



SA2

ANGLO-CHINESE SCHOOL (PRIMARY)
END- OF-YEAR EXAMINATION 2005

SCIENCE

BOOKLET A

Name _____ ()

Class : Primary 5 ____

Date : 27 October 2005

Duration of paper: 1 h 45 min

THIS BOOKLET CONTAINS 24 PAGES.
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FOLLOW ALL INSTRUCTIONS CAREFULLY.

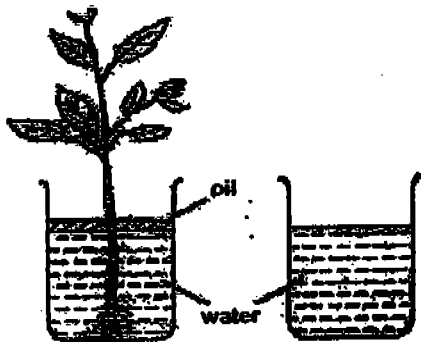
PART I

For each of the following questions 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.

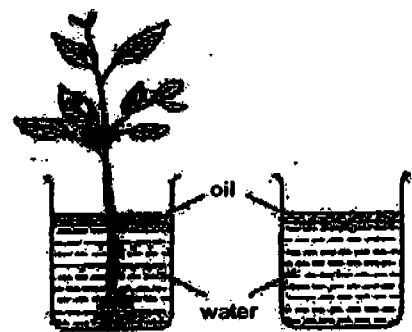
(30 x 2 marks)

- 1 Kirby wants to find out if plants take in water. Which setups should he use in order to obtain a fair test?

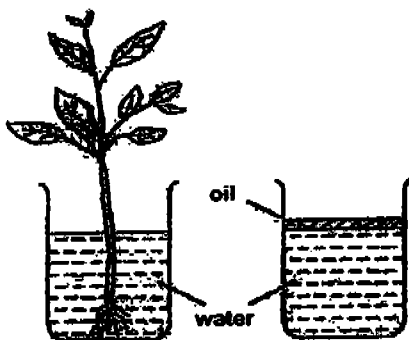
(1)



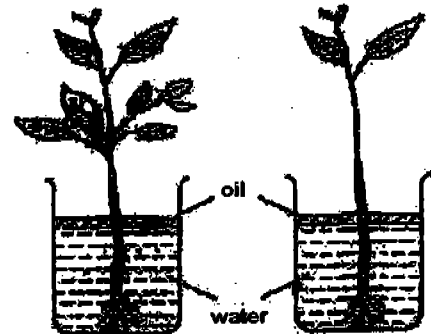
(2)



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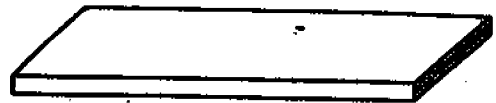
(4)



- 2 Adam wanted to find out if the weight of an object on an area of grass would affect its growth. Which two objects should he use and what variable should he change to conduct a fair experiment?



carpet



clear glass panel



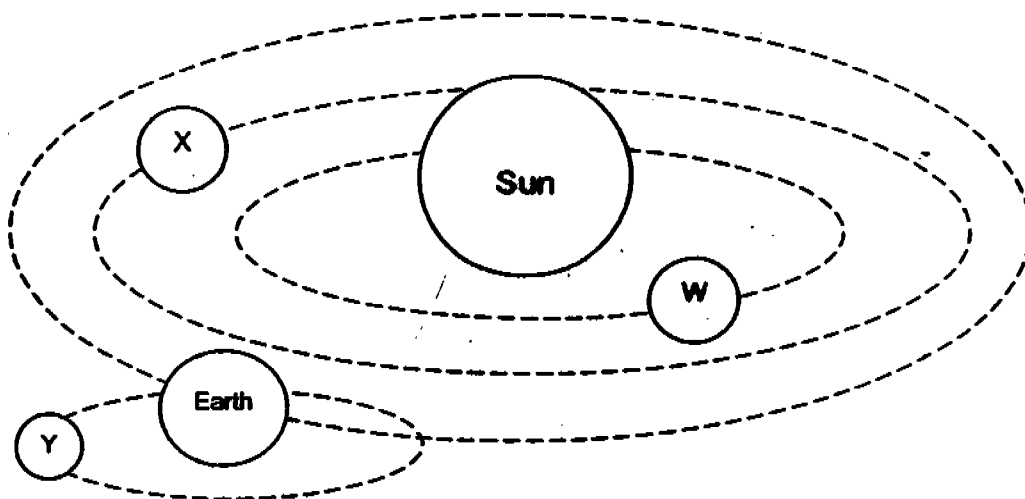
clear plastic sheet



wooden plank

	Objects	Variable change
(1)	carpet and wooden plank	length of the objects
(2)	carpet and clear glass panel	weight of the objects
(3)	clear glass panel and clear plastic sheet	length of the objects
(4)	clear glass panel and clear plastic sheet	weight of the objects

3 The following diagram shows part of the solar system.

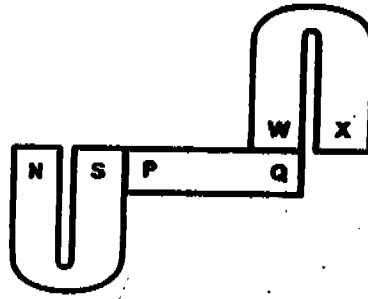


Which of the following statements about the diagram above is/are true?

- A Like the Earth, Y rotates about its own axis.
- B X takes a longer time to orbit the Sun than W.
- C Y can be seen from the Earth because it reflects light from W.
- D The length of day on Earth is determined by the revolution of Y around it.

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

- 4 The diagram below shows how 3 magnets can be arranged to attract each other.

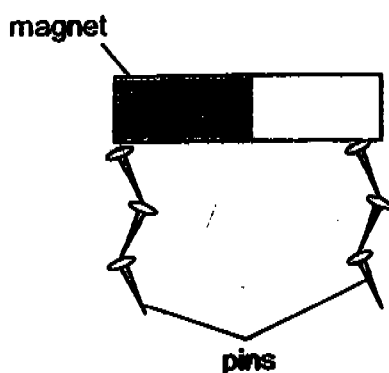


Which of the following statements describe(s) the magnetic forces of the poles accurately?

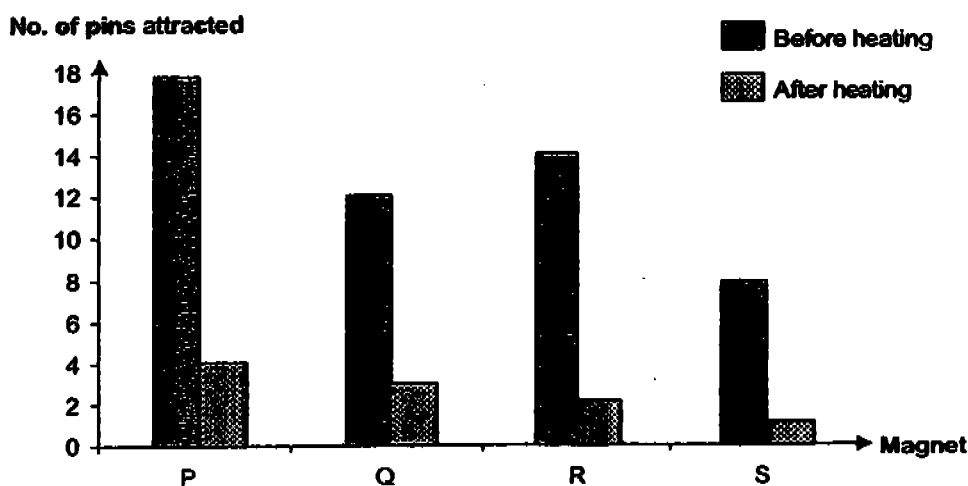
- A Q repels S; P attracts W
- B X attracts P; X repels Q
- C W repels S; N attracts P

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

- 5 Gary set up an experiment to test magnets P, Q, R and S. Each magnet was placed near some pins and the number of pins attracted to the magnet was recorded. The set up is shown below.



Gary then heated each magnet for 10 minutes and then placed it near the pins. Again, the number of pins attracted to it was recorded. After testing all 4 magnets, he constructed the following graph.



What can Gary conclude from the above data?

- (1) All magnets have the same magnetic strength.
- (2) Magnetic strength is not dependent on temperature.
- (3) The weaker a magnet is, the more magnetism it loses when heated.
- (4) The stronger a magnet is, the more magnetism it loses when heated.

