

RAFFLES GIRLS' PRIMARY SCHOOL
Primary 6 Preliminary Examination
2006

Name: _____ ()

Class: 6 _____



SCIENCE

24 August 2006

Section A
(Questions 1 to 30)

Instruction to Pupils

Please do not open this booklet until you are told to do so.



RAFFLES GIRLS' PRIMARY SCHOOL

SEMESTRAL ASSESSMENT (2)

2006

24 August 2006

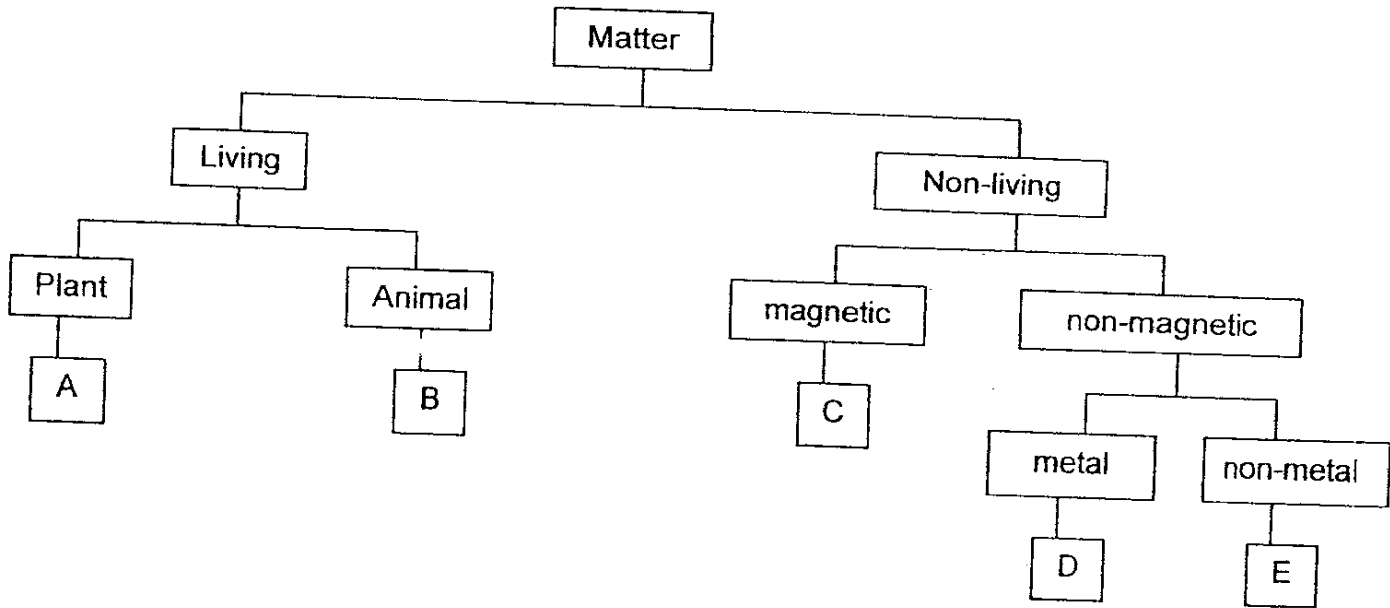
SCIENCE

Att: 1 h 45 min

SECTION A (30 x 2 marks)

There are 30 questions in this section. Answer all of them. For each question, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS).

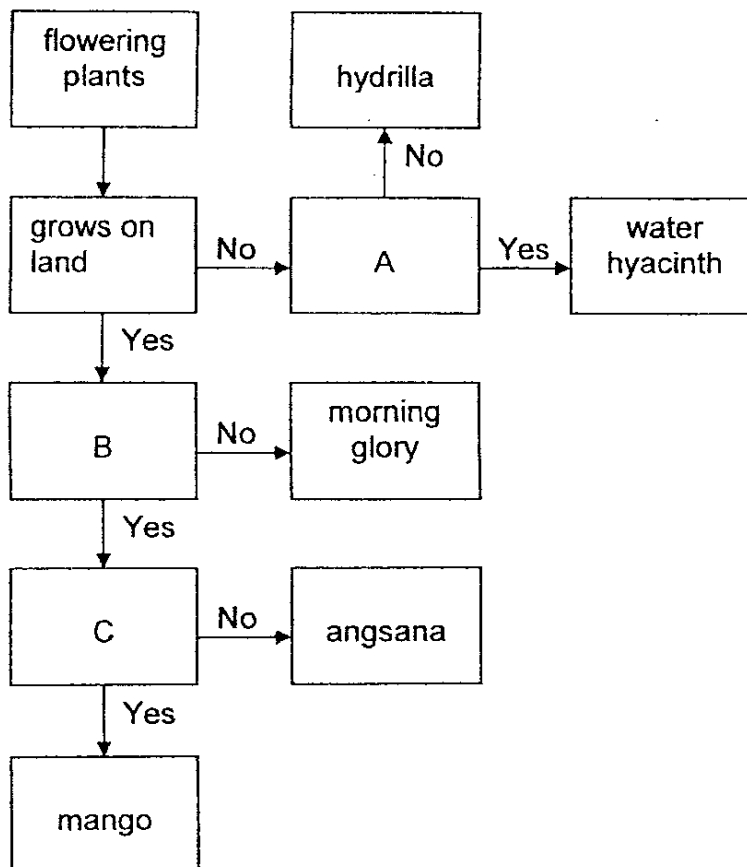
1. Study the classification table below.



Which one of the following consists of things that are all classified correctly?

	A	B	C	D	E
(1)	moss	guppy	copper	iron	styrofoam
(2)	fern	cat	silver	steel	wood
(3)	moss	ant	nickel	copper	carbon
(4)	yeast	bee	steel	nickel	plastics

