

METHODIST GIRLS' SCHOOL

Founded in 1887



MID-YEAR EXAMINATION 2012 PRIMARY 6 SCIENCE

BOOKLET A1

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

INSTRUCTIONS TO CANDIDATES

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

Answer all questions.

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

Name: _____ ()

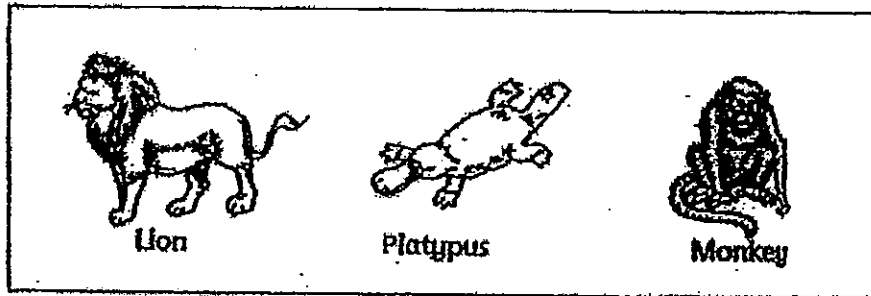
Class: Primary 6. _____

Date: 11 May 2012

This booklet consists of 11 printed pages including this page.

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. (30 marks)

- 1 The diagram below shows a lion, a platypus and a monkey.

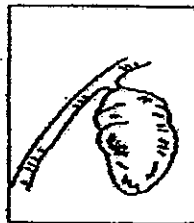


In what ways are they similar?

- A: They suckle their young.
 B: They give birth to their young alive.
 C: They have an outer body covering of hair.
 D: They start their life cycles as a fertilized egg.

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

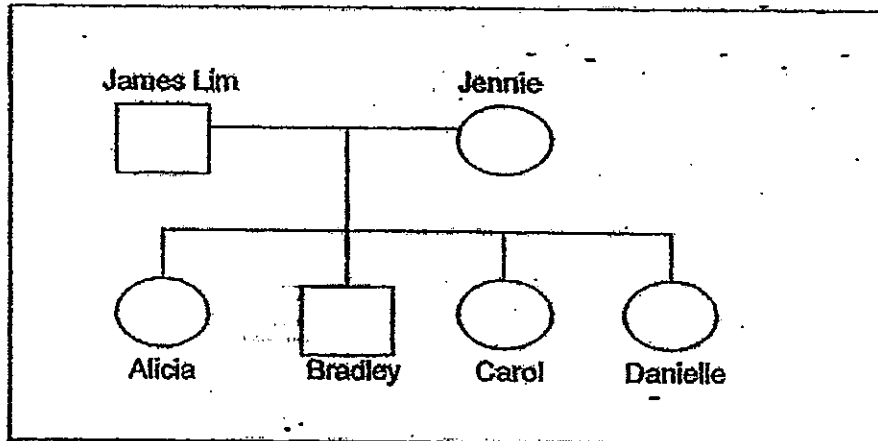
- 2 The diagram below shows a stage in the life cycle of a butterfly. Which of the following statements about the organism at this stage is correct?



- (1) It does not breathe.
 (2) It feeds non-stop on leaves.
 (3) It has a hard wooden covering.
 (4) The larval structures are broken down.

(Go on to the next page)

- 3 The family tree of the Lim family is shown below.



The table below summarises the physical traits of the family.

	Can roll tongue	Suffers from blood disorder	Colour – blind
James	No	Yes	Yes
Jennie	Yes	No	No
Alicia	No	Yes	No
Bradley	Yes	Yes	Yes
Carol	No	No	No
Danielle	Yes	No	No

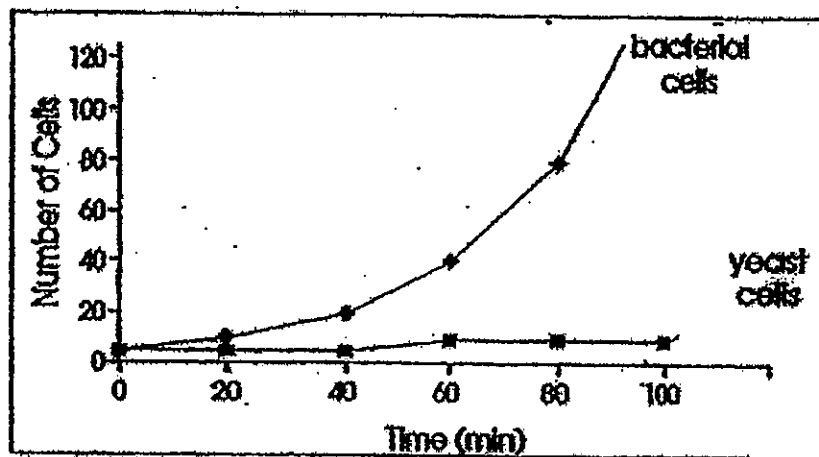
Which child / children inherited at least one trait from his / her parents?

- (1) Bradley only
 (2) Danielle only
 (3) Alicia and Carol only
 (4) Alicia, Bradley and Danielle
- 4 Which of the following statement(s) is/are true about sexual reproduction in both flowering plants and most animals?
- A: The male reproductive cells are called sperms.
 B: The female reproductive cells are stored in the ovary.
 C: The fertilization process takes place in the female reproductive system.
 D: The male and female organisms have to meet for fertilization to take place.
- (1) A only
 (2) B only
 (3) B and C only
 (4) A and D only

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- 5 Gina grew a culture of yeast cells and bacterial cells. She counted the number of yeast cells and bacteria cells under a microscope. She recorded the data in a table and plotted the graph as shown below.

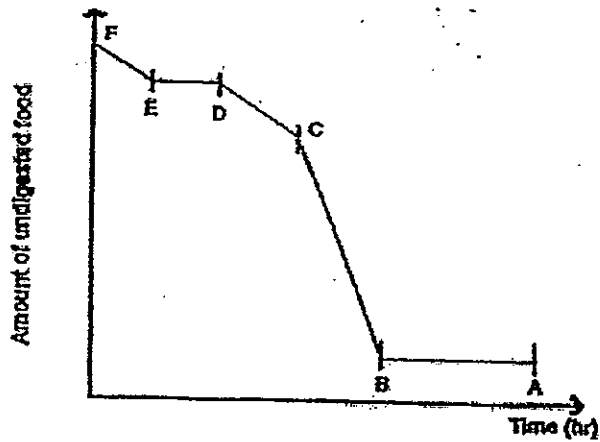
Time (min)	0	20	40	60	80	100
No. of yeast cells	5	5	5	10	10	10
No. of bacterial cells	5	10	20	40	80	160



What pattern do you observe about the divisions of yeast cells and/or bacterial cells?

- (1) Both cells multiply at the same rate.
- (2) Bacterial cells depend on yeast cells to multiply.
- (3) Bacterial cells multiply two times every twenty minutes.
- (4) Bacterial cells are double that of yeast cells every twenty minutes.

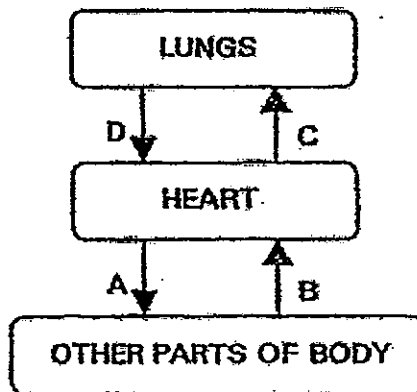
- 6 The graph below shows the amount of undigested food left in the various organs as it travelled through the digestive system.



Which parts of the graph represent the mouth and the small intestine?

	Mouth	Small intestine
(1)	DC	BA
(2)	FE	CB
(3)	ED	CB
(4)	FE	BA

- 7 The arrows, A, B, C and D, represent blood vessels carrying blood to and fro from the lungs, heart and other parts of the body.

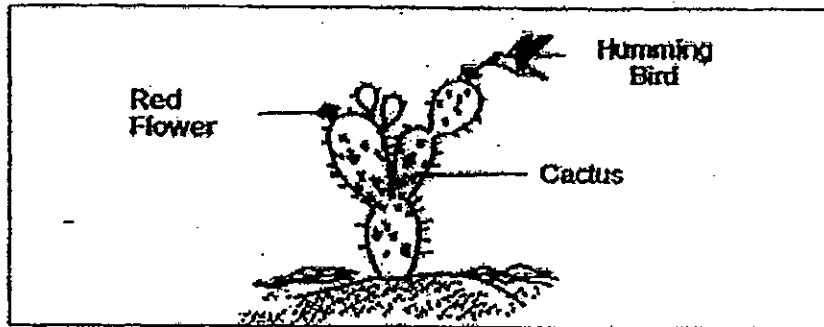


Which two blood vessels carry blood with more oxygen?

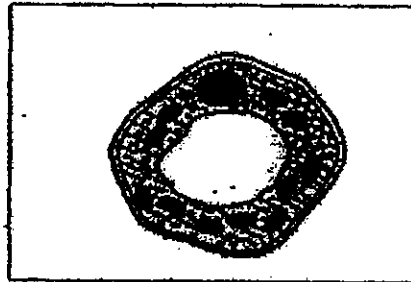
- (1) A and B
- (2) A and D
- (3) B and C
- (4) C and D

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- 8 The diagram below shows a cactus and a humming bird.



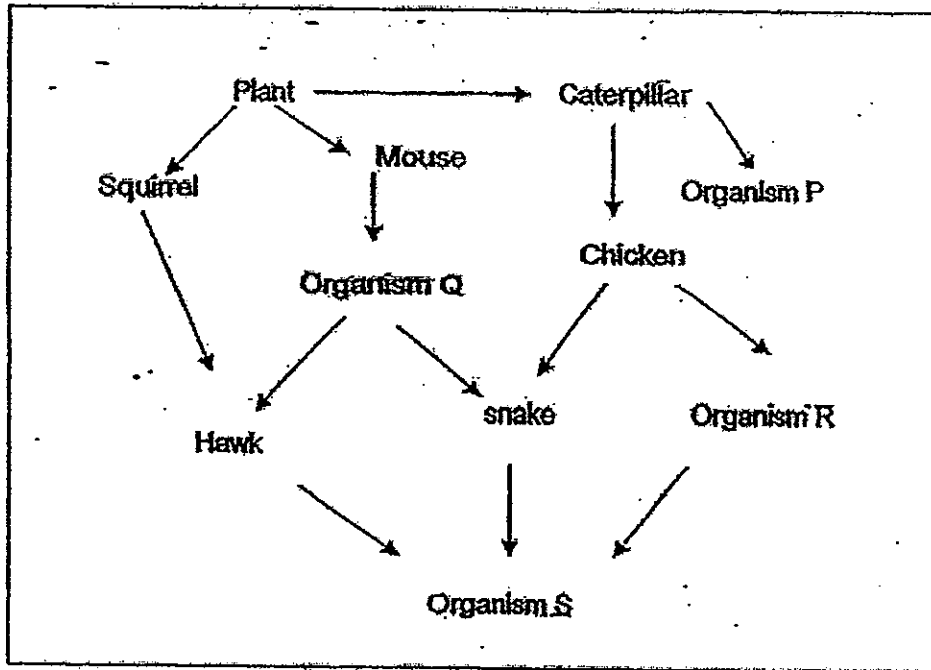
A cell from one of the organisms above is shown below.