6 Study the following diagrams.

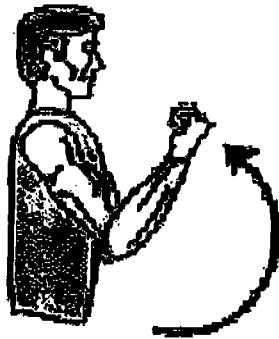


Diagram 1

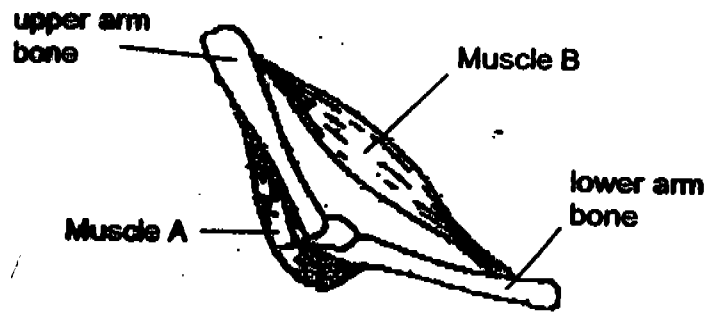
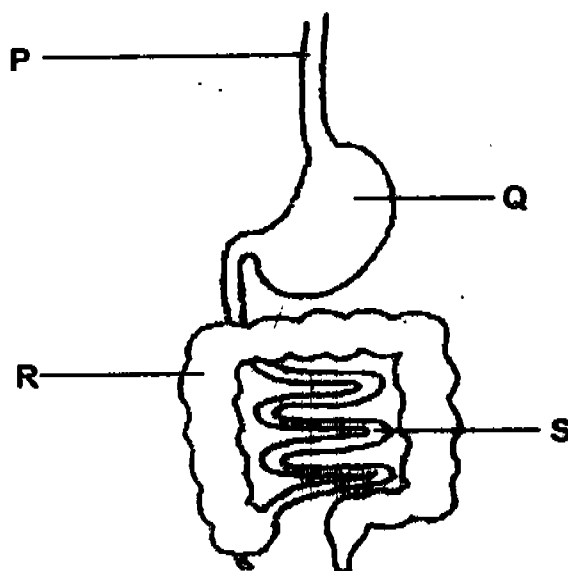


Diagram 2

With reference to Diagram 2, which set of muscle actions below will result in the movement as shown in Diagram 1?

	Muscle A	Muscle B
(1)	relaxes	relaxes
(2)	contracts	relaxes
(3)	relaxes	contracts
(4)	contracts	contracts

7 Study the following diagram of the digestive system.



Which of the following statements about the parts labelled P to S is/are false?

- A P transports food from the mouth to the stomach.
- B Digestive juices in Q break down the food further.
- C Digestion of food is completed in R.
- D Digested food in S is carried by the blood to other parts of the body.

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

- 8 Human blood can be classified into four main blood groups – A, B, AB and O. The table below shows how each of these blood groups can be matched.

For example, a person with B-type blood can only donate blood to another person with B-type blood or a person with AB-type blood.

Blood Types	Donor Blood Type			
Recipient Blood Type	A	B	AB	O
A	Yes	No	No	Yes
B	No	Yes	No	Yes
AB	Yes	Yes	Yes	Yes
O	No	No	No	Yes

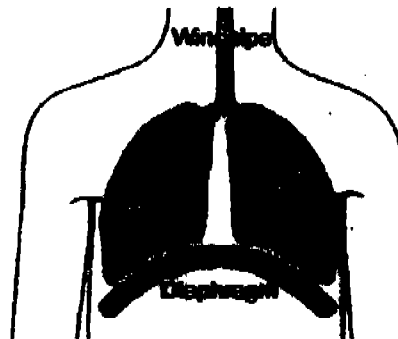
Amy's family have the following blood types:

Father - A
Mother - B
Amy's brother - AB
Amy's sister - O
Amy - A

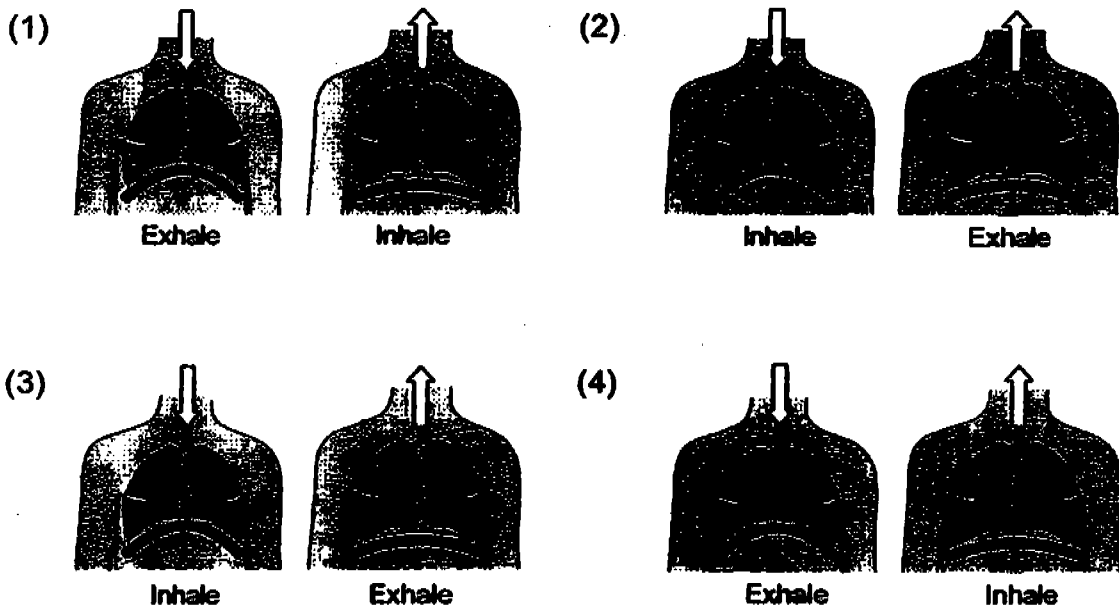
If Amy needs blood transfusion, who can she receive the blood from?

- (1) Her father only
- (2) All except her mother
- (3) Her father and sister only
- (4) Her father and brother only

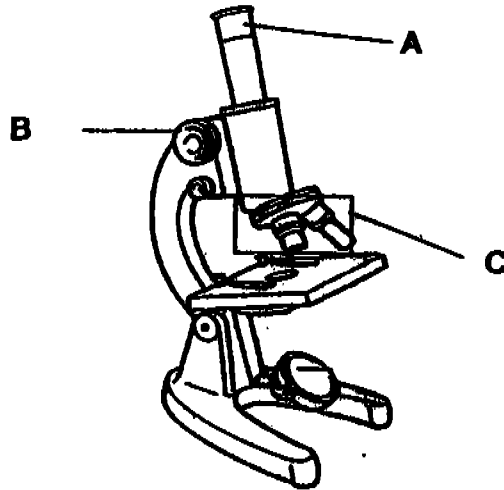
- 9 The human respiratory system, as shown in the diagram below, enables us to breathe. When a man inhales, his diaphragm moves downwards as air is sucked into his lungs. When he exhales, his diaphragm moves upwards as air exits from his lungs.



Study the diagrams below. Which of the following correctly illustrates the process of inhaling and exhaling?

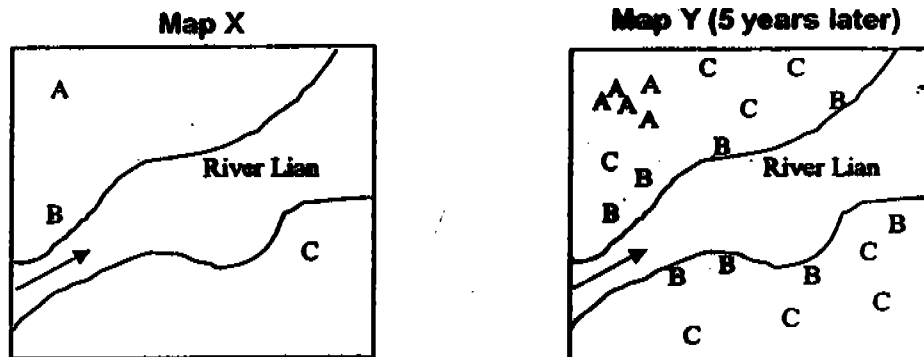


- 10 Sam uses the microscope to see his cheek cells. Which part(s) of the microscope should he adjust if he wants to have a closer look at the specimen?



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

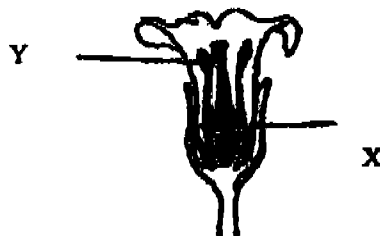
- 11 Three plants, A, B and C, are planted in lands on both sides of River Lian as shown in Map X. Map Y shows the same area 5 years later. The arrow shown in both maps indicates the river flow.



Which of the following correctly states the dispersal method of plant A, B and C?

	A	B	C
(1)	Splitting	Water	Wind
(2)	Wind	Animal	Water
(3)	Splitting	Wind	Water
(4)	Animal	Splitting	Wind

- 12 The diagram below shows a flower.



Which of the following organs in the human reproductive system perform similar functions as X and Y in the flower?

	X	Y
(1)	Ovary	Testes
(2)	Womb	Testes
(3)	Ovary	Penis
(4)	Womb	Penis

- 13 Like a cell, a town is made up of different parts performing different functions. The text below describes Town X.

Town X makes pastries. A fence encloses the town. Instructions for pastry marking are given by the town hall. Pastries are made in confectioneries found around the town.

Based on the above text, which one of the following correctly matches the parts to the cell parts performing the same function?

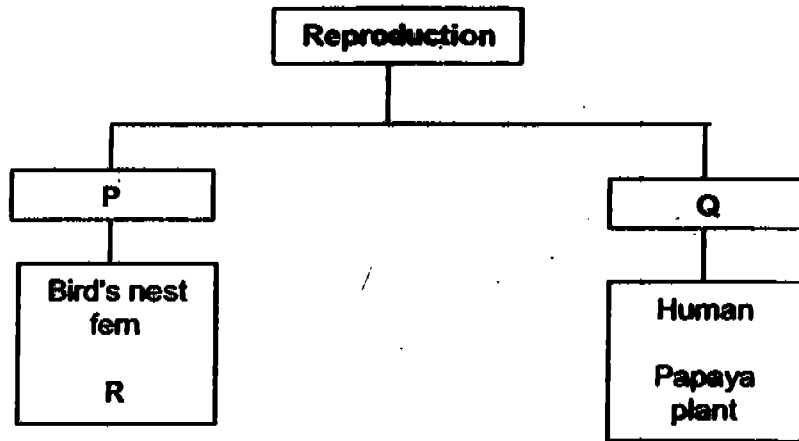
	Fence	Town hall	Confectioneries
(1)	Nucleus	Cytoplasm	Cell membrane
(2)	Cell wall	Nucleus	Chloroplast
(3)	Cell membrane	Nucleus	Chloroplast
(4)	Cell wall	Cytoplasm	Nucleus

- 14 Which of the following trait(s) is/are determined by our gene?