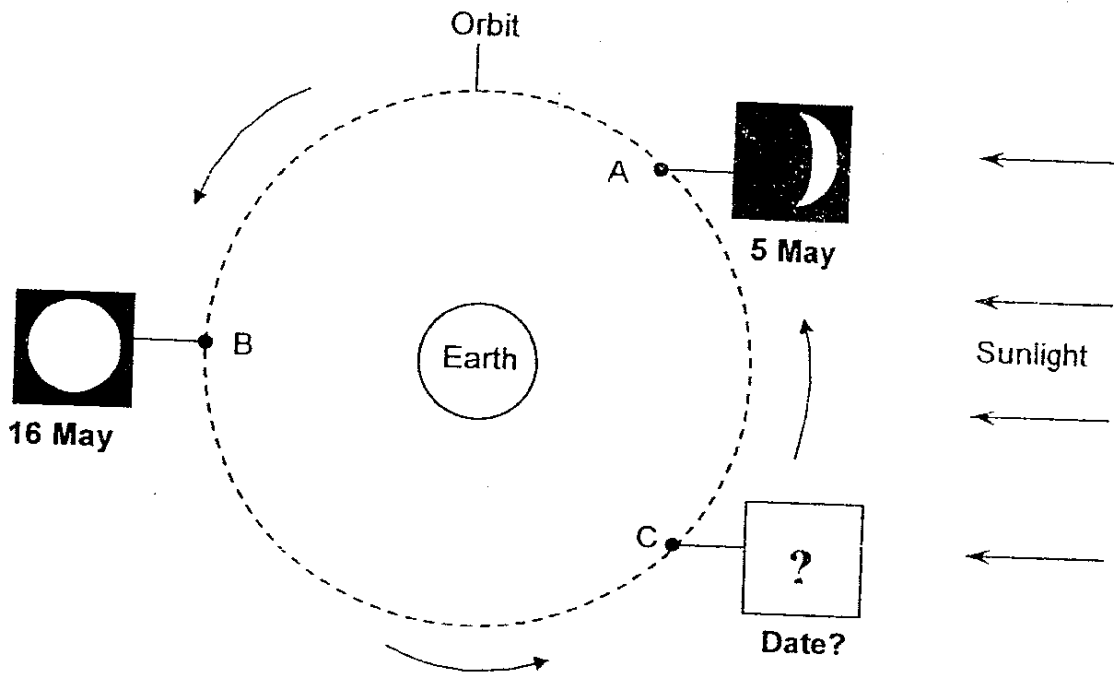
2. The flowchart shown below can be used to distinguish between some types of flowering plants.



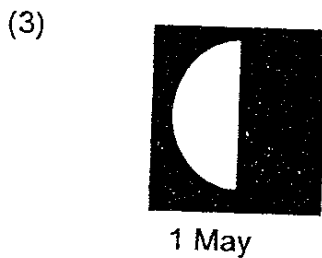
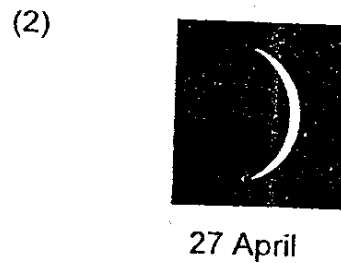
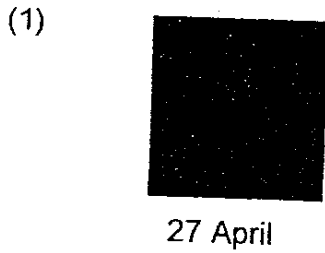
What do A, B and C in the flowchart represent?

	A	B	C
(1)	has a fleshy stem	has waxy leaves	has poisonous fruit
(2)	has spores	has a weak stem	has poisonous fruit
(3)	floats on water	has a woody stem	has fleshy fruit
(4)	has swollen leaf stalks	has a weak stem	has fleshy fruit

3. The shapes of the Moon seen in Country X on 5 May and 16 May are shown in the diagram below. A, B and C show the positions of the Moon on 5 May, 16 May and an unspecified date respectively.



Which one of the following shows the shape of the Moon for Position C?



4. Which of the following statements about fungi are true?

- A. Fungi photosynthesise.
- B. Some fungi can grow on living things.
- C. Some fungi can grow on dead plants and animals.
- D. Bread mould is a fungus that reproduces from spores.
- E. Jew's ears obtain food from the wood that they grow on.

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

5. Which of the following statements correctly compare the difference between air that is inhaled and air that is exhaled by a healthy person?

- A. Exhaled air is warmer than inhaled air.
- B. Exhaled air has more oxygen than inhaled air.
- C. Exhaled air has more dust particles than inhaled air.
- D. Exhaled air has more water vapour than inhaled air.

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

6. Figure A shows that a small ring of bark has been removed from a plant growing in an open field. The ring of bark that was removed contained some phloem tubes. Xylem tubes were not removed.

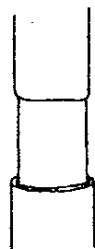


Figure A

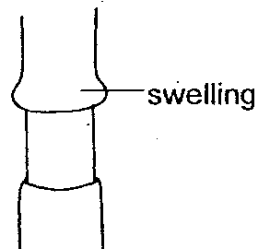


Figure B

Figure B shows a swelling that was seen above the ring a few days later. Which statement explains the presence of the swelling?

- (1) Food travelling up the stem is trapped above the ring.
- (2) Water travelling up the stem is trapped above the ring.
- (3) Food travelling down the stem is trapped above the ring.
- (4) Water travelling down the stem is trapped above the ring.

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7. Use the information given below to identify Organism X and Organism Y.

Description	Organism X	Organism Y
Lays eggs	Yes	Yes
Young resembles its parents	No	Yes
Number of stages in its life cycle	3	3

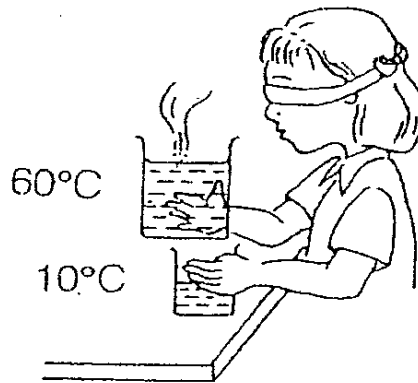
Which one of following shows correctly what Organism X and Organism Y are?

	Organism X	Organism Y
(1)	Pigeon	Frog
(2)	Toad	Cockroach
(3)	Guppy	Grasshopper
(4)	Dragonfly	Butterfly

8. What is the function of the small intestine in our digestive system?

- (1) To mix up the nutrients in the food
- (2) To pass the digested food to the blood
- (3) To remove water from the undigested food
- (4) To break down solid food into smaller pieces

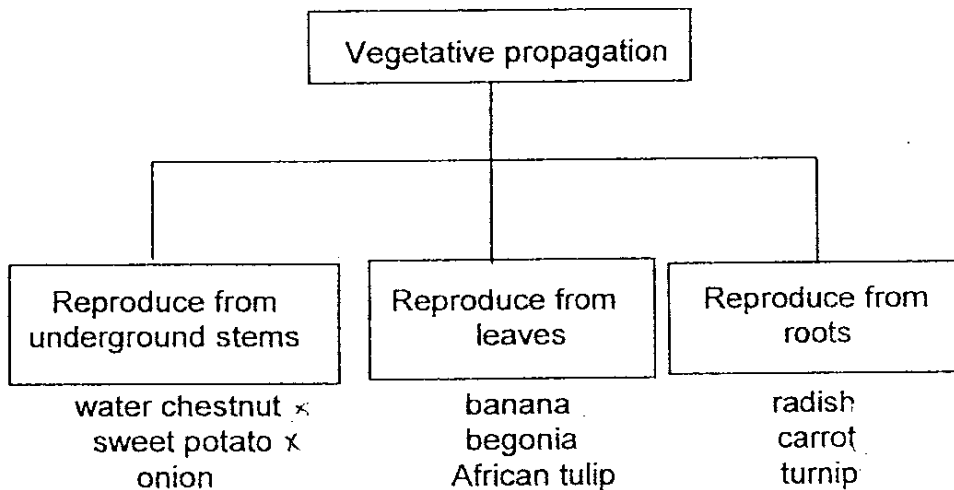
9. Look at the picture below.