Where could the cell be taken from?

- (1) The stem of the cactus
- (2) The feathers of the bird
- (3) The red petals of the flower.
- (4) The needle-like leaves of the cactus

For questions 9 and 10, refer to the food web below.



9 What could Organisms P, Q, R and S be?

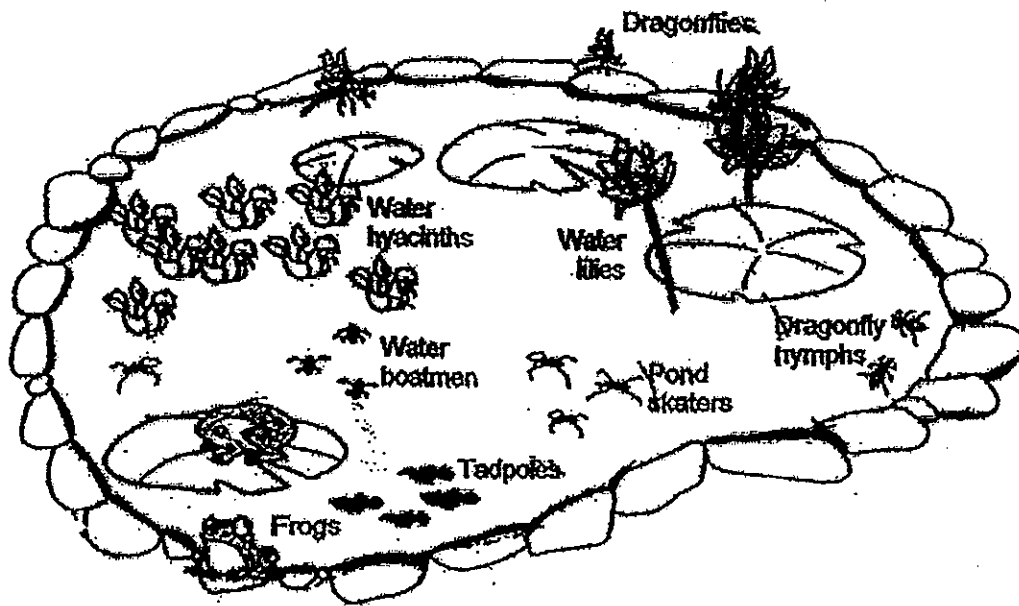
	P	Q	R	S
(1)	cat	mynah	bacteria	man
(2)	mynah	cat	man	bacteria
(3)	bacteria	cat	mynah	man
(4)	mynah	man	cat	bacteria

10 The following animals are preys as well as predators. They are _____.

- (1) chicken and organism Q
- (2) hawk, snake and organism R
- (3) squirrel, mouse and organism P
- (4) squirrel, chicken and organism Q

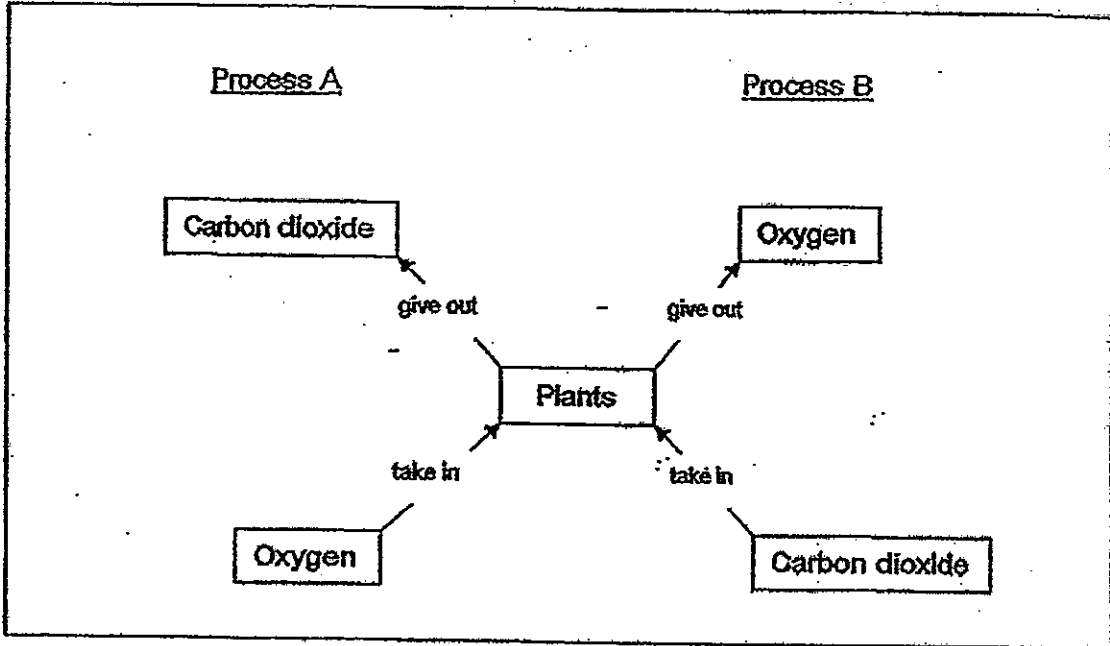
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For questions 11 and 12, refer to the picture below.



- 11 Which one of the following statements correctly describes the organisms living in the pond above?
- (1) There are 6 populations in 1 community.
 - (2) There are 8 populations in 1 community.
 - (3) There are 32 populations in 6 communities.
 - (4) There are 32 organisms living in 2 communities
- 12 Which of the following organism/s will benefit directly if the level of carbon dioxide in the surrounding increases?
- (1) Dragonflies and tadpoles
 - (2) Water lilies and pond skater
 - (3) Water lilies and water hyacinths
 - (4) Water hyacinths and water boatmen

- 13 The diagram below shows some life processes involving plants, carbon dioxide and oxygen.

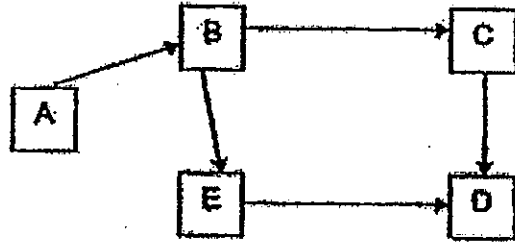


Which one of the following correctly represents processes A and B?

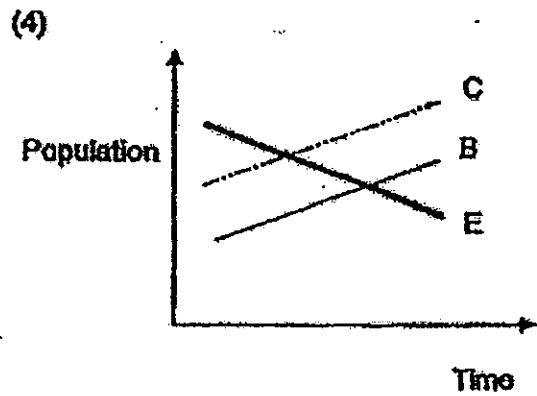
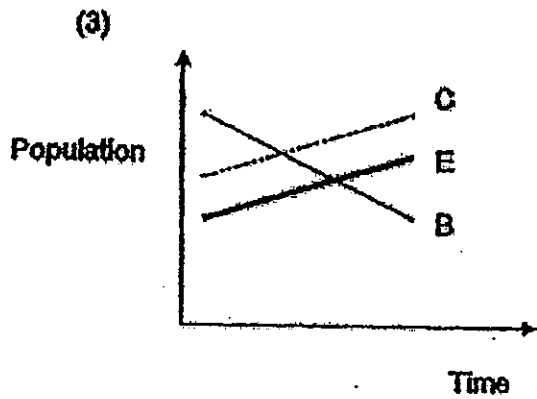
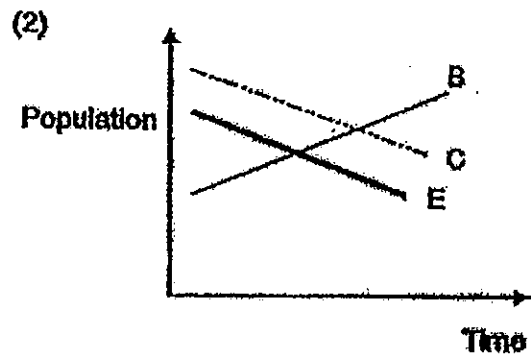
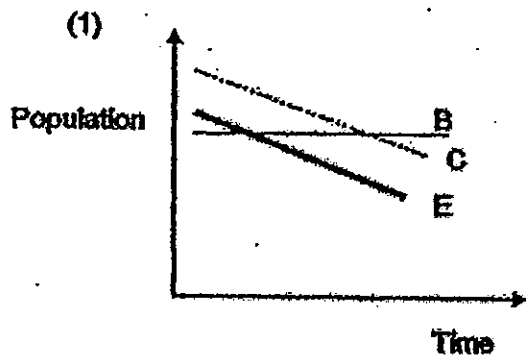
	A	B
1.	respiration	evaporation
2.	photosynthesis	transpiration
3.	respiration	photosynthesis
4.	photosynthesis	respiration

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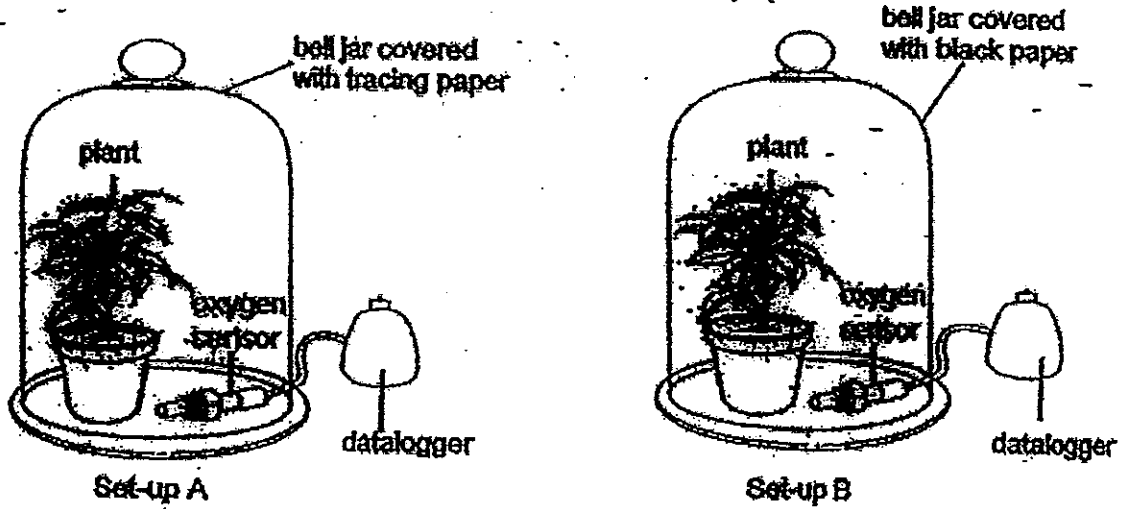
14. Study the food web below carefully. A, B, C, D and E represent five different organisms living together in a certain community.