- A height
- B birth mark
- C tongue rolling
- D attached earlobe

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

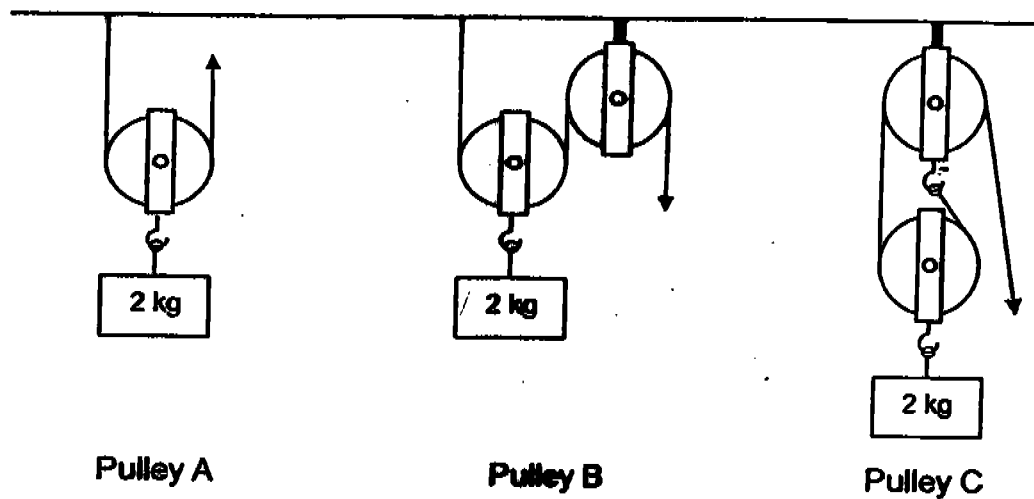
15 Study the classification table below.



Which of the following would complete the classification table correctly?

	P	Q	R
(1)	Asexual Reproduction	Sexual Reproduction	Yeast
(2)	Sexual Reproduction	Asexual Reproduction	Yeast
(3)	Asexual Reproduction	Sexual Reproduction	Lallang
(4)	Sexual Reproduction	Asexual Reproduction	Lallang

16 The diagram below shows 3 types of pulleys.

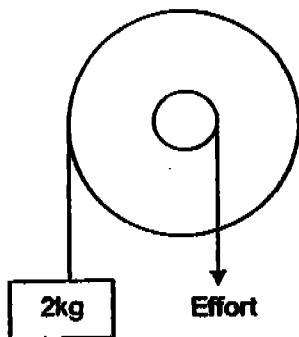


Which one of the following statements regarding the 3 pulleys is true?

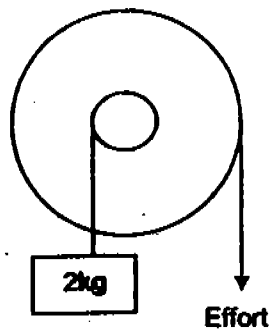
- (1) In pulley C, the effort needed is more than the load.
- (2) The three pulleys use the same effort to lift up the load.
- (3) Pulley B and C change the direction of the applied force with respect to the load.
- (4) The effort moves two times the distance moved by the load in Pulley A but not in Pulley B.

17 Which one of the following setup uses the least effort to lift a 2kg load?

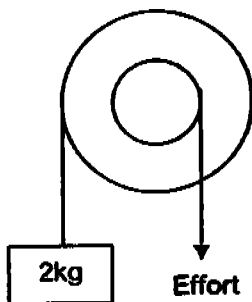
(1)



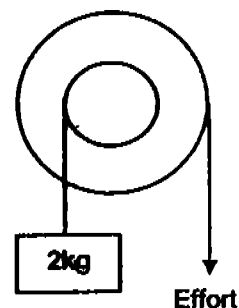
(2)



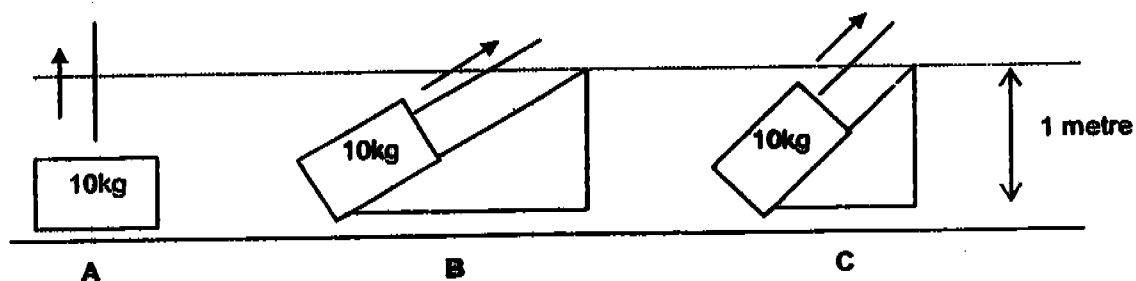
(3)



(4)



18 The diagram shows how a load of 10 kg can be lifted using an inclined plane.



Which of the set ups above require the least effort to lift up the load to a height of 1 metre? Arrange them from the least to the most effort required.

(1) A, B, C

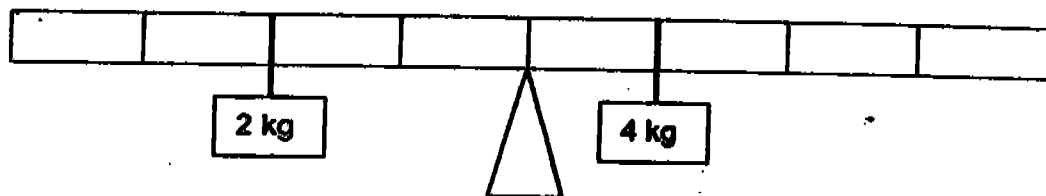
(2) A, C, B

(3) B, C, A

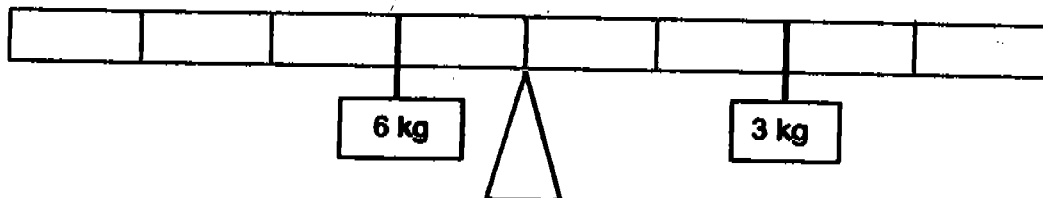
(4) C, B, A

19 In the diagrams below, which one of the levers will not balance?

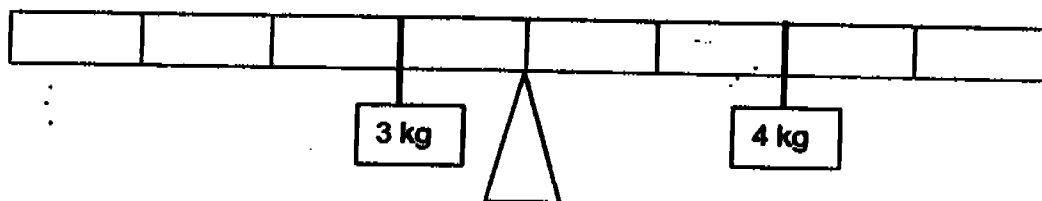
(1)



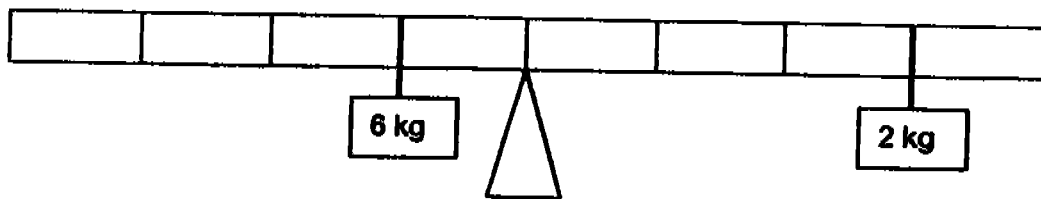
(2)