What is the only difference that the girl in the picture can tell between the two beakers that she is holding?

- (1) Its contents
- (2) Its colour
- (3) Its temperature
- (4) Its degree of transparency

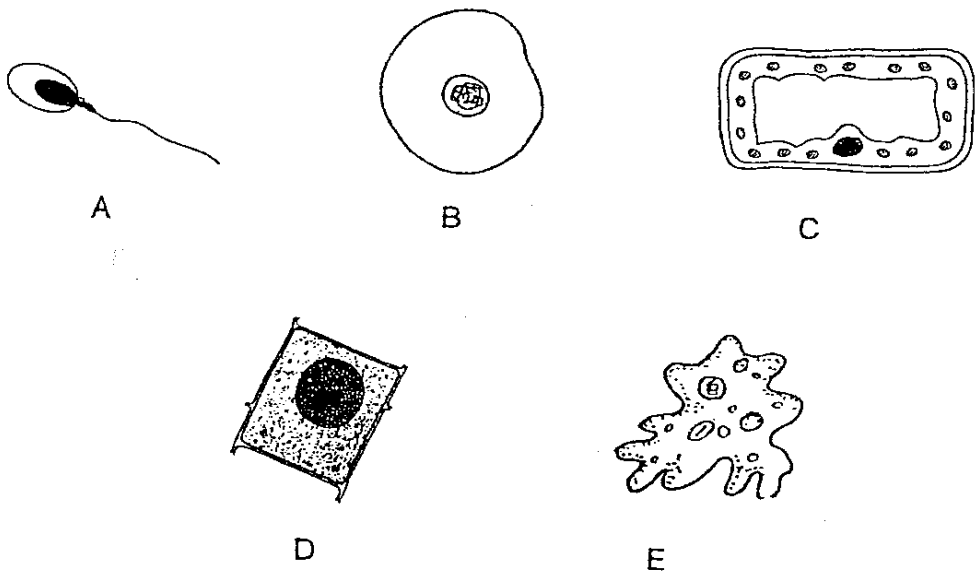
10. Study the classification table below.



Which of the following groups of plants are all classified **WRONGLY**?

- (1) onion, radish and turnip
- (2) water chestnut, onion and banana
- (3) sweet potato, onion and African tulip
- (4) sweet potato, banana and African tulip

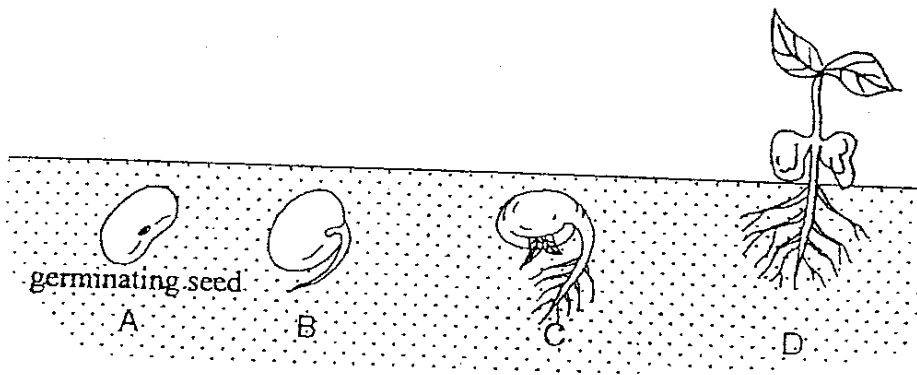
11. The diagrams below show five different cells as seen through a microscope.



Which of the above cells is/ are animal cells?

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

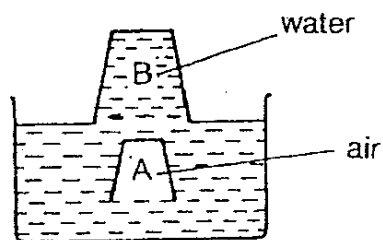
12. The diagram below shows the various stages as a seed germinates into a young plant.



At which stage(s) does the germinating seed need to take in oxygen?

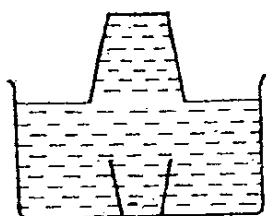
- (1) D only
- (2) C and D only
- (3) A, B and C only
- (4) A, B, C and D

13. Look at the experimental set-up shown below.

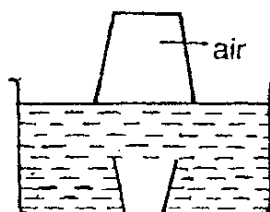


If glass A is put upright, directly below glass B, which one of following figures shows correctly the result?

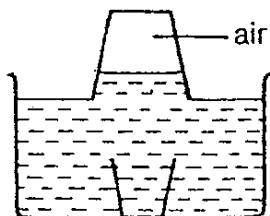
(1)



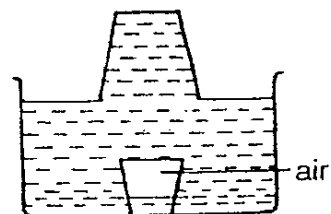
(2)



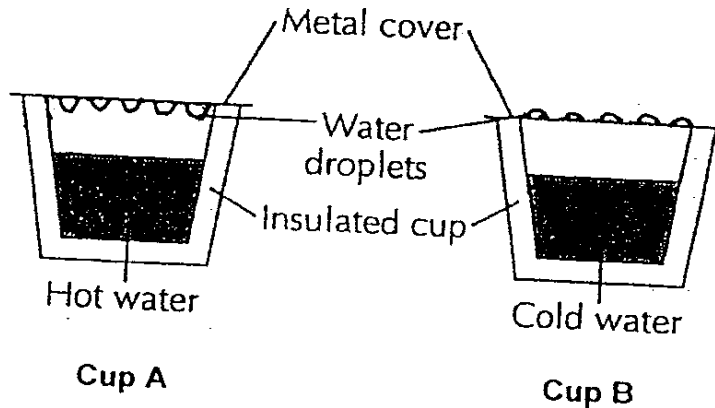
(3)



(4)



14. Mariam prepared two cups of water and then covered them. Look carefully at the results she obtained after two minutes.



Which of the following statements about the results of the experiment are correct?

- A. The hot water vapour inside Cup A condensed on the hotter metal cover of Cup A.
- B. The water vapour in the surrounding air condensed on the cooler metal cover of Cup B.
- C. The insulated cups reduced heat loss to or heat gain from the surroundings.
- D. The water vapour in the surrounding air does not condense on the metal cover of Cup A as it is cooler than the cover.