Based only on the above food web, which one of the following graphs correctly shows the changes in the population size of B, C and E if there is a sudden increase in the population size of D?

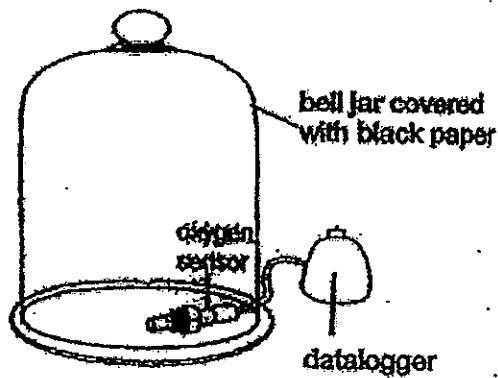


- 15 William set up an experiment to investigate how the amount of light affects the rate of photosynthesis of a plant.

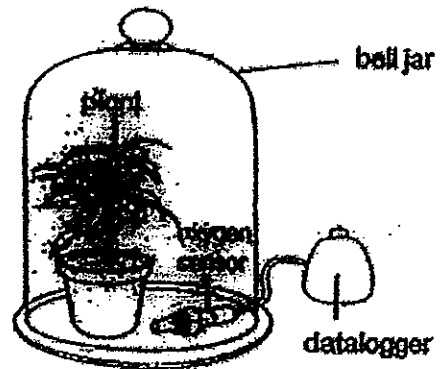


William's teacher told her that he should include a control in his experiment. Which one of the following is a suitable control for his experiment?

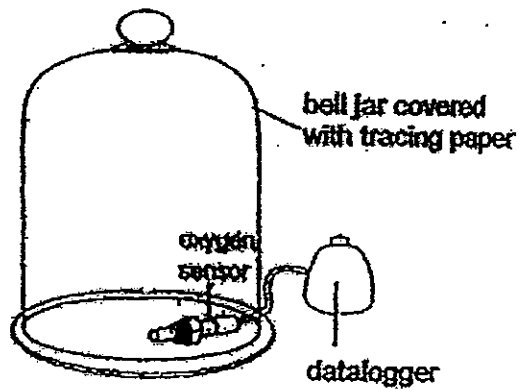
(1)



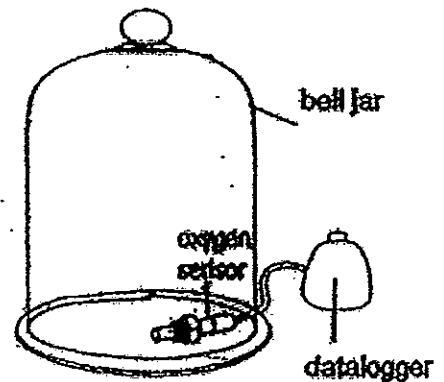
(2)



(3)



(4)





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MID-YEAR EXAMINATION 2012 PRIMARY 6 SCIENCE

BOOKLET A2

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

INSTRUCTIONS TO CANDIDATES

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Name: _____ ()

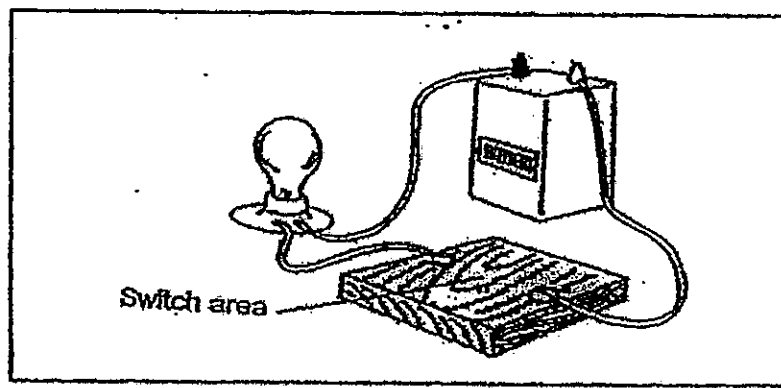
Class: Primary 6. _____

Date: 11 May 2012

This booklet consists of 14 printed pages including this page.

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. (30 marks)

- 16 Mary wanted to find out about the electrical conductivity of some materials. She set up the following experiment as shown below.



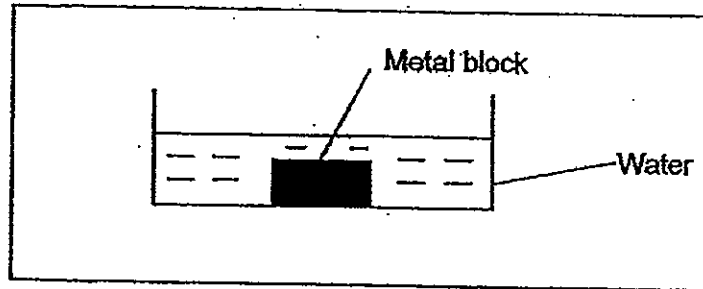
The results of the experiment are shown in the table.

Material of switch	Light produced by the above circuit			
	Trial 1	Trial 2	Trial 3	Trial 4
Steel nail	Bright	Bright	Bright	Bright
Aluminum foil	Bright	Dim	Dim	Bright
Copper ring	Very bright	Bright	Very bright	Very bright
Pencil lead	Dim	Bright	Dim	Dim

Based on the above data, arrange the materials according to their electrical conductivity, from the weakest to the strongest.

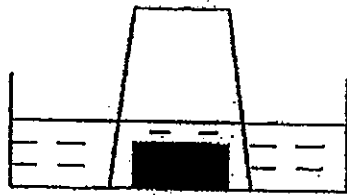
- (1) Steel nail, pencil lead, aluminum foil, copper ring
- (2) Copper ring, steel nail, aluminum foil, pencil lead
- (3) Pencil lead, aluminum foil, steel nail, copper ring
- (4) Copper ring, aluminum foil, steel nail, pencil lead.

- 17 A piece of metal block is placed in a container of water as shown in the diagram. Plastic cups are inverted over the metal block and held down.

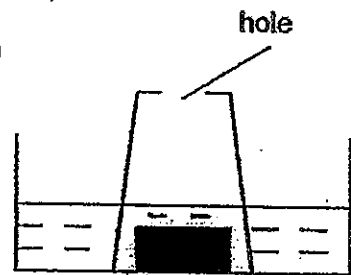


Which of the following diagrams show the most likely outcomes?

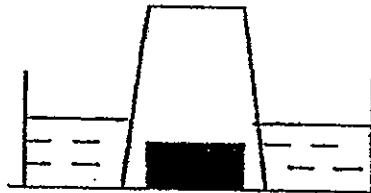
(A)



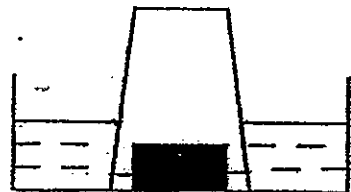
(B)



(C)



(D)

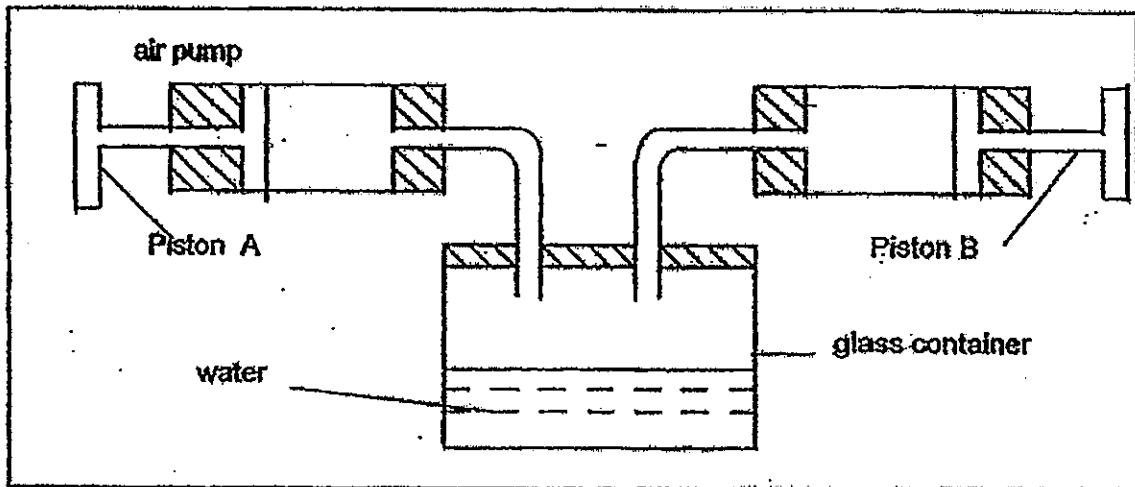


- (1) A and B only
 (2) B and C only
 (3) C and D only
 (4) B and D only

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For questions 18 and 19, refer to the diagram below.

- 18 The diagram below shows two pumps connected to a glass container. The capacity of the container is 500 cm^3 and it contains 100 cm^3 of water.