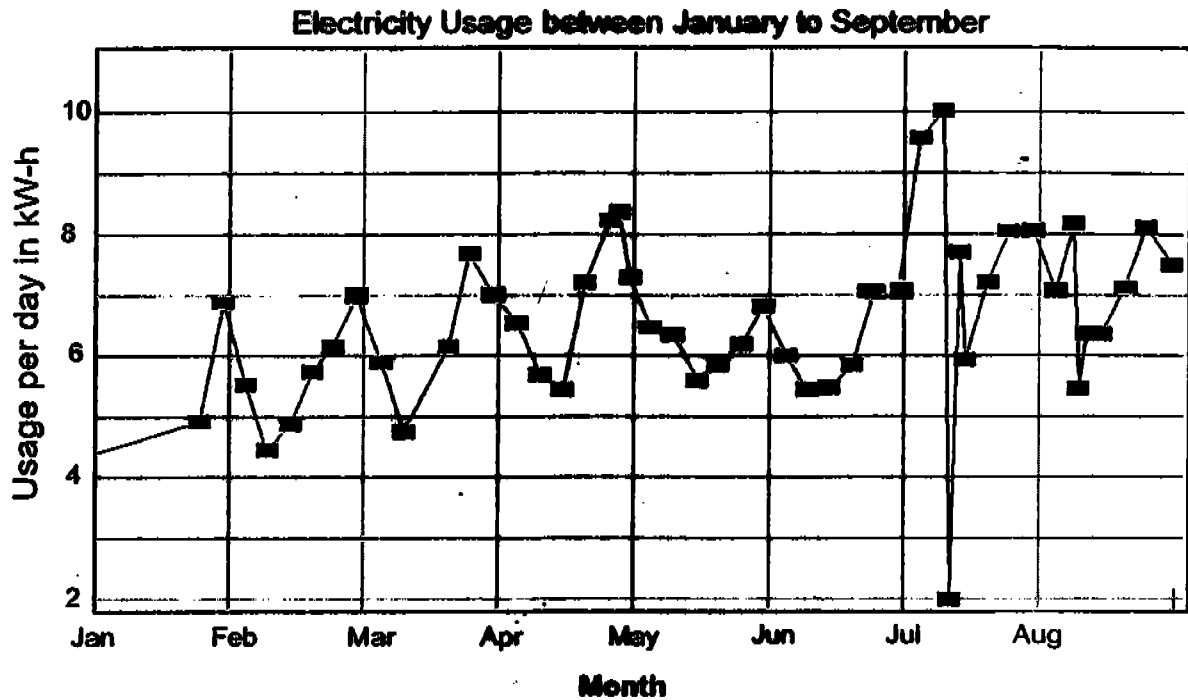
(3)



(4)



20 The graph below shows the electricity usage of the Ng family.



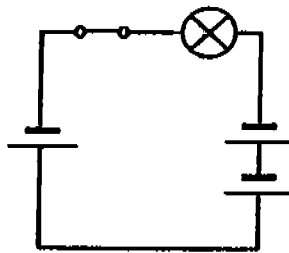
Which of the following statements about the Ngs' electricity usage is/are true?

- A 6 readings were taken in the month of February.
- B The highest and lowest readings were recorded in August.
- C The readings for the beginning of March and April are the same.

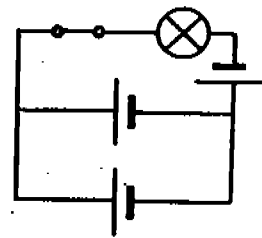
- (1) A only
- (2) B only
- (3) A and C only
- (4) A, B and C only

21 In the circuits below, which one has the brightest bulb?

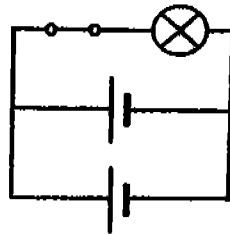
(1)



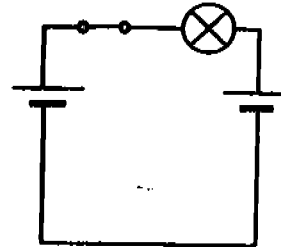
(2)



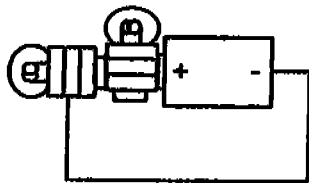
(3)



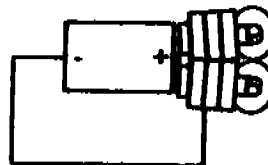
(4)



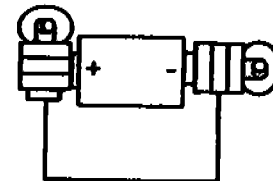
22 Study the electric circuits below.



A



B



C

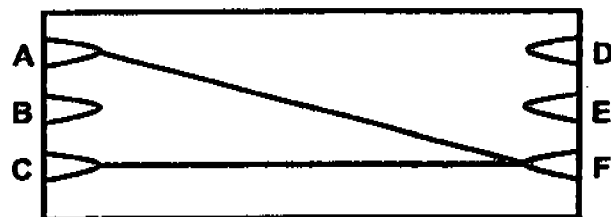
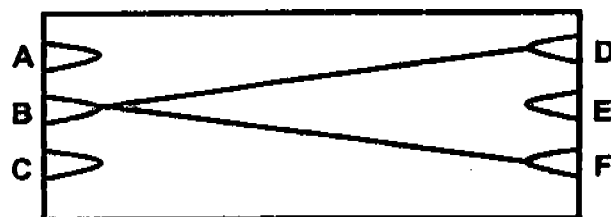
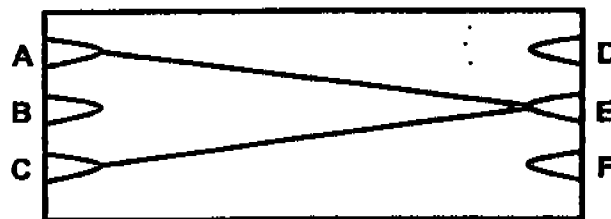
In which of the electric circuits will both the bulbs light up?

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

23 Melvin used a circuit tester to test a circuit board. He recorded the results in the table below.

Pairs of points tested	Light on
A and C	Yes
A and D	No
B and E	No
C and F	Yes

Which of the following circuit boards correctly show(s) the arrangement of wires connected to the clips?

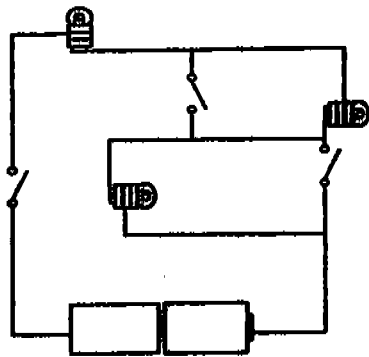


- (1) X only
- (2) Z only
- (3) X and Y only
- (4) Y and Z only

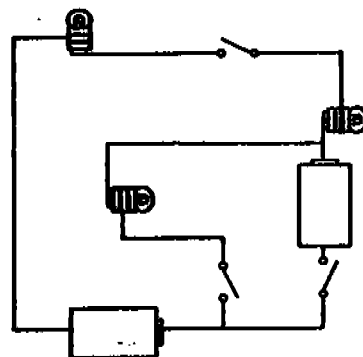
- 24 Thaddeus connected three switches, two identical dry cells and three identical bulbs in an experiment. He closed one switch and found that only two bulbs lit up.

Which of the following accurately depicts the circuit Thaddeus had arranged?

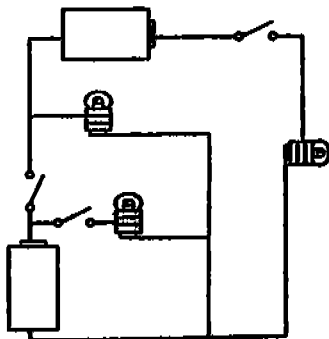
(1)



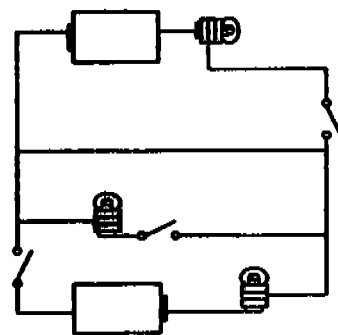
(2)



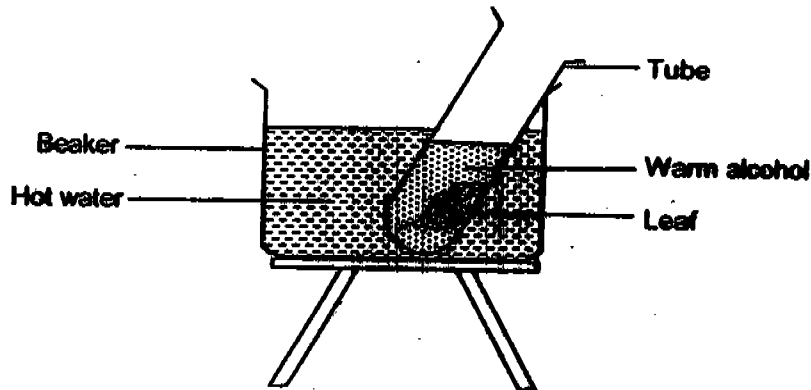
(3)



(4)

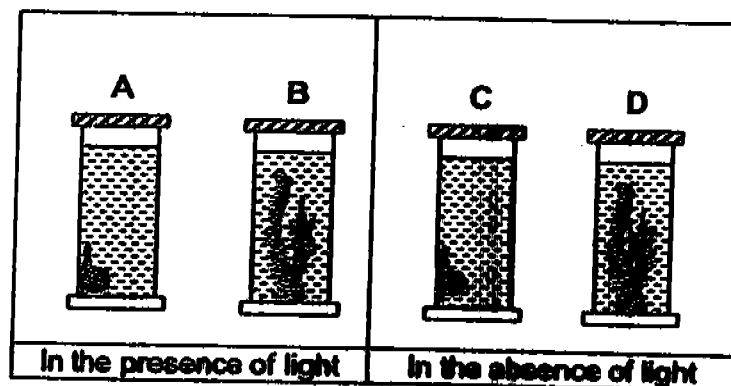


- 25 Evan wanted to test a leaf for starch with iodine solution. Before the test, he placed the leaf into a beaker of boiling water.