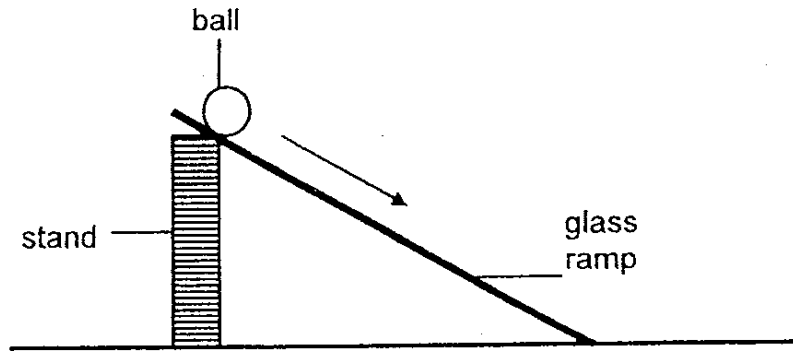
- (1) A and C only
- (2) B and D only
- (3) B, C and D only
- (4) A, B and C only

15. Which of the following will help in the conservation of water?

- A. Use water from washing uncooked rice to water the plants.
- B. Take a cool shower instead of a warm shower on hot days.
- C. Use the washing machine to wash a few pieces of clothing each time.
- D. Collect water from the washing machine at the last rinse to mop the floor.

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

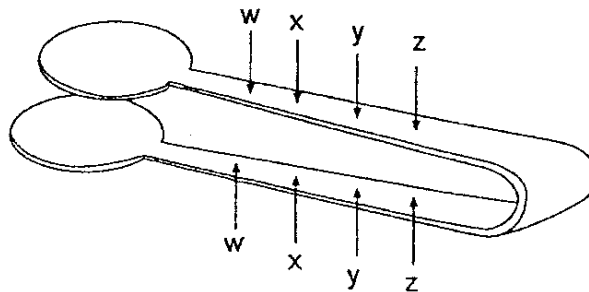
16. Menache carried out an experiment as shown below.



What could she do to the set-up to slow down the speed at which the ball rolls down the ramp?

- (1) Use a heavier ball.
- (2) Increase the height of the stand.
- (3) Place a layer of carpet on the surface of the ramp. *friction.*
- (4) Spread some grease onto the surface of the ramp.

17. Look at the picture of the pair of tongs below.

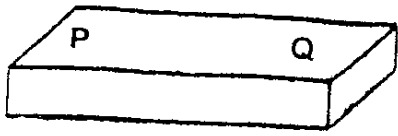


At which position, W, X, Y or Z, would the effort required to move the load be the greatest?

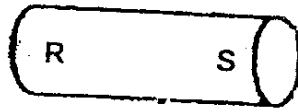
- (1) W
- (2) X
- (3) Y
- (4) Z

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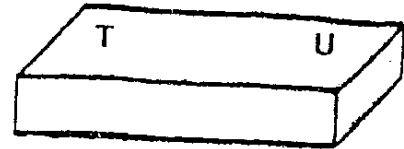
18. Look at the pictures of Metal A, Metal B and Metal C below. Their ends are labelled as shown.



Metal A



Metal B



Metal C

The ends of Metal A, Metal B and Metal C are brought close to one another to test if they would repel or attract one another. The table below shows the results of this experiment.

		Metal C		Metal B	
		T	U	R	S
Metal A	P	Attract	Attract	Attract	Repel
	Q	Attract	Attract	Repel	Attract
Metal B	R	Attract	Attract		
	S	Attract	Attract		

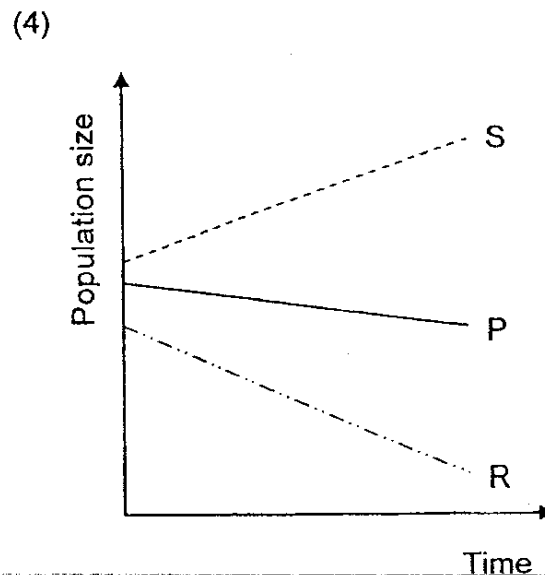
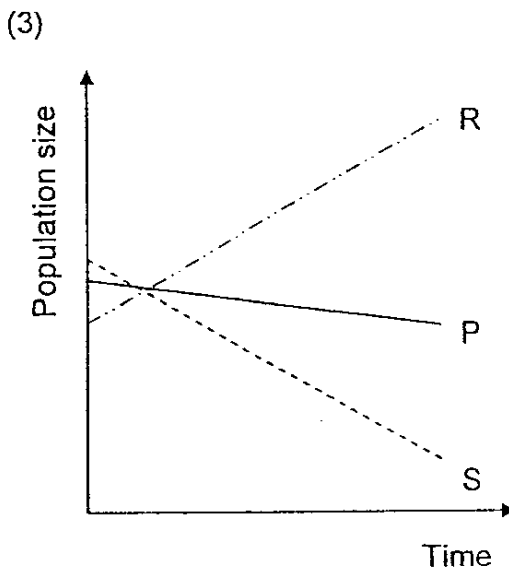
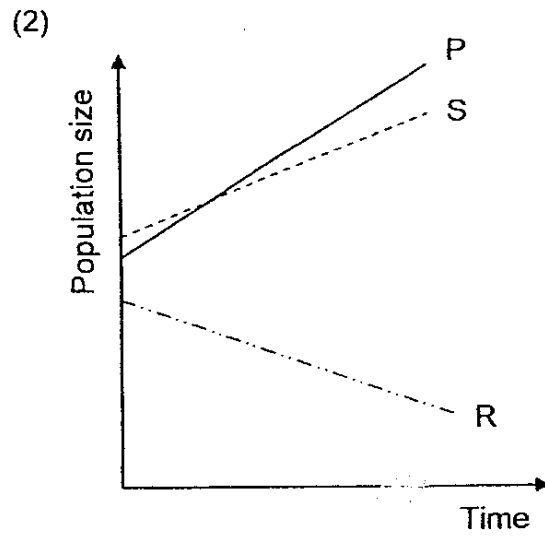
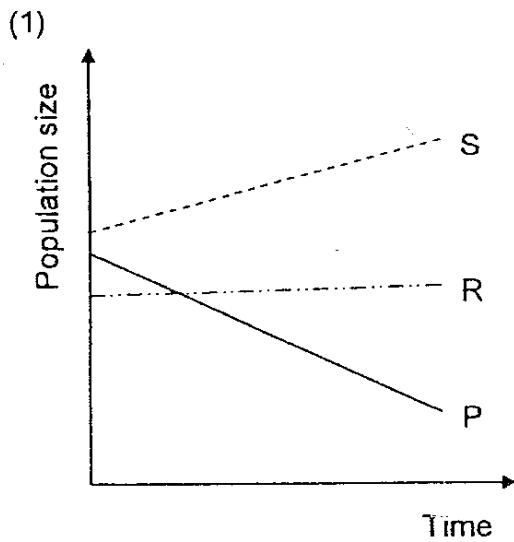
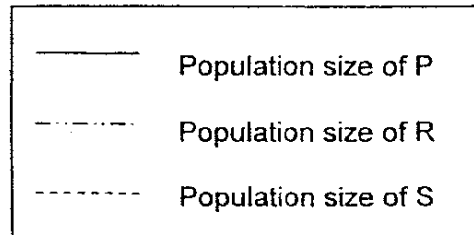
Based on the results given above, which of the following statements below is/are true?