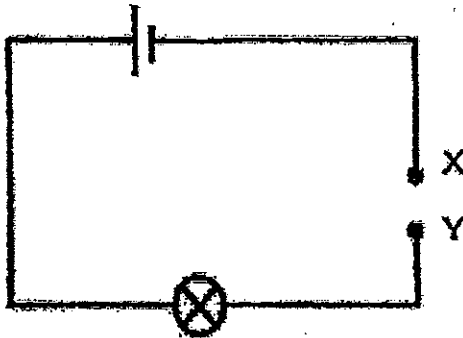


When Pistons A and B are pushed completely in, 80 cm^3 and 100 cm^3 of air are forced into the container. What is the volume of air in the container?

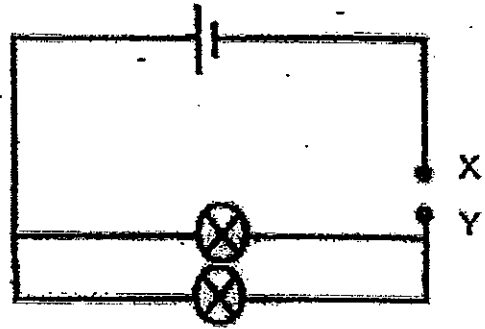
- (1) 180 cm^3
 (2) 400 cm^3
 (3) 480 cm^3
 (4) 580 cm^3
- 19 The set-up is moved to a location with a temperature of 35°C . After a few hours, the volume of water in the glass container is observed to have decreased. What is the most likely reason for this observation?
- (1) The water has evaporated inside the container.
 (2) The water has condensed inside the container.
 (3) The water has condensed outside the container.
 (4) The water has evaporated outside the container.

(Go on to the next page)

- 20 Elaine sets up two circuits as shown below. All the bulbs and dry cells in the two circuits are identical and in good working condition.



Circuit P



Circuit Q

If Elaine connects a dry cell across XY in series, what are the likely observations that she will make?

- A: The bulb in Circuit P will be brighter than before.
- B: The bulbs in Circuit Q will be dimmer than before.
- C: The bulbs in Circuit Q will be brighter than before.
- D: The bulb in Circuit P will last longer than those in Circuit Q.

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

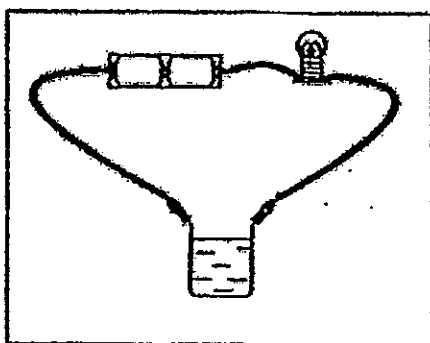
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- 21 The table below shows the state of four substances, W, X, Y and Z, at different temperatures.

Substance	State of substances at		
	10° C	30° C	50° C
W	liquid	liquid	liquid
X	solid	solid	liquid
Y	solid	liquid	liquid
Z	solid	solid	solid

Which of the following statements is correct?

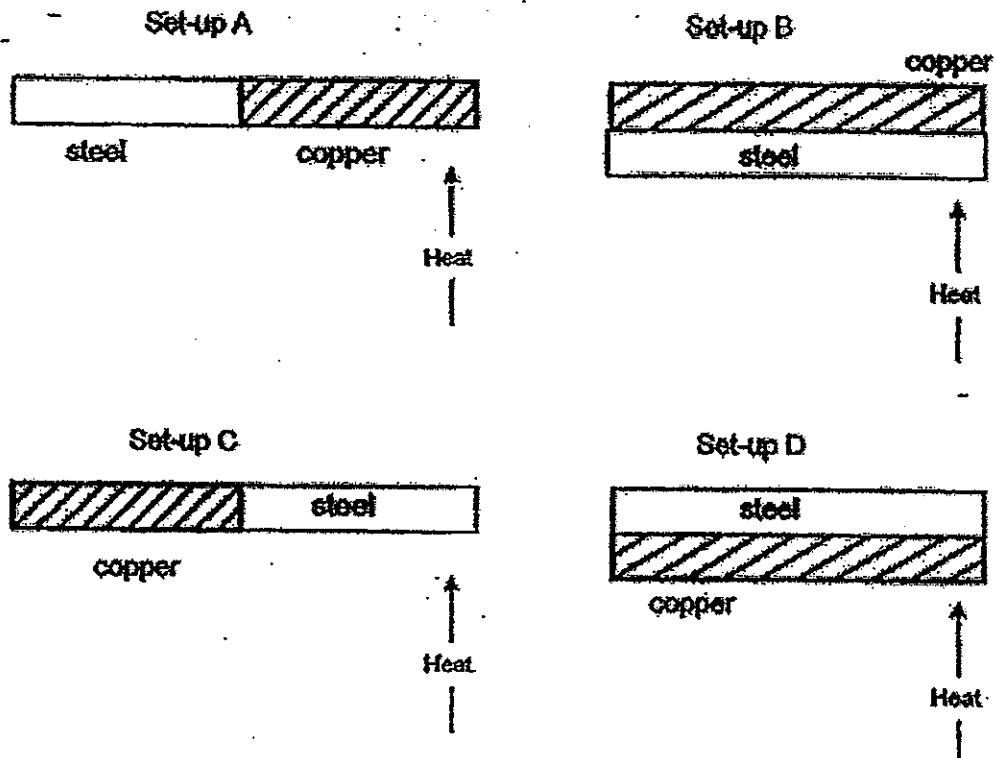
- (1) Substance W has the lowest boiling point.
 - (2) The boiling point of Substance X is 50° C.
 - (3) The freezing point of Substance Y is 30° C.
 - (4) Substance Z has the highest freezing point.
- 22 Siva wanted to find out whether Liquid Z is a conductor of electricity. The diagram below shows his set-up.



Is Siva's set-up correct? Why?

	Set-up	Reason
(1)	Correct	It is a closed circuit.
(2)	Wrong	It is not a closed circuit.
(3)	Correct	The bulb lights up.
(4)	Wrong	The bulb does not need to light up.

- 23 Some strips of copper and steel are joined together in different ways as shown in the diagrams below. Copper expands more than steel.



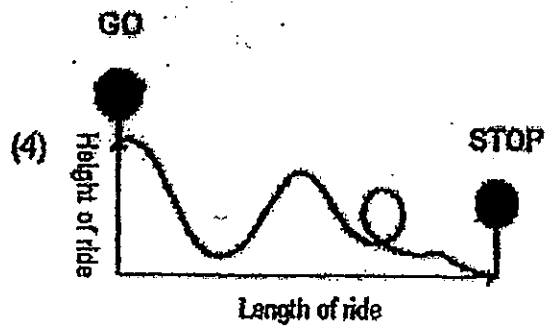
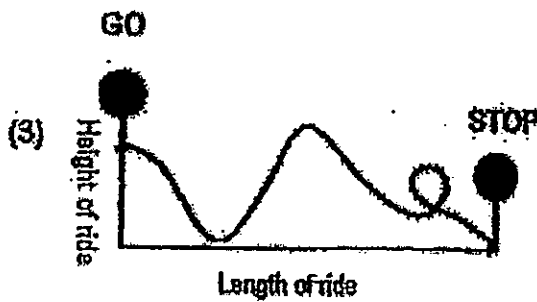
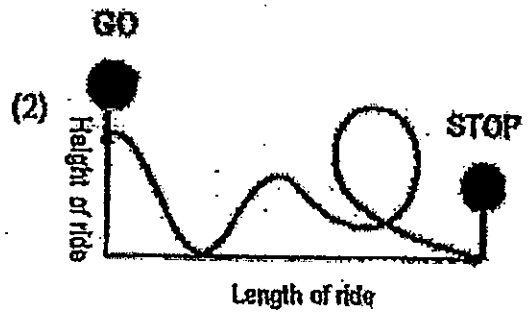
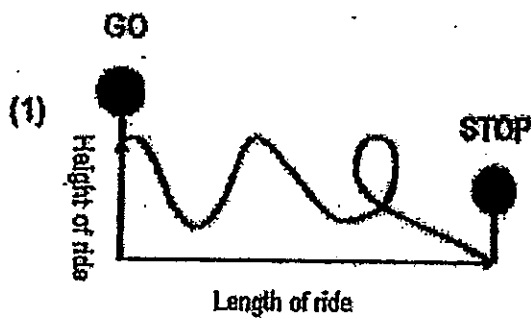
Which set-ups will bend when heated?

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

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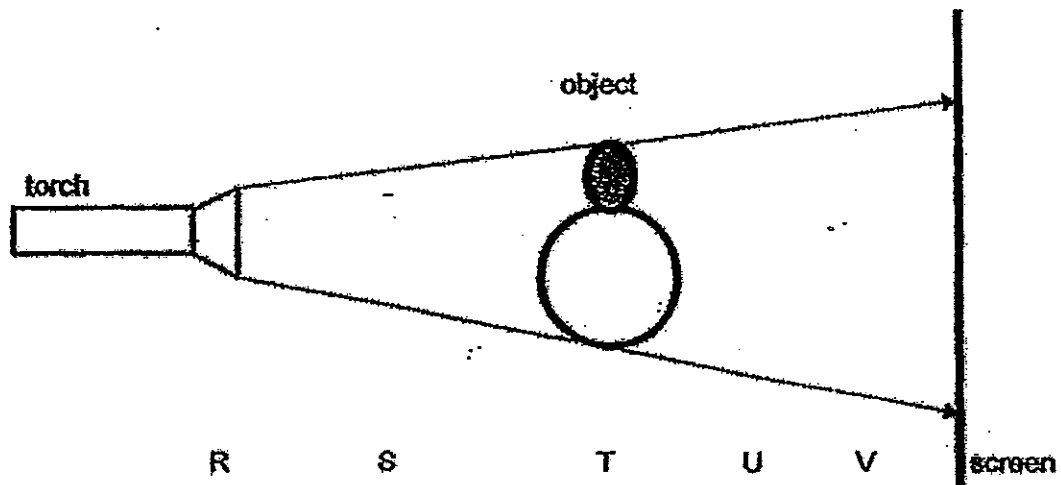
- 24 A roller coaster car does not have an engine. The car gets all its energy from the height at which the ride begins. The car runs on tracks and some of its original energy is converted to other forms as it moves.

The drawings below show four different roller coaster track designs. On which track would a roller coaster car be most likely to travel from GO to STOP?



For questions 25 and 26, refer to the picture below.