Why must the leaf be placed in alcohol?

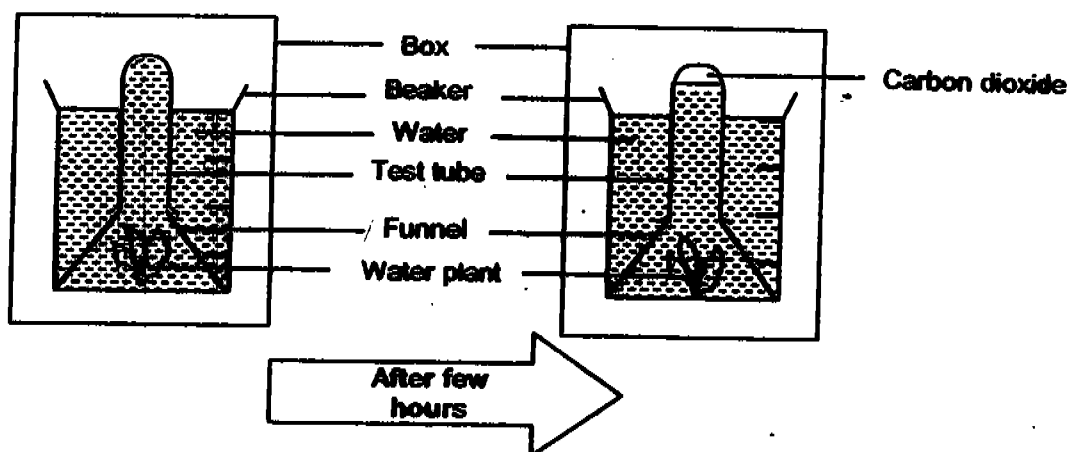
- (1) To remove the chlorophyll.
 - (2) To remove air from the leaf.
 - (3) To keep the starch in the leaf.
 - (4) To stop any reaction in the leaf.
- 26 Four air-tight containers, A, B C and D, containing hydrilla and water snail were set up as shown.



At the end of experiment, which container would have the least amount of carbon dioxide?

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

- 27 In an experiment, Shaun placed the following setup in a wooden box shown below for a few hours.



He found that carbon dioxide was collected in the test-tube.

What could Shaun conclude from this experiment?

- A Water releases carbon dioxide after some time.
- B During respiration, carbon dioxide is given out by the water plant.
- C One of the by-products of photosynthesis is carbon dioxide.

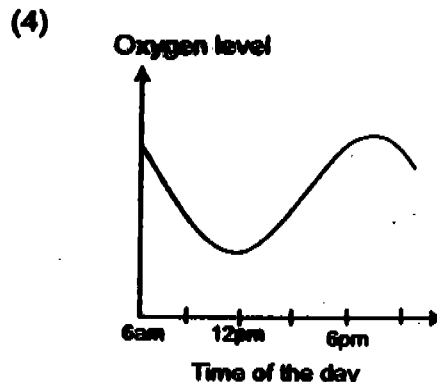
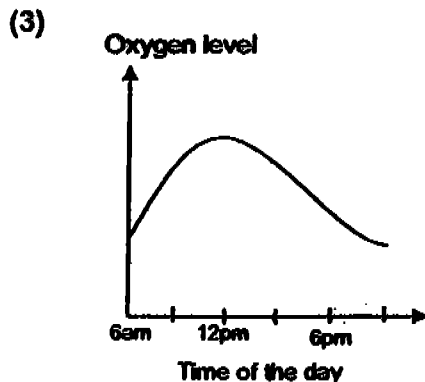
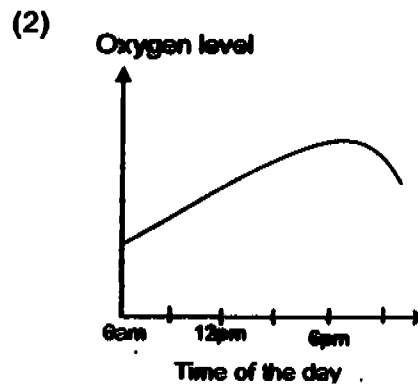
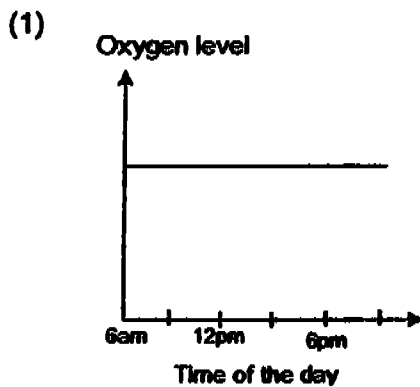
- (1) B only
- (2) C only
- (3) A and B only
- (4) A and C only

28 Which one of the following comparisons between respiration and photosynthesis is correct?

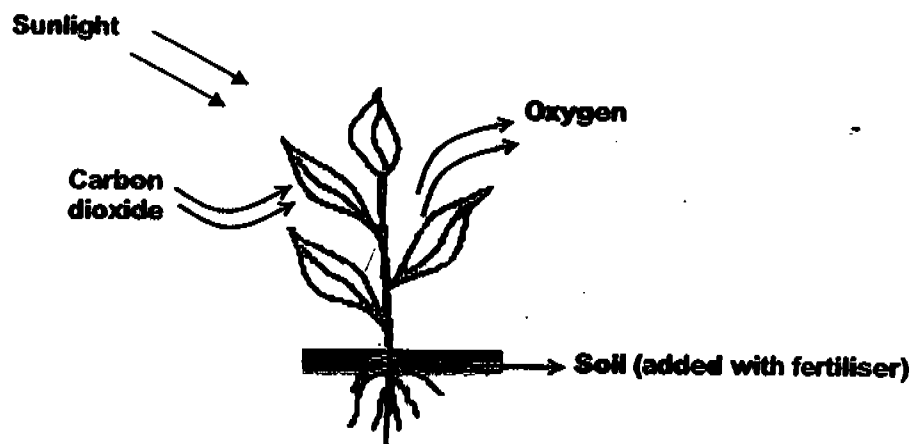
	Respiration	Photosynthesis
(1)	Produces energy	Produces carbon dioxide
(2)	Takes in carbon dioxide	Takes in oxygen
(3)	Takes place all the time	Takes place only when there is light
(4)	Takes place only in animal cells	Takes place only in cells that contain chloroplasts

29 John used an oxygen sensor to monitor the oxygen level in the air at MacRitchie Nature Reserve.

Which one of the following graphs shows the correct oxygen levels in the air in the reserve over a period of 15 hours?



30 The diagram below shows a plant growing in the open.



Which of the following factors will not affect the process in which the plant above is undergoing?

- A The amount of water.
- B The amount of fertiliser.
- C The intensity of sunlight.
- D The concentration of oxygen.
- E The concentration of carbon dioxide.

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

~ END OF PAPER ~

(PRIMARY)
END- OF-YEAR EXAMINATION 2005
SCIENCE
BOOKLET B

Name : _____ ()

Class : Primary _____

Date : 27 October 2005

Duration of paper: 1 h 45 min

Parent's Signature

Booklet	Maximum marks	Marks obtained
A	60	
B	40	
Total	100	

THIS BOOKLET CONTAINS 15 PAGES.
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PART II

For questions 31 to 46, write your answers in this booklet.

The number of marks available is shown in brackets [] at the end of each question or part question.

(40 marks)

31 The following calendar indicates that a new moon is expected on 2 March. On the same calendar, indicate the four days when you would expect to see the following:

- a) a full moon;
- b) two half moons; and
- c) the next new moon.


[2]

Use the following symbols to represent the different stages of the moon:

New Moon: 

Full Moon: 

Half Moon:  or 

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
M A R C H				1	2 	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	

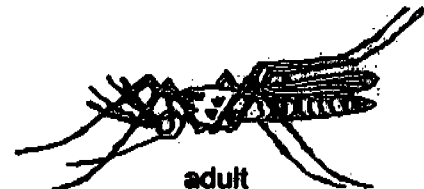
32 Insects either go through a 3-stage life cycle or a 4-stage life cycle.

- a) Classify the following insects according to the number of stages of their life cycles. [2]

mosquito	grasshopper	cockroach	butterfly
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3-stage	4-stage

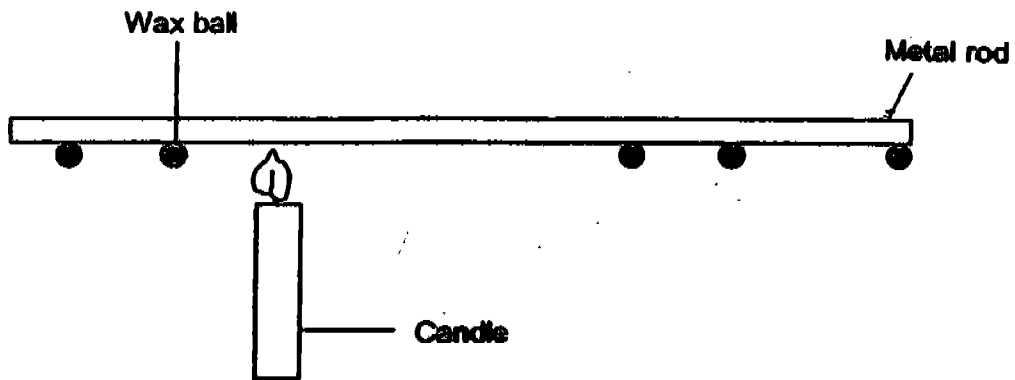
- b) Ravi observed the young of a grasshopper and the young of a mosquito and compared them to their adults. He then wrote several statements about them.