- A. Only Metals A and B are magnets.
- B. Only Metals B and C are magnets.
- C. All 3 metals, A, B and C are magnets.
- D. All 3 metals, A, B and C are magnetic materials

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

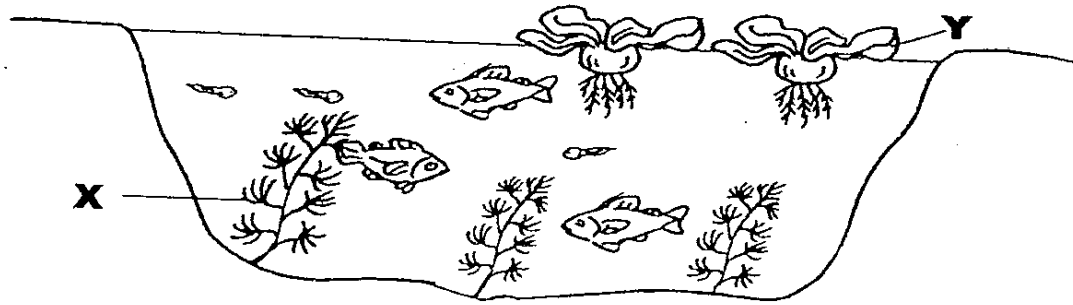
19. Consumers P, Q, R and Producer S belong to the same community. P feeds on Q and R. Q feeds on R and S. R only feeds on S. One day, Z was introduced into this community and it began to feed on R only.

The graphs below show the population sizes of P, R and S over a period of time, after the introduction of Z into the community. Based on the information given above, which one of the following sets of graphs is most likely to be correct?



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20. The picture below shows two populations of water plants, X and Y, present in a pond habitat.

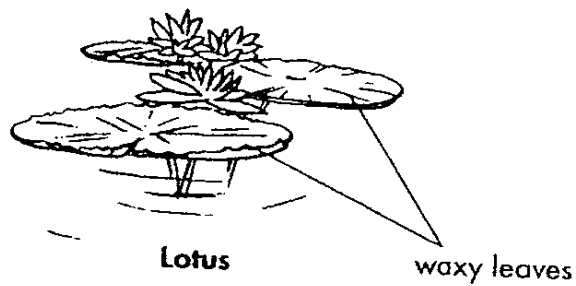


A few weeks later, Su Min observed that there was a drastic fall in the population size of X. At the same time, she also observed that the population size of Y was at its peak. Which of the following factors could have caused the sharp decrease in the population size of X?

- A. Insufficient sunlight in the water
- B. Insufficient dissolved oxygen in the water
- C. Insufficient space at the bottom of the pond

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

21. The lotus plant has waxy leaves. This special feature helps the plant to



- (1) absorb more light for photosynthesis
- (2) trap air to increase the rate of photosynthesis
- (3) keep them upright in the water to get more sunlight
- (4) stay afloat by preventing water from collecting on the leaves

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22. Which of the following are harmful effects of deforestation?

- A. Soil erosion
- B. Global warming
- C. Loss of habitats
- D. Thinning of the ozone layer

(1) A, B and C only

(2) A, B and D only

(3) A, C and D only

(4) B, C and D only

23. Genetic engineering can be used to help solve food shortage because it can modify plants to _____.

- A. produce a higher yield
- B. produce fruits and vegetables that stay fresh longer
- C. prevent them from becoming infected and dying of diseases.
- D. survive in places where the weather is dry for a long period of time

(1) A and B only

(2) A, B and C only

(3) C and D only

(4) A, B, C and D

24. Which of the following operate by using a renewable source of energy?

- A. wind-mill
- B. motorcycle
- C. solar heater
- D. kerosene lamp
- E. hydro-electric power station

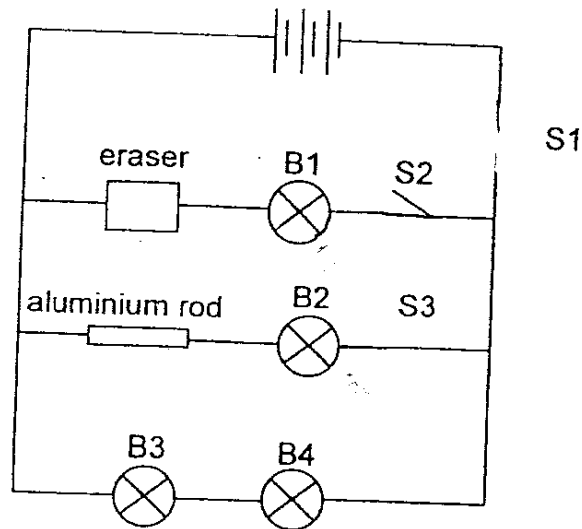
(1) A and C only

(2) B and D only

(3) A, C and E only

(4) A, B, C, D and E

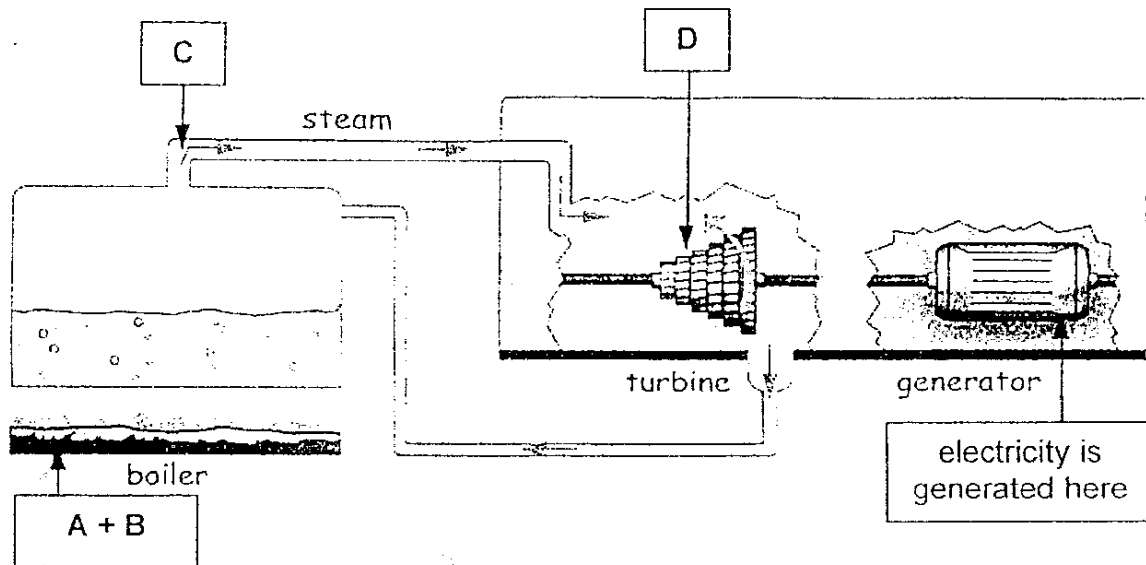
25. Study the circuit diagram shown below.