- 25 Weining sets up an experiment on light as shown below. The object is a steel ring with an oval piece of tracing paper mounted on an oval steel frame.

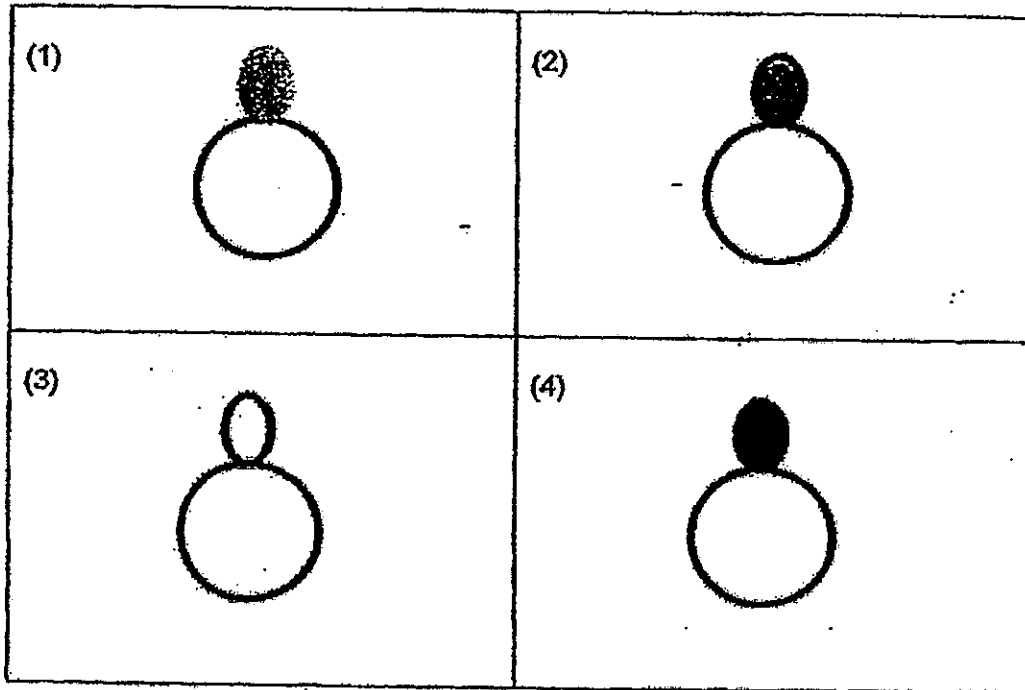


At which positions should the torch and the object be placed to obtain the smallest shadow on the screen?

	Position of torch light	Position of Object
(1)	R	S
(2)	S	U
(3)	R	V
(4)	S	T

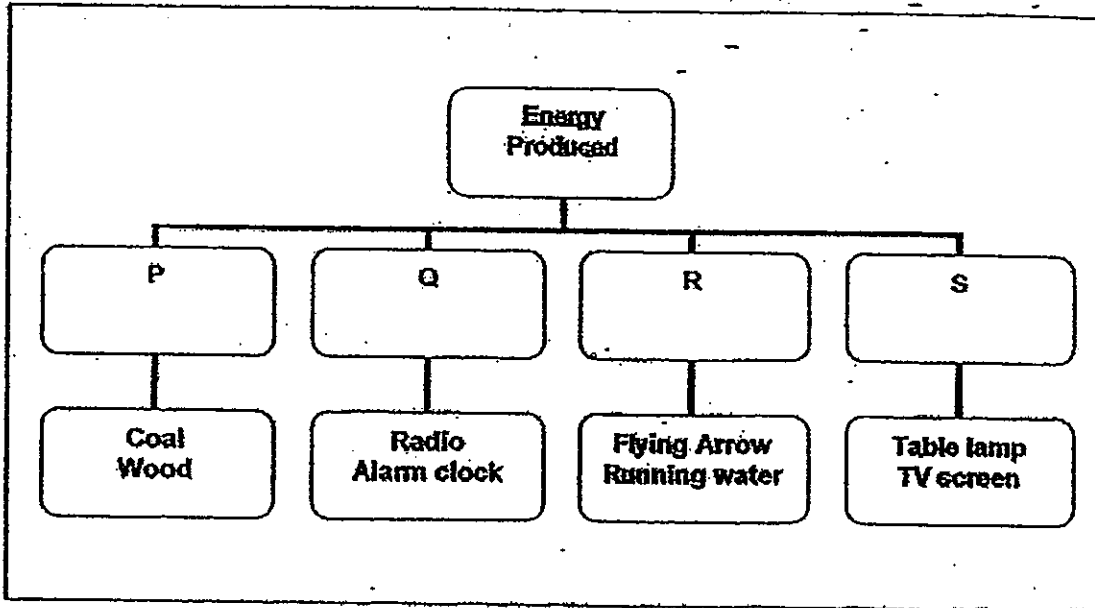
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26 What is the shadow cast by the object on the screen?



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- 27 Wendy grouped several objects according to the main form of energy that they produced.

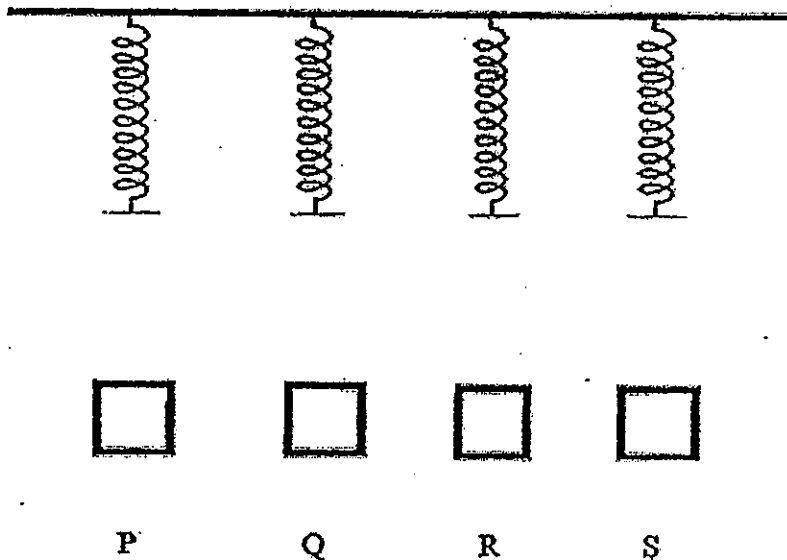


Which one of the following shows the correct headings for P, Q, R and S?

	P	Q	R	S
(1)	Potential energy	Electrical energy	Kinetic energy	Light energy
(2)	Heat energy	Electrical energy	Sound energy	Heat energy
(3)	Potential energy	Sound energy	Electrical energy	Light energy
(4)	Heat energy	Sound energy	Kinetic energy	Light energy

(Go on to the next page)

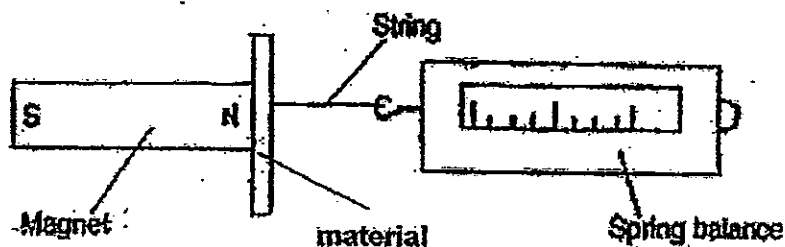
- 28 Mei Ling sets up an experiment to test the extension of a spring in relation to the load suspended. There are four loads, P, Q, R and S, to be attached to each spring.



To have a fair test, which of the following variables must be kept the same?

- A: The type of spring used.
 - B: The material of the load
 - C: The mass of the load used
 - D: The original length of the spring.
- (1) A and B only
 - (2) A and D only
 - (3) A, B and C only
 - (4) A, B and D only

- 29 Shawn wanted to find out how much force was needed to overcome the attraction of different materials which were attracted to a strong magnet. The materials are of similar size. He set up the experiment as shown below.



He pulled on the spring balance until the material was separated from the magnet. The readings on the spring balance were recorded as shown below.

Material	Readings on the Spring Balance (unit force)
P	45
Q	60
R	30
S	45

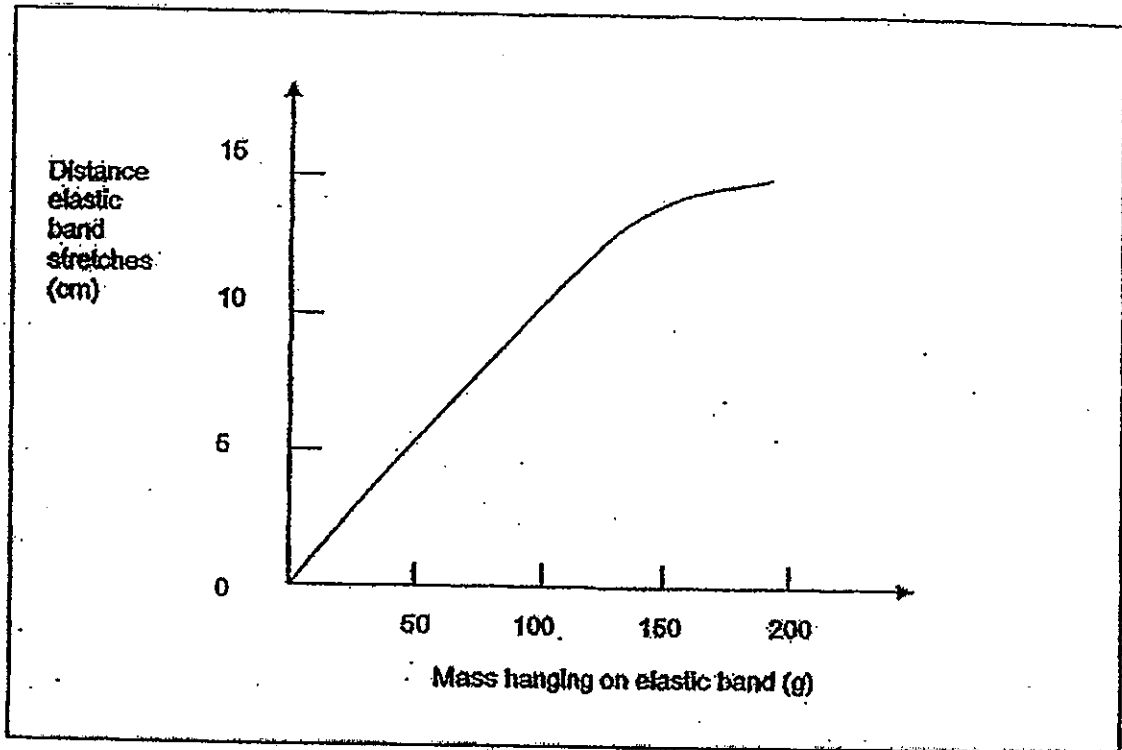
What conclusions could he make from the above readings?