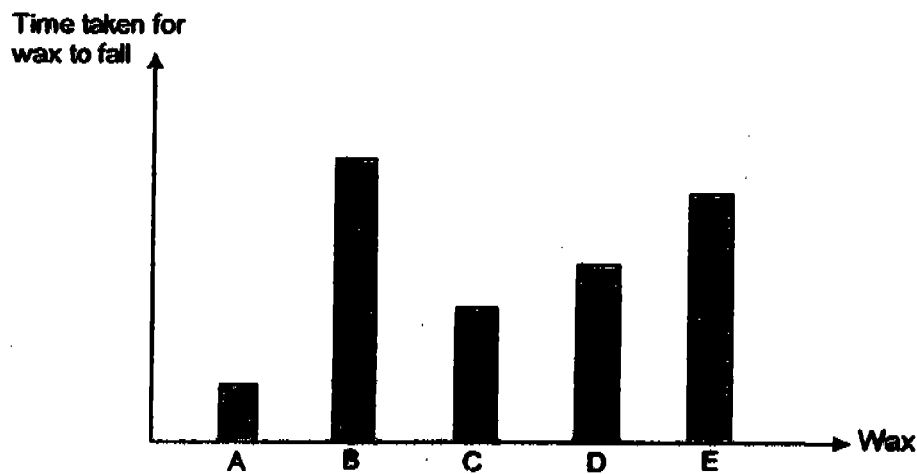
Based only on the pictures above, put a tick () in the correct box for each statement to indicate whether they are True, False or Not possible to tell. [2]

Statement	True	False	Not possible to tell
The young of both insects are two days old.			
The young of a mosquito looks like its adult.			
The young of both insects have feelers like adults.			
The young of both insects do not have wings.			

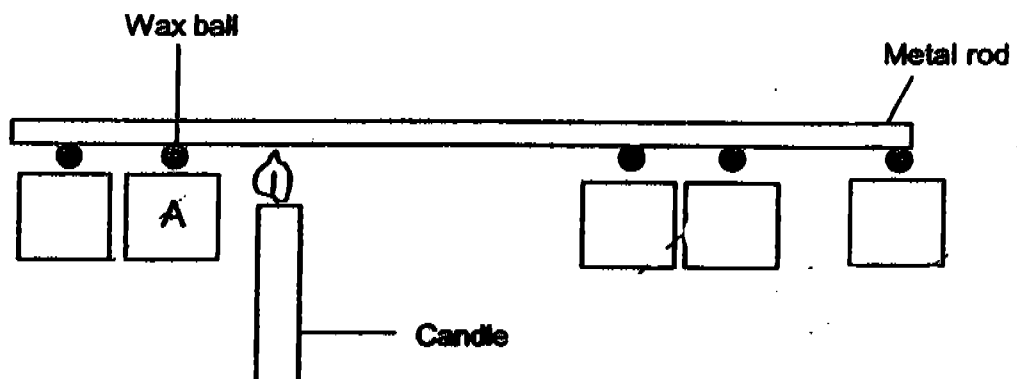
- 33 Nadine wanted to find out how fast wax balls will melt when they were placed at different points along a metal rod. The set up is shown below.



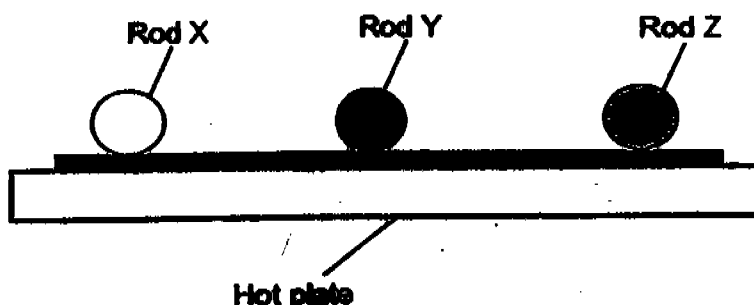
The graph below shows the time taken for the five identical wax balls to fall off the metal rod.



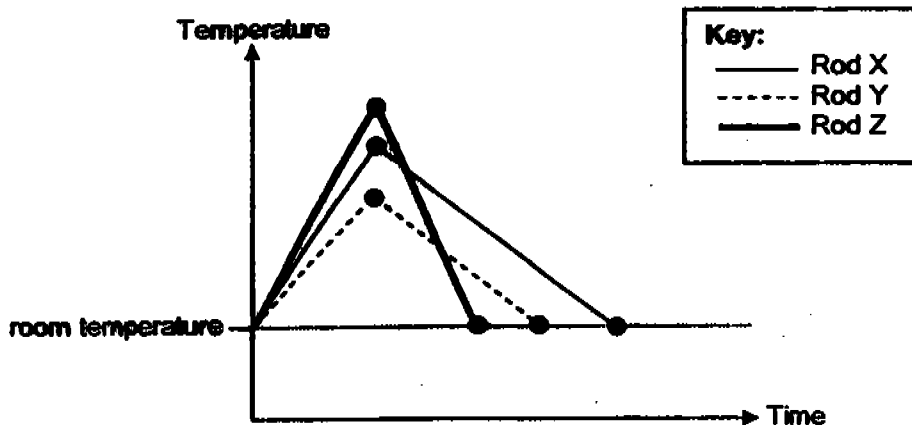
With reference to the graph above, indicate the positions of the wax balls before they fall off. Write the letters B, C, D and E in the boxes provided. The first one, Wax A, has been done for you. [2]



- 34 Rasheed heated three different rods of the same length on a hot plate as shown in the set up below.



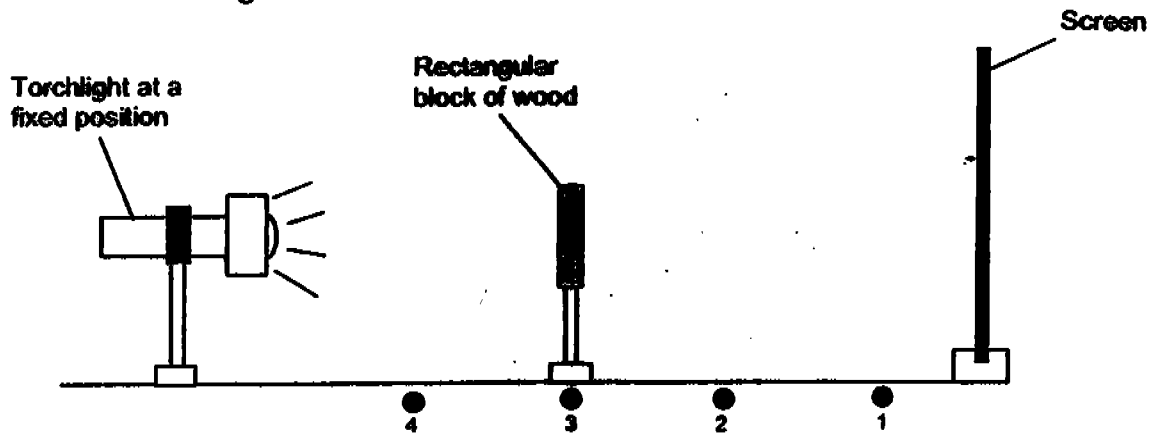
The temperature of each rod was monitored and noted. After a while, all three rods were allowed to cool. Rasheed then noted the time taken for each rod to cool down and plotted the following graph.



- a) Which rod is the best conductor of heat? [1]

- b) Describe the relationship between the increase in temperature and the time taken for the rods to cool down. [1]

- 35 A rectangular block of wood is placed between a torchlight and a screen as shown in the diagram below.



The block is then moved to several positions between the torchlight and the screen. At each position, the height of the shadow made on the screen is measured. The data is shown in the table below.

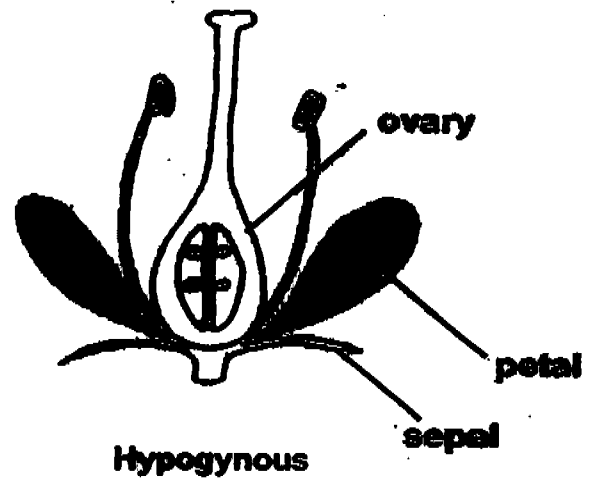
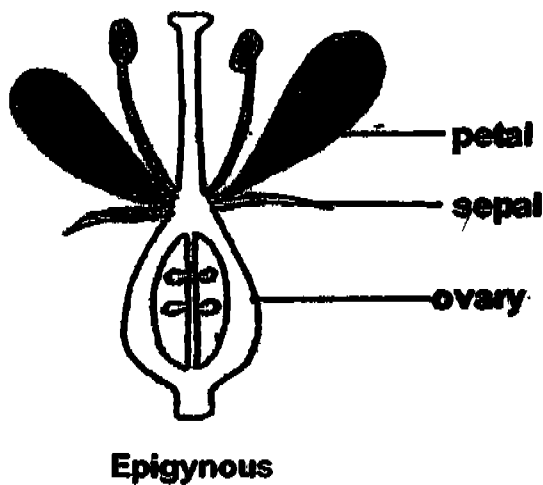
Position of wooden block	Height of shadow
1	5 cm
2	7.5 cm
3	8.4 cm
4	10 cm

- a) Based on the above data, describe what happens to the height of the shadow when the distance between the block and the screen is increased. [2]

- b) The block is then placed between positions 3 and 4. Estimate the height of the shadow formed on the screen. [1]

- c) What will be the difference in the shadow formed if a translucent plastic sheet is placed between the block and the screen? [1]

- 36 Flowers do not have the same structure and can be described as epigynous and hypogynous.