Li Lin turned the switches S1, S2 and S3 on and off and made the following observations. Which one of her observations is correct?

- (1) When only S3 is closed, only B2 lights up.
- (2) When only S1 and S3 are closed, only B2 lights up.
- (3) When all the switches are closed, all the bulbs light up.
- (4) When only S1 and S2 are closed, only B3 and B4 light up.

26. The diagram below shows how electricity is generated at a power station. The forms of energy that are used in the generation of electricity are represented by A, B, C and D.



Which one of the following shows correctly what A, B, C and D represent?

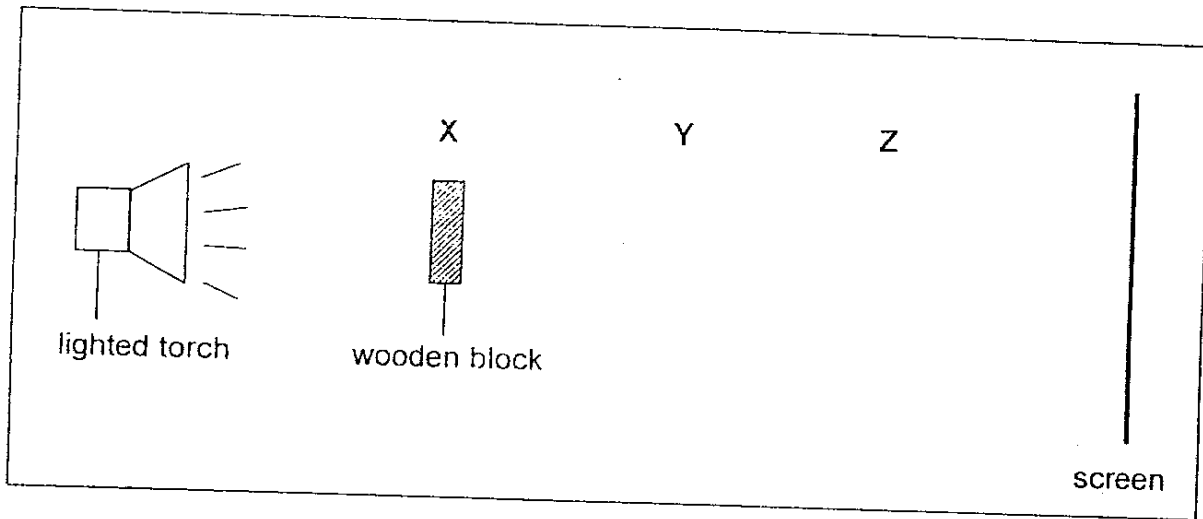
	A	B	C	D
1	heat <input checked="" type="checkbox"/>	light	kinetic	potential
2	kinetic <input checked="" type="checkbox"/>	potential	light	heat
3	heat	kinetic	potential	kinetic
4	potential	heat	kinetic	kinetic

27. Which of the following carry out respiration?

- A. Yeast
- B. Whale
- C. Bacteria
- D. Moving car
- E. Balsam plant

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

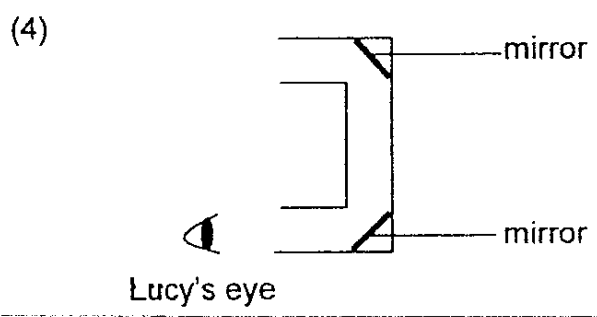
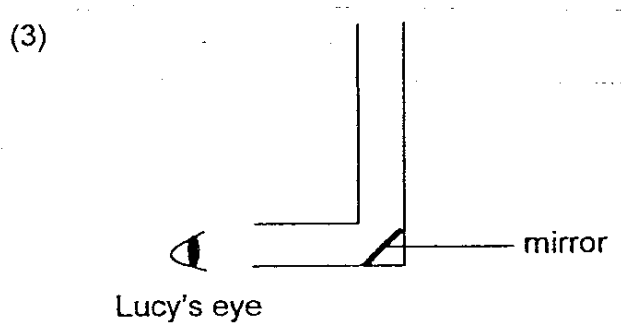
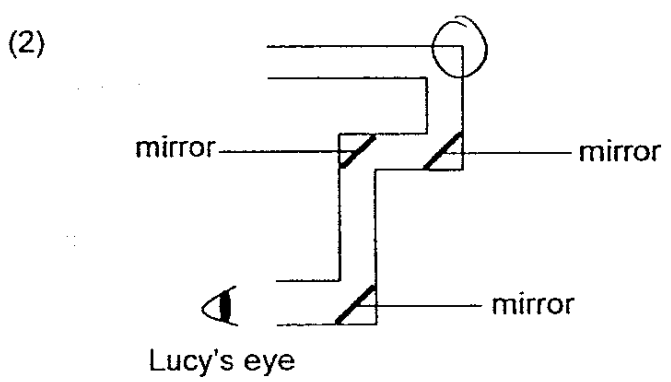
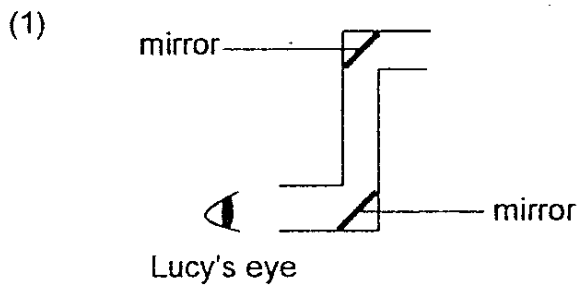
28. Jia Wen set up the experiment shown below.



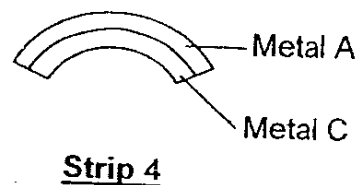
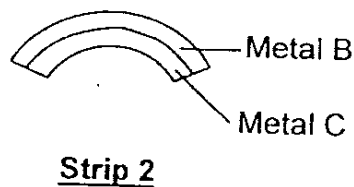
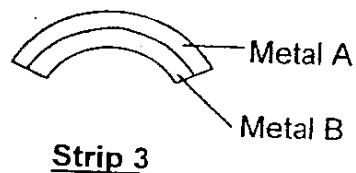
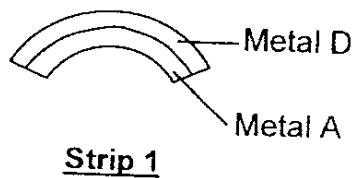
Jia Wen placed the wooden block at positions X, Y, and Z, which are at different distances from the screen. At each position, she measured the length of the shadow cast on the screen. Which one of the following shows correctly the length of the shadows Jia Wen recorded for positions X, Y and Z?