- A: Q is the best material for magnetic attraction.
- B: R is made from a heavier material than material Q.
- C: P and S are made from the same magnetic material.
- D: R is easier to be magnetized as compared to material P.

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

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- 30 Susan wants to find out how far an elastic band can stretch. The results of her experiment are shown in the graph below.



What happens to the elastic band when the mass hanging on the elastic band is greater than 200g?

- (1) The elastic band breaks.
- (2) The elastic band becomes loose.
- (3) The elastic band remains the same.
- (4) The elastic band stretches to above 15 cm.

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MID-YEAR EXAMINATION 2012 PRIMARY 6 SCIENCE

BOOKLET B1

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

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Name: _____ ()

Class: Primary 6. _____

Date: 11 May 2012

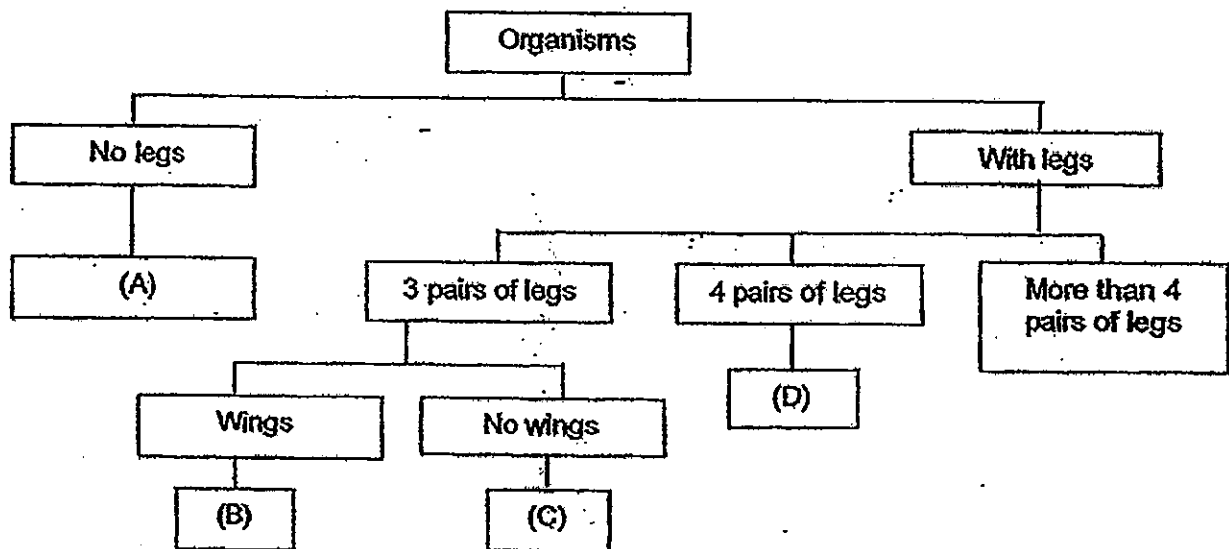
Booklet A	/60
Booklet B1	/20
Booklet B2	/20
TOTAL	/100

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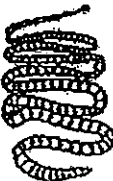

For questions 31 to 37, write your answers in the spaces provided.

[20 marks]

31 Mabel is given the classification table of some organisms as shown below. [2]



She wants to match the pictures given below to A, B, C and D.

 Centipede	 Praying Mantis	 Ant
 Butterfly	 Tapeworm	 Spider

What are her answers?

A: _____

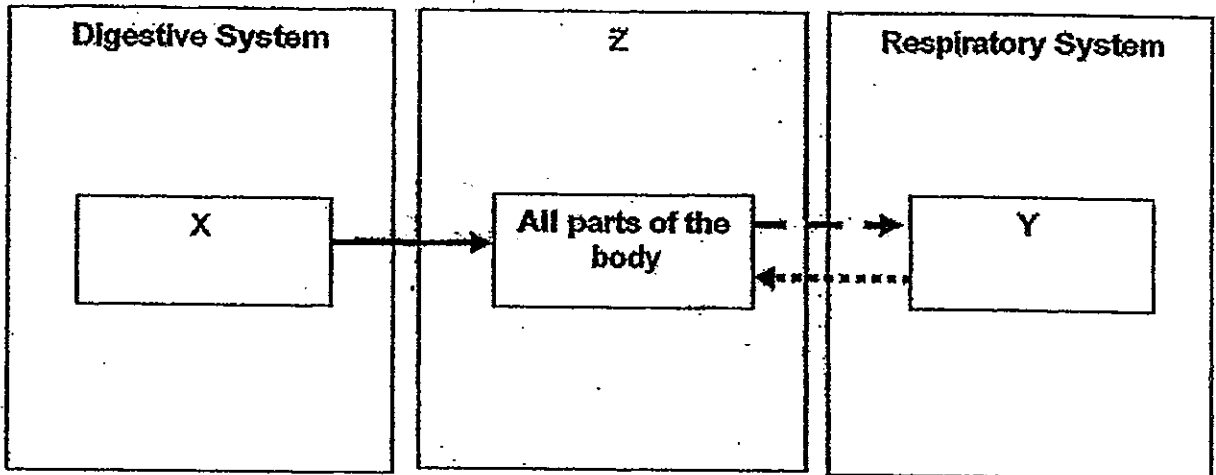
B: _____

C: _____

D: _____

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32 The diagram below shows how three different human systems interact and work together to carry out life processes.



Answer the following questions based on the diagram above.

(a) X and Y are organs found in the systems as shown above while Z is a system. Identify what are X, Y and Z [1½]

X: _____

Y: _____

Z: _____

(b) The different arrows in the diagram represent different substances carried to/from all parts of the body. Identify the different substances. [1½]

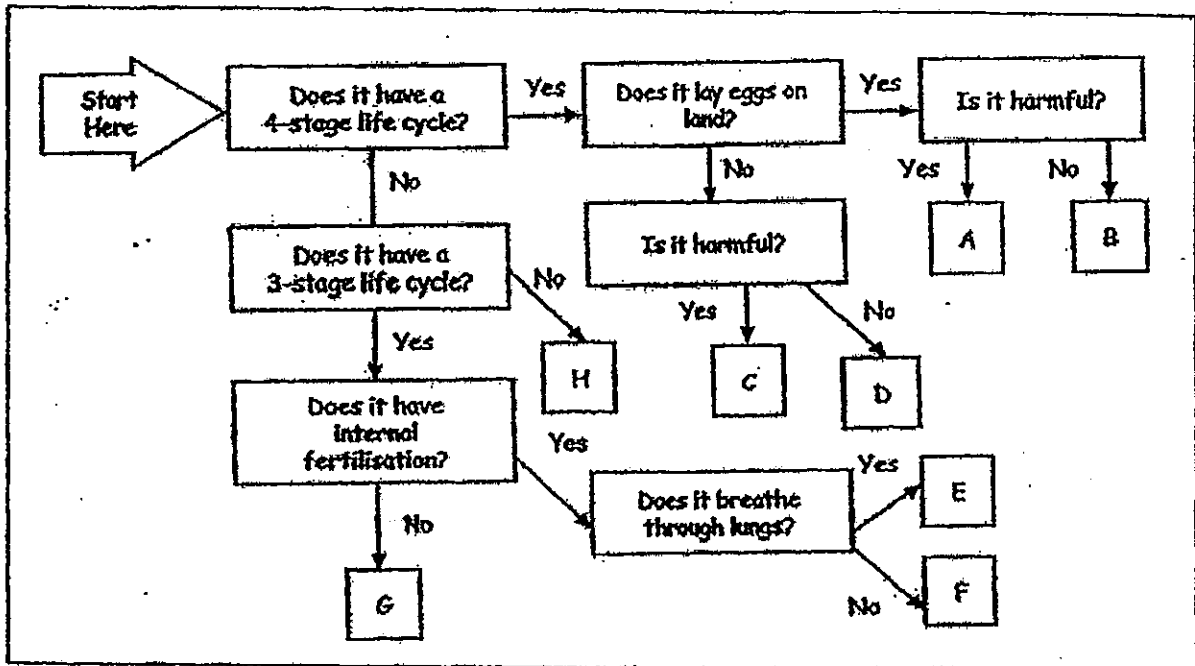
—————→ : _____

←----- : _____

- - - - -→ : _____

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33 The flow chart below links up some information about eight organisms, A, B, C, D, E, F, G and H.



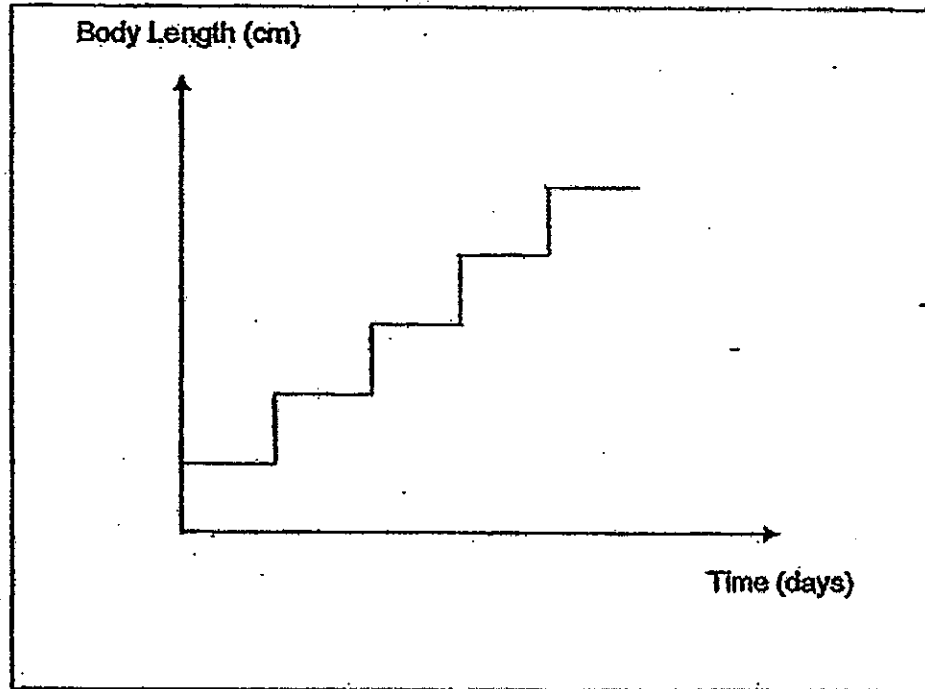
(a) Identify the letters that best represent each of the following animals. [2]