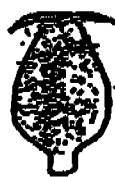
- a) State one difference between the two kinds of flowers.
(Do not mention size, including length.)

[1]

- b) The pictures below show two fruits, A and B, developed from the two flowers shown above. Identify the flower, epigynous or hypogynous, the fruit develops from.

[1]

Fruit A



Fruit B



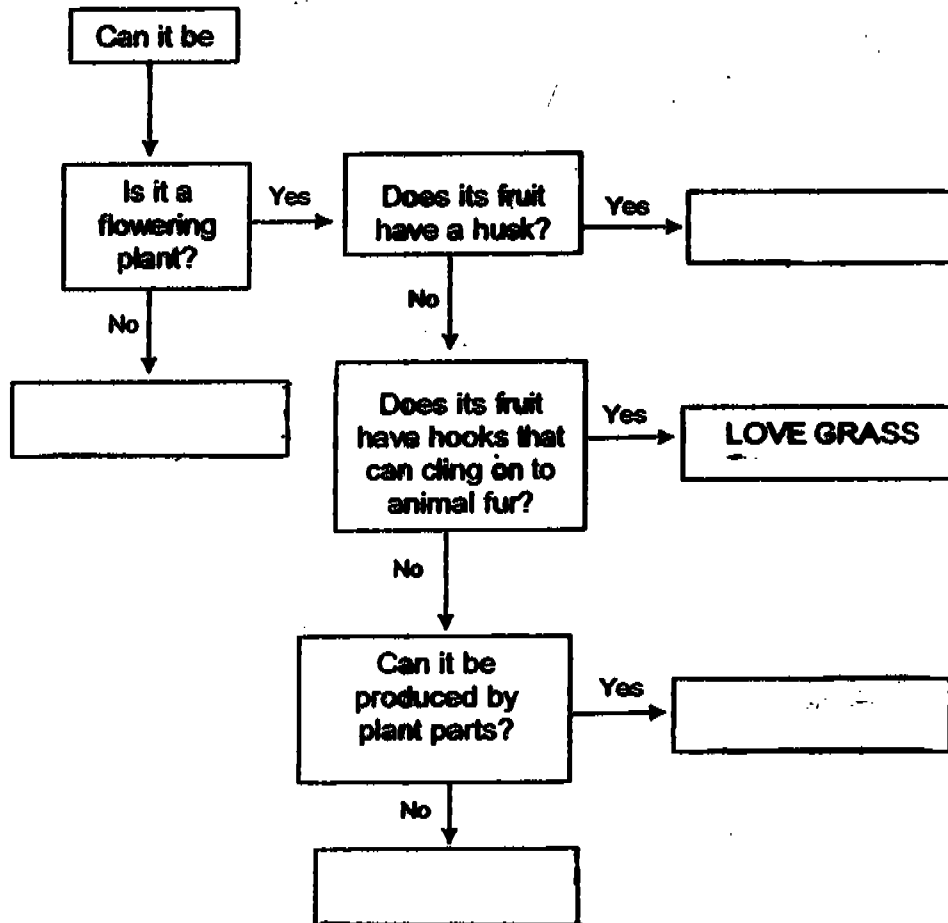
Fruit A : _____

Fruit B : _____

37 Classify the following items by filling the boxes in the flow chart below.

[2]

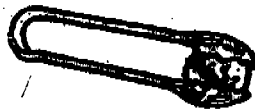
African Violet	Stag's horn fern	Shorea	Nipah
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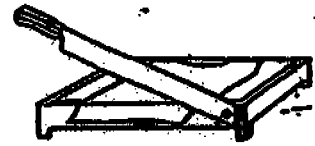
38 Study the 3 levers below.



Lever A



Lever B



Lever C

State which lever(s) show(s) the following characteristics?

[3]

- a) Effort moves a longer distance than the load.
- b) Effort needed is greater than the load.
- c) Fulcrum is between the load and effort.

- 39 Jason carried out an experiment with 4 different simple machines and the results are shown in the table below.

	Simple Machine A	Simple Machine B	Simple Machine C	Simple Machine D
Load (kg)	20	20	20	20
Distance travelled by load (m)	5	5	10	15
Distance travelled by effort (m)	20	10	10	5

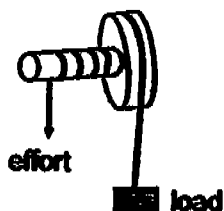
- a) Which simple machine would help you lift a heavy load using the least effort?

[1]

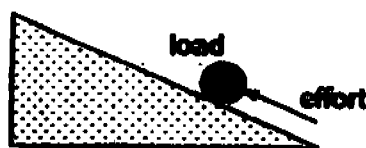
- b) Name one disadvantage of using the simple machine in your answer in (a).

[1]

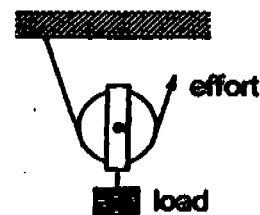
- c) Which of the following simple machines X, Y and Z are examples of Machines B and D?



Machine X



Machine Y

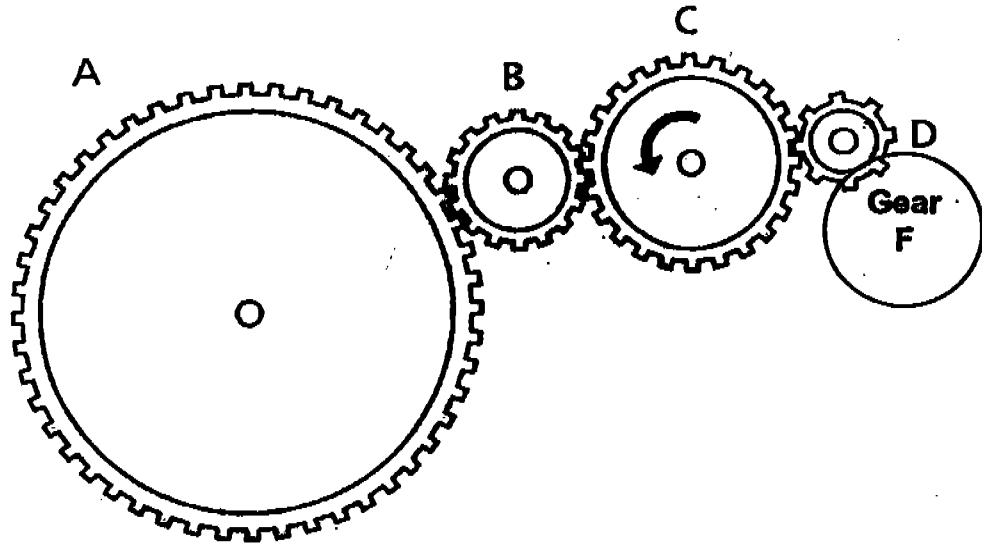


Machine Z

Machine B: _____ [1]

Machine D: _____ [1]

40 The diagram below shows 4 interlocking gears.

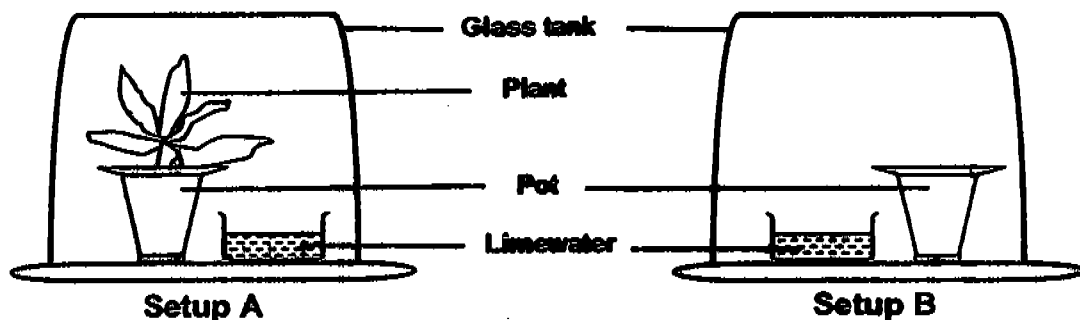


- a) Draw two arrows in the diagram to show how Gears A and B would turn if Gear C is moving in an anti-clockwise direction. [1]
- b) How many teeth should Gear F have such that it will make 1 rotation when Gear D makes 2 rotations? [1]
-

41 In sexual reproduction of human, _____ occurs when a male reproductive cell fuses with a female reproductive cell. The male reproductive cells are called _____ while the female reproductive cells are called eggs. A fertilised egg moves through the fallopian tube and is planted in the _____ for 9 months. During this period, the fertilised egg develops into a _____.

[2]

42 Edmund set up an experiment as shown below. The setups were left in a room for few hours. The colour of the limewater in both setups before and after the experiment were observed and recorded in the table below.



	Before	After
Colour of the limewater in setup A	Remain unchanged	Turned chalky
Colour of the limewater in setup B	Remain unchanged	Remain unchanged

a) What was the purpose of the limewater?