	Length of shadow at X (cm)	Length of shadow at Y (cm)	Length of shadow at Z (cm)
(1)	20	18	11
(2)	18	11	20
(3)	11	18	20
(4)	18	18	18

29. Lucy made the four viewing scopes shown below. Which one of the scopes would enable her to look at what is happening behind her without turning her head around?



30. A bimetallic strip is formed when two different metals are joined together. Four metals were used in different combinations to form four bimetallic strips. The diagrams below show how each strip bent when heated.



Based on the information given above, which one of the following shows metals A, B, C and D placed in the correct order?

	Expands fastest →			← Expands slowest
(1)	A	B	C	D
(2)	D	A	B	C
(3)	C	B	A	D
(4)	D	A	C	B

RAFFLES GIRLS' PRIMARY SCHOOL
Primary 6 Preliminary Examination
2006

Name: _____ ()

Class: 6 _____



SCIENCE

24 August 2006

Section B
(Questions 31 to 46)

Instruction to Pupils

Please do not open this booklet until you are told to do so.

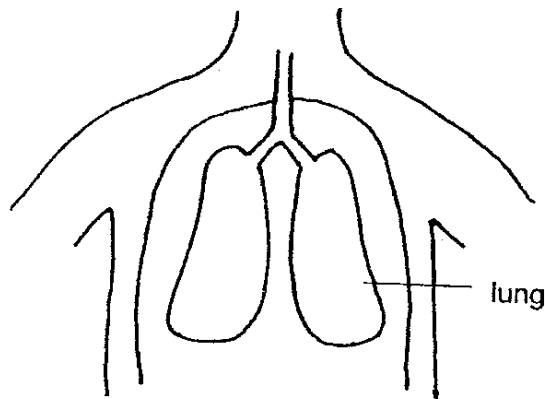
Section A		60 marks
Section B		40 marks
Total		100 marks

Out of 100 marks		
	<u>Class</u>	<u>Level</u>
Highest score		
Average score		
Parent's Signature		

SECTION B (40 marks)

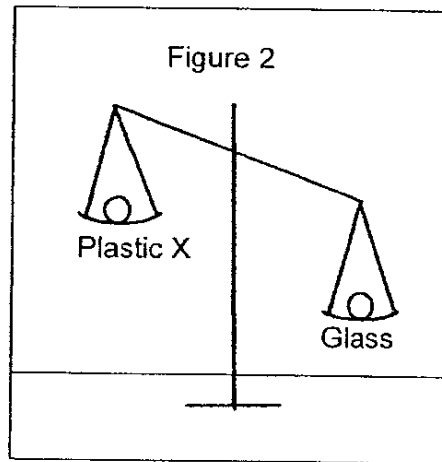
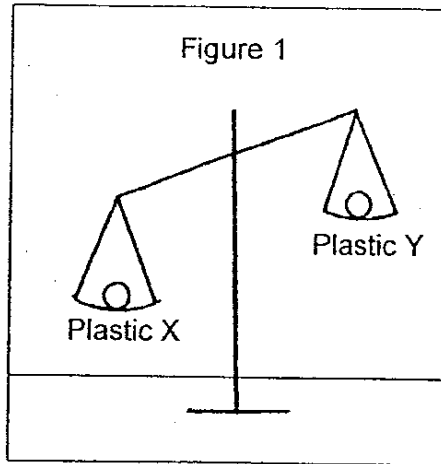
There are 16 questions in this section. Answer **all** of them. Write your answers in the spaces provided.

31. (a) In the diagram below, draw the missing diaphragm to show what the diaphragm looks like when a person exhales completely. [1]



- (b) Cigarette smoke can damage the walls of the air sacs in the lungs. Explain how the damaged air sacs reduce the amount of oxygen in the blood. [1]

32. In an experiment, John put 2 balls at a time on a lever balance. Except for the material used to make each ball, all other properties of the 3 balls he used were the same. One ball is made of glass, another one is made of Plastic X and the third one is made of Plastic Y. Figures 1 and 2 show John's observations.



- (a) Based on John's observations shown in Figures 1 and 2, which is the best material for making the lenses of a pair of spectacles?

Material: _____ [1m]

- (b) Explain your answer in 32(a). [1m]

33 Only one of the organisms below has been grouped wrongly.

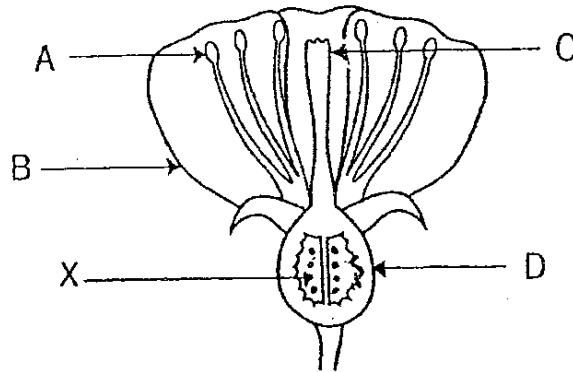
<u>Group A</u> crab lobster prawn	<u>Group B</u> ostrich penguin sparrow	<u>Group C</u> frog guppy crocodile	<u>Group D</u> bat human monkey
--	---	--	--

(a) Name the organism that has been grouped wrongly. [1/2 m]

(b) Platypus belongs to Group _____ [1/2 m]

(c) How are the above organisms grouped? [1m]

34. The diagram shows the cross section of a flower.



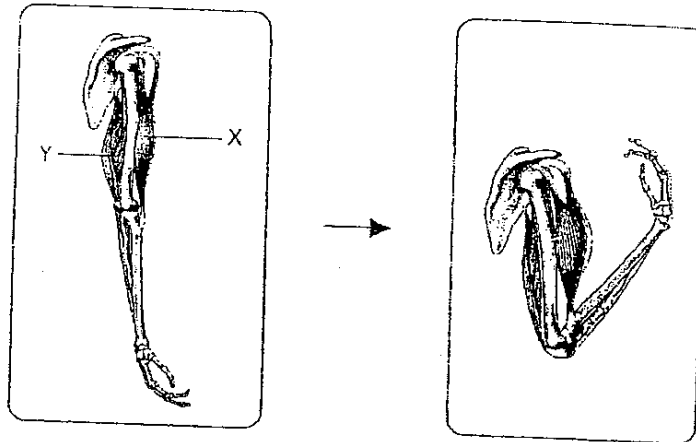
- (a) The table below shows the functions of the different parts of the flower labelled A, B, C and D in the given diagram. Complete the table by writing in the correct letters, A, B, C and D next to each function. [2]

