. The butterfly helps in pollinating the flowers.

Q34bi) The butterfly has a 4 – stage life cycle while a cockroach has a 3 – stage life cycle.

Q34bii) The butterfly's young does not look like the adult but the cockroaches' young looks like the adult.

Q35i) He had to put the same type of soil for both pots.

Q35ii) He had to give the same amount of water per day for both plants.

Q36a. The more the number of breaths Herman took, the lesser amount of oxygen inside the lift.

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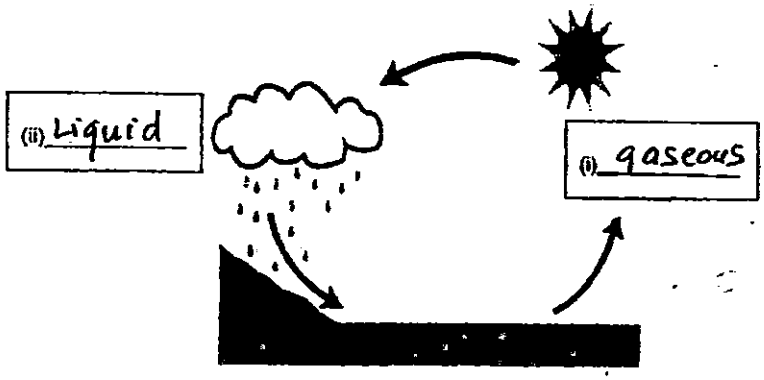
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Q36b. Herman has to increase the number of breaths in order to take in the same amount of oxygen.

Q37a. B – 6

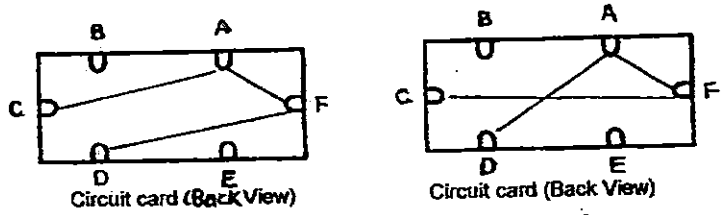
Q37b. It will be digested into smaller pieces, helping it to be digested faster, our food will have a greater surface area / smaller pieces in contact with the digestive juices.

Q38a. **SEE PICTURE**



Q38b. The side with the boy that tilt downward is the box that contains cold water. Warmer water vapour in the air touches a cooler surface and condenses to form tiny droplets of water, causing the beam balance to tilt.

Q39. **SEE PICTURE**



Q40a. Battery

Q40b. Batteries are connected with the positive ends

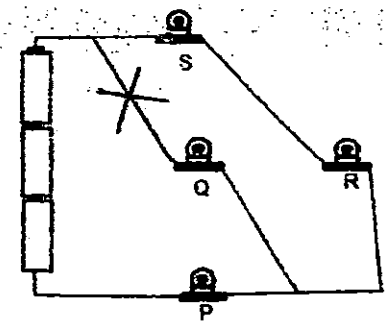
Q40c. The brightness of the bulb would be dimmer.

Q40d. Too much current flowing through, the bulb will fuse.

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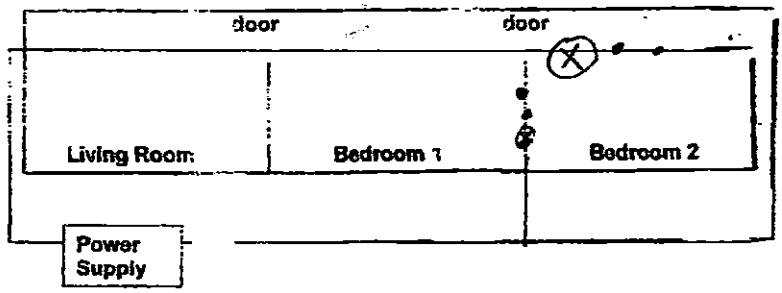
Q41a. **SEE PICTURE**

41. The diagram below shows 4 lighted bulbs P, Q, R and S in a circuit.

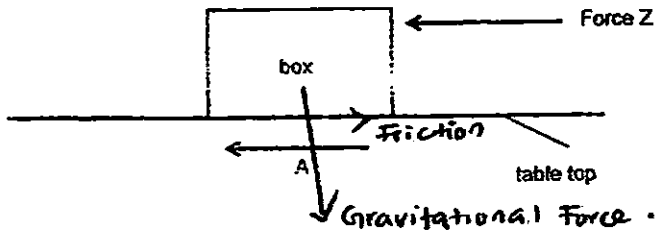


Q41b. No. Electricity will not be able to flow through as it would be an open circuit.

Q41c. **SEE PICTURE** Q42a. Force Y (N) - 20



Q42b. **SEE PICTURE**



Q43a. Magnetic force of attraction

Q43b. The small object is repelled by the bar magnet.

Q44a. There is friction between the marble and the ground.

Q44b. Exert more force on the marble.

Q44c. Effect 1 : The ball will move faster.
Q44c. Effect 2 : The ball will change its direction.

THE END

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