(i) Chicken: _____

(ii) Mosquito: _____

(b) Why do organisms reproduce? [1]

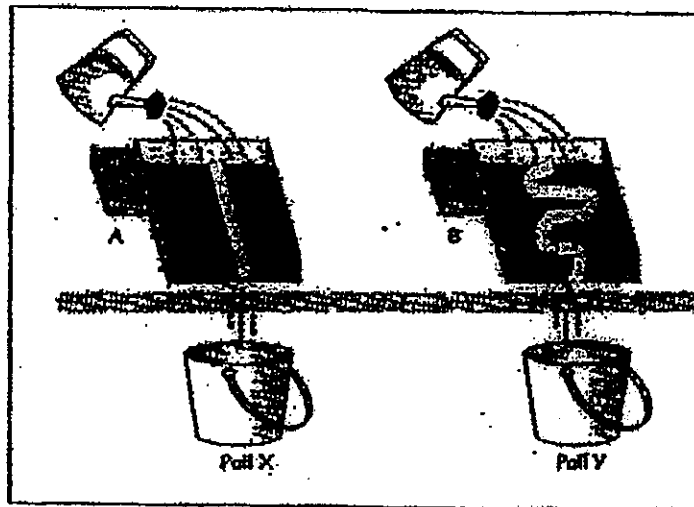
- 34 The body length of an organism is observed to have changed over time. The changes are measured and the data plotted in a graph as shown below.



- (a) What does the graph show about the growth of the organism? [1]
-
-
- (b) What is the name of this process of growth which allow the specific changes in the body length of the organism as shown in the graph? [1]
-
-
- (c) Why is this process necessary for the organism? [1]
-
-

(Go on to the next page)

- 35 A farmer wants to find out which type of water pathways would be more suitable for his crops. He has two set-ups, A and B, as shown in the diagram below. The water pathway in A is a straight line while that in B is a winding line. The boxes in both set-ups are similar in size and contain the same amount of soil.



The same amount of water was poured from the water can at the same rate onto the water pathways in A and B. The amount of water drained into the pails, X and Y, was each measured and recorded as shown in the table below.

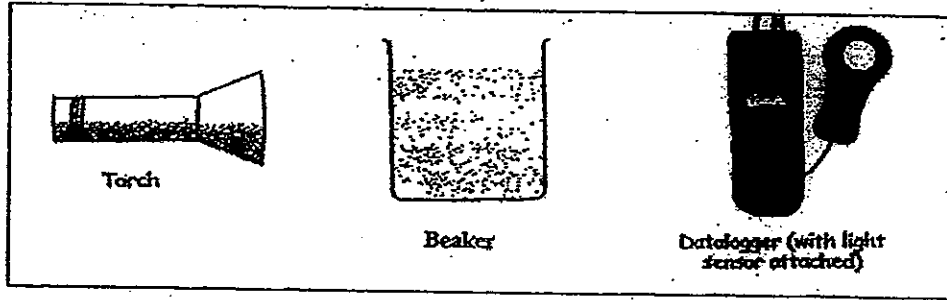
Pail	Amount of Water (ml)
X	250
Y	170

- (a) Which type of water pathway would the farmer use for his crops? [1]

- (b) Give a reason for your answer in (a). [1]

- (c) Name one other variable that the farmer must keep constant besides those already mentioned. [1]

36 Karen collected three beakers of water from three different places, R, S and T. Using the set-up shown below, she measured and recorded the amount of light that passed through each beaker of water. The results of the experiment are shown in the table.

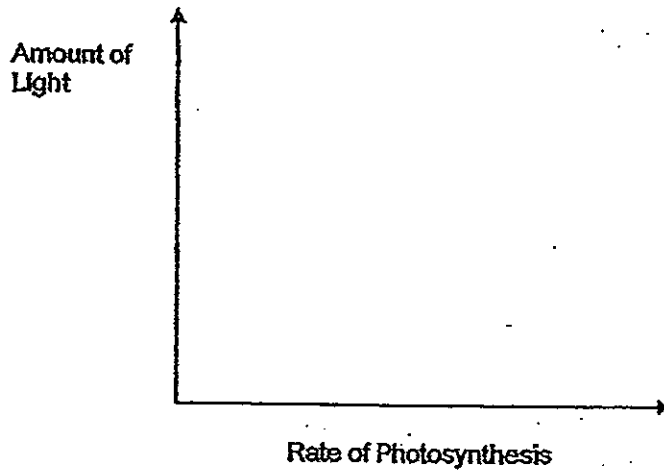


Location	Amount of Light recorded by Sensor (lux)
R	5
S	15
T	10

(a) Based on the results in the table, in which location are submerged water plants most likely to survive? [1]

(b) Give a reason for your answer in (a). [1]

(c) Sketch in the space below the relationship between the amount of light and the rate of photosynthesis. [1]



(Go on to the next page)

37 It is a known fact that an aquarium needs plenty of water plants and enough snails or other scavengers. This is to enable fishes to thrive in it.

(a) Give two reasons why water plants should be placed in it. [1]

Reason 1: _____

Reason 2: _____

(b) Explain why snails or scavengers are placed in an aquarium. [2]

METHODIST GIRLS' SCHOOL

Founded in 1887



MID-YEAR EXAMINATION 2012 PRIMARY 6 SCIENCE

BOOKLET B2

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

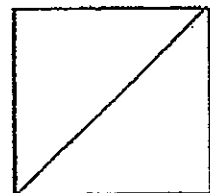
INSTRUCTIONS TO CANDIDATES

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

Name: _____ ()

Class: Primary 6. _____

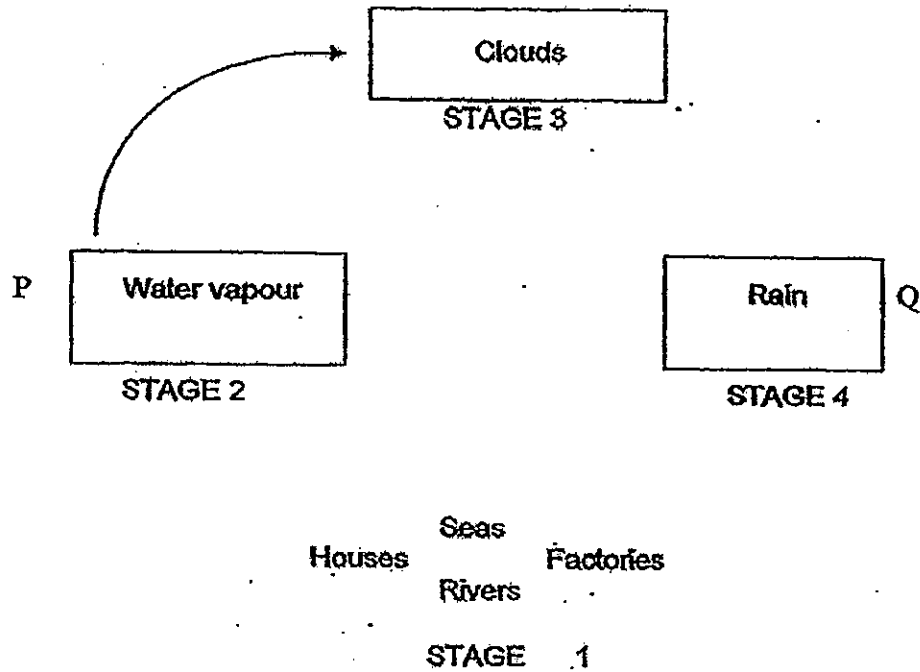
Date: 11 May 2012



This booklet consists of 8 printed pages including this page.

For questions 38 to 44, write your answers in the spaces provided. [20 marks]

38 The diagram below shows the water cycle.

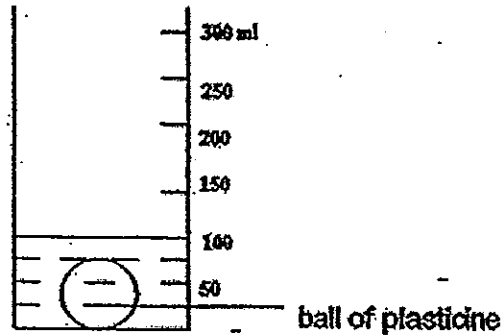


(a) On the diagram above draw in two arrows to show the process of evaporation taking place in the water cycle. [1]

(b) At which stage is water in the gaseous stage? [1]

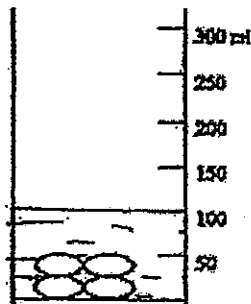
(c) Explain why the process of evaporation is necessary in the water cycle. [1]

- 29 Diagram A shows a ball of plasticine in a jar of maximum volume 300 ml. It contained some water. The plasticine was taken out and reshaped into four smaller balls. The four smaller balls were then put back into the same jar.



- (a) In the space below, draw the new level of water in the jar.

[1]



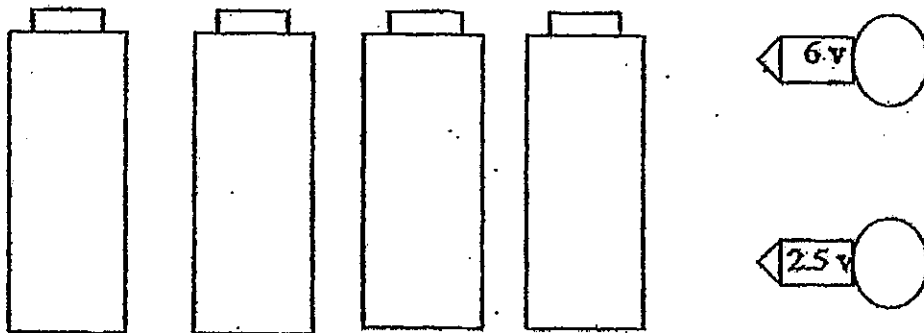
- (b) Give a reason why the water level is drawn at that level in (a).