[1]

b) Why was setup B necessary for this experiment?

43 Jonathan conducted the experiment shown below.

Aim : To investigate how the intensity of light affects the rate of photosynthesis.

Hypothesis : The number of bubbles produced by the water plant that is submerged in the beaker will be dependent on the distance of the lamp from the beaker.

Materials : A standing lamp, a beaker and water plant.

Procedure : 1. Fill the beaker with tap water to the brim.
2. Submerge the water plant into the beaker.
3. Position the lamp 10 cm away from the beaker.
4. Measure the number of bubbles produced in a minute.
5. Increase the distance by 10 cm and repeat step 4.
6. Repeat the measurement at different positions.

Results : He recorded the results in the table shown below.

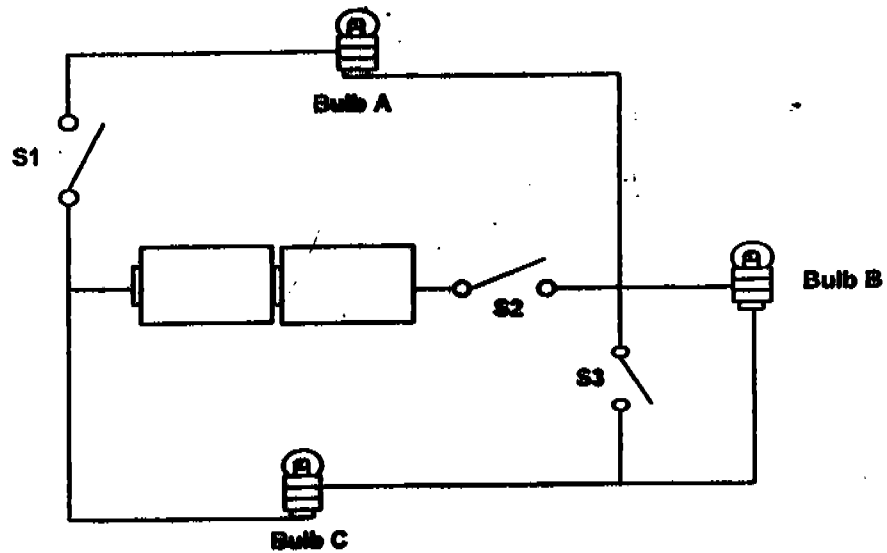
Distance of lamp from the beaker	Number of bubbles produced per minute
10	16
20	10
30	8
40	5
50	5

a) What is the relationship between the distance of the lamp and the number of bubbles produced? [1]

b) What conclusion could Jonathan make from this experiment? [1]

c) What was the likely number of bubbles released when the lamp was 35 cm from the beaker? [1]

44 Study the electric circuit below.

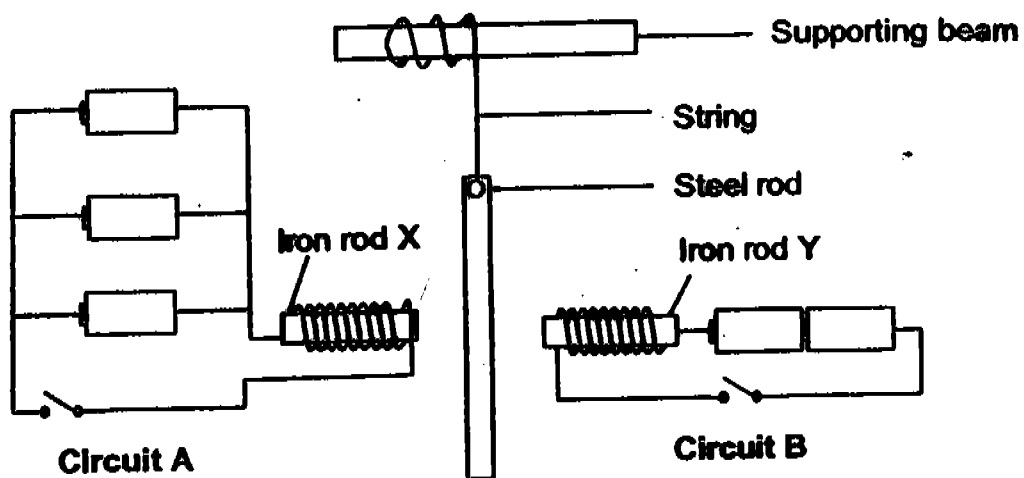


Write YES or NO in the empty boxes to complete the table.

[2]

Switches			Did the bulb light up?		
S1	S2	S3	Bulb A	Bulb B	Bulb C
Open	Close	Open			
Close	Open	Close			

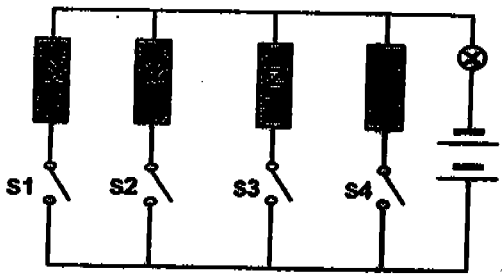
45 Wesley placed 2 electromagnets near a steel rod as shown below.



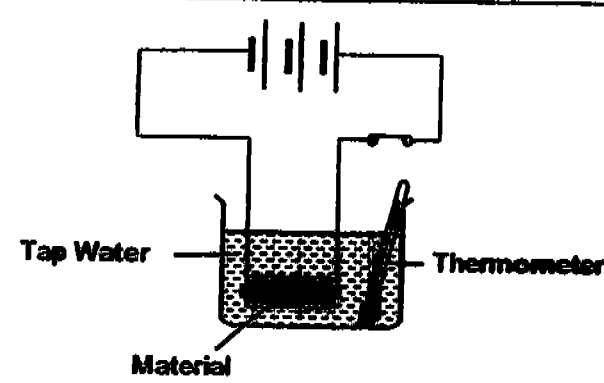
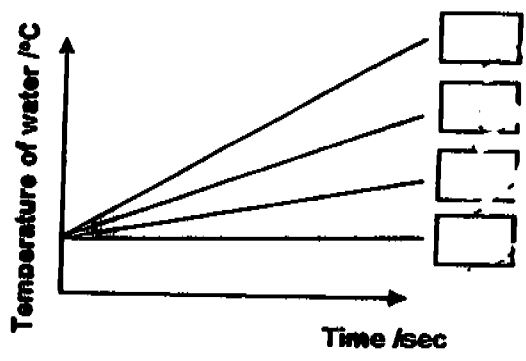
- a) To which electromagnet will the steel rod be attracted when both electric circuits are closed at the same time? [1]

- b) Explain your observation for part (a). [1]

- 46 James conducted an experiment with materials X, Y, Z and W as shown below. He recorded his observation in the table on the right.

 <p style="text-align: center;">Experiment A</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>S1</th> <th>S2</th> <th>S3</th> <th>S4</th> <th>Brightness of the light bulb?</th> </tr> </thead> <tbody> <tr> <td>Off</td> <td>Off</td> <td>On</td> <td>Off</td> <td>No light</td> </tr> <tr> <td>On</td> <td>Off</td> <td>Off</td> <td>Off</td> <td>Dim</td> </tr> <tr> <td>Off</td> <td>On</td> <td>Off</td> <td>Off</td> <td>Bright</td> </tr> <tr> <td>Off</td> <td>Off</td> <td>Off</td> <td>On</td> <td>Very Bright</td> </tr> </tbody> </table> <p style="text-align: center;">Observation A</p>	S1	S2	S3	S4	Brightness of the light bulb?	Off	Off	On	Off	No light	On	Off	Off	Off	Dim	Off	On	Off	Off	Bright	Off	Off	Off	On	Very Bright
S1	S2	S3	S4	Brightness of the light bulb?																						
Off	Off	On	Off	No light																						
On	Off	Off	Off	Dim																						
Off	On	Off	Off	Bright																						
Off	Off	Off	On	Very Bright																						

He then conducted a second experiment using the same set of materials. He plotted his observation in the graph on the right.

 <p style="text-align: center;">Experiment B</p>	 <p style="text-align: center;">Observation B</p>
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- a) Given that a good conductor of heat is often a good conductor of electricity, complete the graph in Observation B by labelling the lines in the given boxes with the letters W, X, Y and Z. [1]
- b) Which one of the four material(s) is/are most suitable for covering electrical wires? [1]

~ END OF PAPER ~

Anglo Chinese Primary School
Primary 5 Science SA2 (2005)



Answer Sheets

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	4	3	1	4	3	2	3	3	4
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
1	1	2	4	1	3	2	3	3	3
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
2	4	2	3	1	2	1	3	3	2

- 31a. 30th March
 31b. 10th and 23rd March
 31c. 17th March

- 32a. Grasshopper Mosquito
 Cockroach Butterfly

32b.

		✓
	✓	
	✓	
✓		

- 33c. C, D, E, B
- 34a. Rod Z is the best conductor of heat.
 34b. The higher the increase in temperature, the faster the rods will cool down.
- 35a. The further the distance between the block and the screen, the longer the shadow will be.
- 35b. The shadow will be about 9.2cm tall.
 35c. The shadow will not be dark anymore.
- 36a. The epigynous' petal sepal are above the ovary whereas the petal and sepal of the hypogynous are below its ovary.
- 36b. Epigynous
 Hypogynous

44.	No	Yes	Yes
	No	No	No

45a. It will be attracted to Circuit B's electromagnet.

45b. More electricity is able to flow through in Circuit B due to arrangement of dry cells.

46a. W
Y
X
Z

46b. Materials Z is most suitable for covering electrical wires.