[1]

(Go on to the next page)

- 40 You are given four batteries and two bulbs. The two bulbs are of 6 volts and 2.5 volts. The bulb with 2.5 volts is not as bright as the bulb with 6 volts when connected.

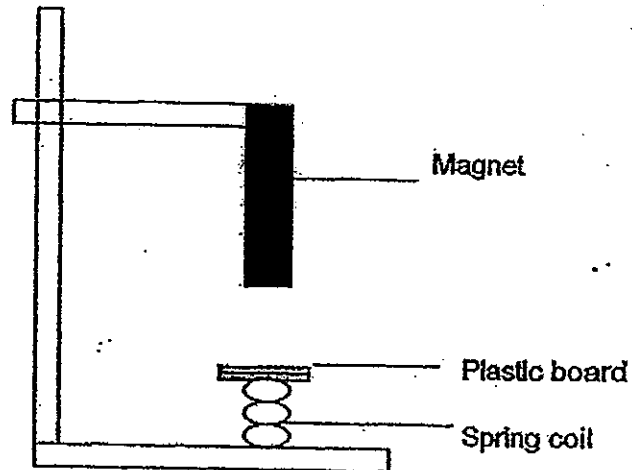
(a) Draw wires to show how you would connect the four batteries and the two bulbs so that only one bulb will emit the brightest light and will not fuse. [2]



(b) State the arrangement of the four batteries and two bulbs for your answer in (a). [1]

- 41 Maya set up the experiment as shown below. She tested four objects, A, B, C and D by securing each of them one at a time on the plastic board with a sticky tape.

She observed what happened to the spring coil and recorded her observations in the table below.



Object	Length of Spring Coil (cm)
A	6
B	7
C	3
D	4

- (a) If the original length of the spring coil is 4 cm, what could the following objects be if object B is a magnetic object?
- (i) C is a _____ [1]
- (ii) D is a _____ [1]
- (b) Give a reason for your answer in (a) part (i). [1]

(Go on to the next page)

42. Jane carried out an experiment to find out if the distance travelled by a toy car depended on how much it was wound up. The table below shows the results.

Number of Turns	Distance travelled (cm)
4	25
9	55
11	71

- (a) One variable that should be kept the same for this experiment is the toy car. Name another variable. [1]

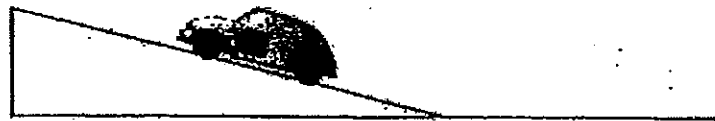
- (b) The results show that the toy car travelled a greater distance when the number of turns was increased. Why is this so? [1]

- (c) How can the results of the experiment be made more reliable? [1]

- 43 David's car is petrol-driven. In the morning, he starts his car from rest and his car slowly increases to a uniform speed as it travels along a straight level road.

(a) State the energy changes that take place in the car. [1]

(b) The car now climbs a slope with no change in speed as shown in the diagram below.

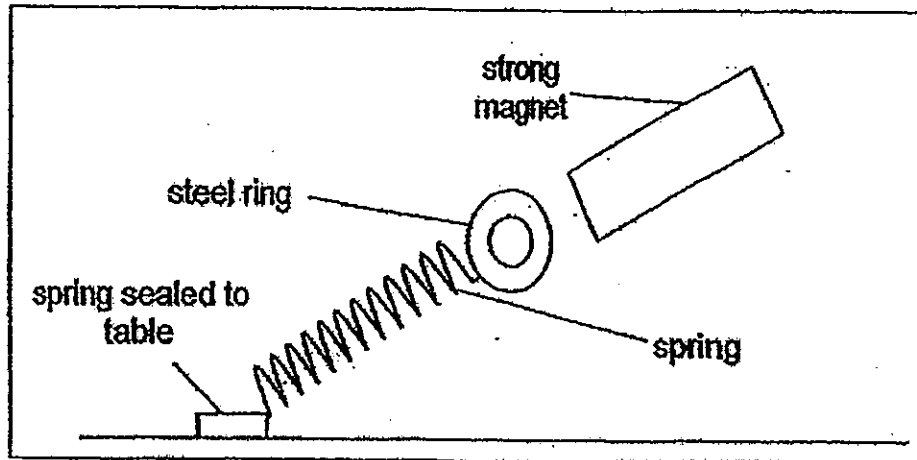


(i) What happens to the petrol consumption of the car as compared to it travelling on a straight level road? [1]

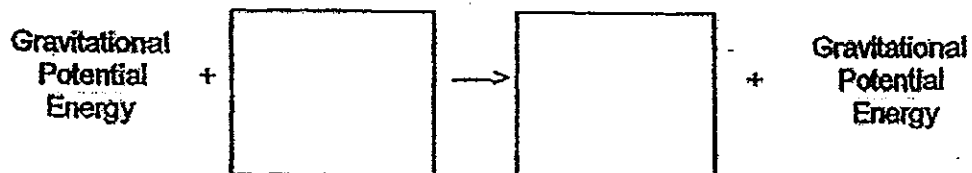
(ii) Explain your answer in (i). [1]

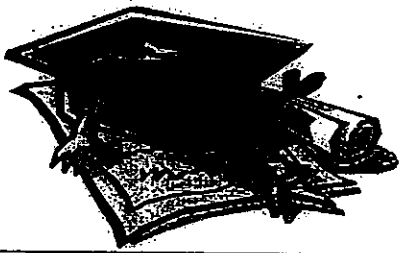
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- 44 Jimmy has a toy that consists of a spring and a steel ring. He fastened the spring onto a table top and held a strong magnet near to the steel ring as shown. He then observed that the toy was pulled towards the magnet.



- (a) What are the forces acting on the steel ring? [1]
-
-
- (b) After some time, Jimmy decided to remove the magnet far away from the toy. What would happen to the toy? [1]
-
-
- (c) Complete the energy conversions that have taken place in the toy in (b) when the magnet was removed. [1]





ANSWER SHEET

EXAM PAPER 2012

SCHOOL : MGS
SUBJECT : PRIMARY 6 SCIENCE

TERM : SA1

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

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

31)A: Tapeworm B: Butterfly C: Ant D: Spider

32)a)X: large intestine Y: lungs Z: circulatory system

b)  digested food

 oxygen

 carbon dioxide

33)a)i)E ii)C

b)To ensure the continuity of their kind.

34)a)It shows a pattern of no growth and then sharp growth over time.

b)Moulting.

c)To allow the organism to grow.

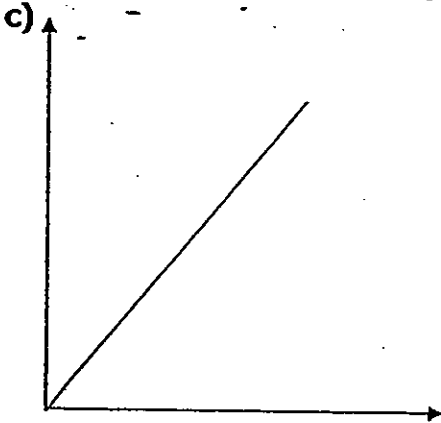
35)a)Winding pathway.

b)Roots can absorb more water as the drainage of water is lesser.

c)Type of soil.

36)a) Location S.

b) Most light was recorded therefore more light was able to pass through to allow photosynthesis to take place.

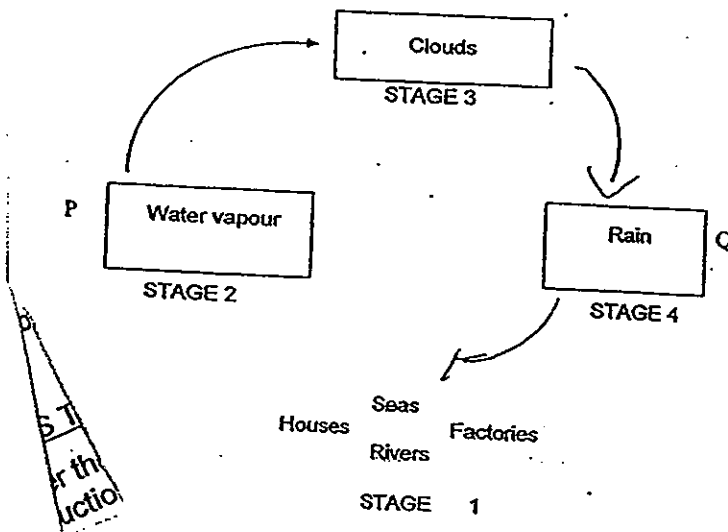


37)a) 1) To provide oxygen for the water animals.

2) Provide shelter for the water animals.

b) The snails and scavengers are placed in the tank to eat the waste of the fishes, so that the aquarium will be clean.

38)a)



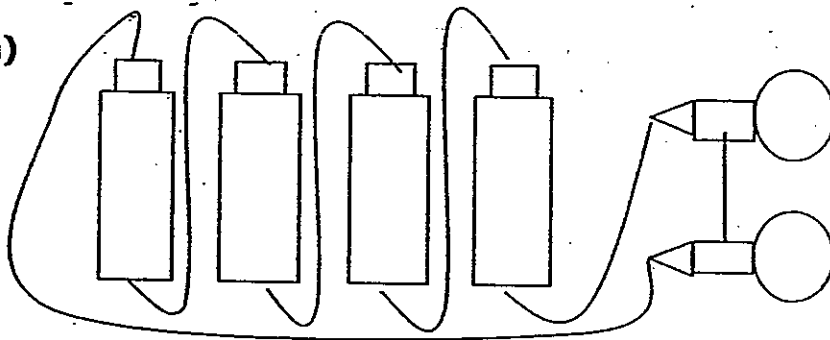
b) Stage 2.

c) The water from the seas and rivers need to evaporate to become vapour to condense to become clouds and fall as rain, if not there will not be a water cycle.

39)a)100

b)The four smaller balls have the same volume as the big ball thus, the volume of water will be the same.

40)a)



b)Series arrangement.

41)a)i)magnet. ii)Rubber ball.

b)The like poles of C and the magnet are repelling each other.

42)a)The type of floor.

b)There is more elastic potential stored in the toy car when it is wound up more and so the toy car can move for a longer distance.

c)Repeat the experiment.

43)a)Chemical potential energy is converted to kinetic energy.

b)i)The petrol consumption will be more.

ii)When going upslope, more energy is required to overcome gravity so more petrol will be needed.

44)a)Gravitational force and elastic potential energy.

b)When the magnet is move away, the toy will return to its original position.

c)elastic potential energy → kinetic energy