Function of the flower parts	Part of the flower
(i) Protects the ovules	
(ii) Contains pollen sacs	
(iii) Attracts insects	
(iv) Catches pollen grains	

- (b) What process(s) must take place for part "X" of the flower to become a seed? [1]

- (c) What observable change would take place at part D of the flower when the male sex cell fuses with the egg? [1]

35. The diagrams below show the skeletal muscles that are attached to the bones of a human arm.



- (a) In order to bend the arm, muscle 'X' has to _____ while muscle 'Y' has to _____. [1]
- (b) Give an example of another joint that works the same way as the joint shown in the diagrams above. [1]
-

36. Study the diagrams below.

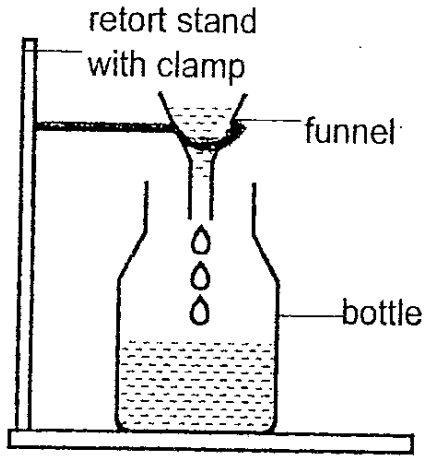


Diagram 1

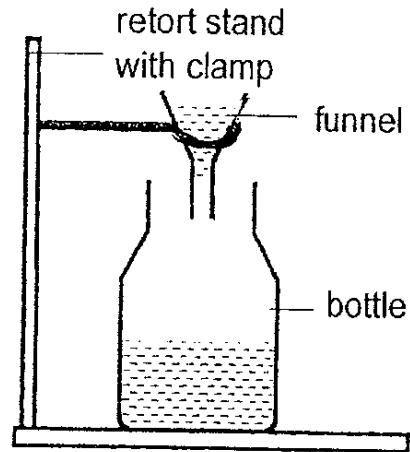
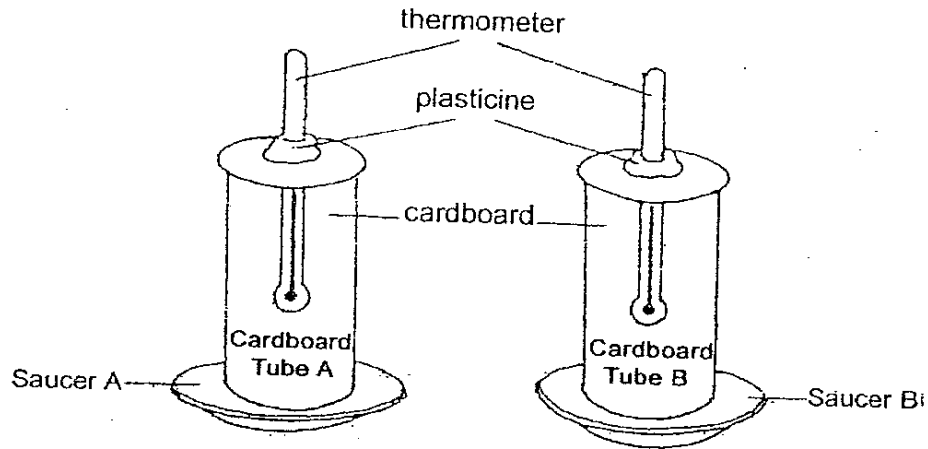


Diagram 2

- (a) James set up the experiment shown in Diagram 1. On **Diagram 2**, draw where James could add plasticine to the bottle so that the water will drip from the funnel more slowly than in the set-up shown in Diagram 1. [1]
- (b) Give an explanation for your answer in (a). [1]

37. Some pupils set up an experiment as shown below.



After the experiment was set up, they did the following:-

- Recorded the initial temperatures in each cardboard tube.
- Poured 50 ml of tap water into Saucer A only.
- Recorded the temperatures in each cardboard tube at 5-minute intervals over a period of 20 minutes.
- Recorded the results of the experiment in the table below.

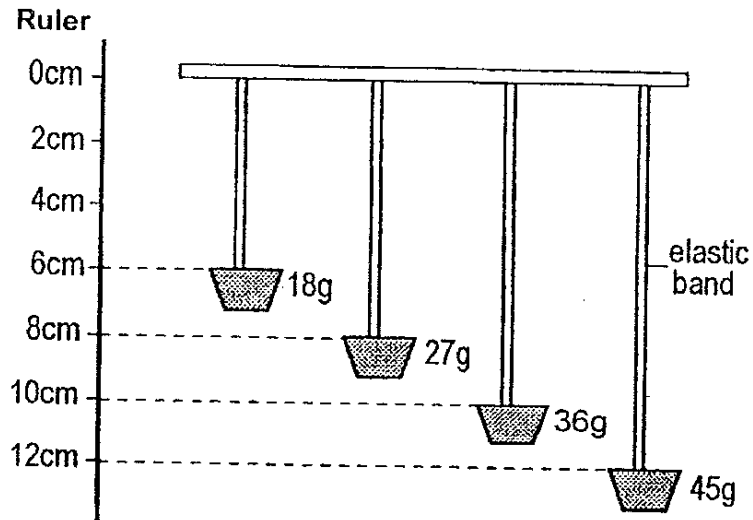
Time	Temperature in cardboard tubes (°C)	
	Tube A	Tube B
Before adding water to Saucer A	29	29
5 min after adding water to Saucer A	27	29
10 min after adding water to Saucer A	24	29
15 min after adding water to Saucer A	22	29
20 min after adding water to Saucer A	21	29

a) What happened to the temperature in Cardboard Tube A as the cardboard soaked up the water in the saucer? [1]

(b) Give an explanation for the observation in (a). [1]

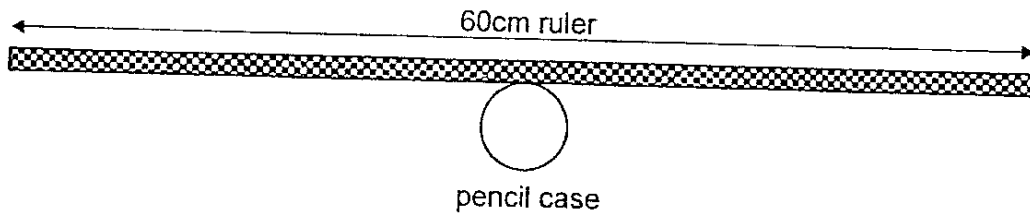
(c) Explain the purpose of having Cardboard Tube B. [1]

38. Amirah conducted the experiment below to find out how the mass of various weights can affect the extension of an elastic band.



- (a) Based on the above experiment, what is the original length of the elastic band? [1]
-
- (b) What will the extension of the elastic band be when a mass of 90g is attached to it? [1]
-
- (c) State one variable that has to be kept the same in the experiment. [1]
-
-

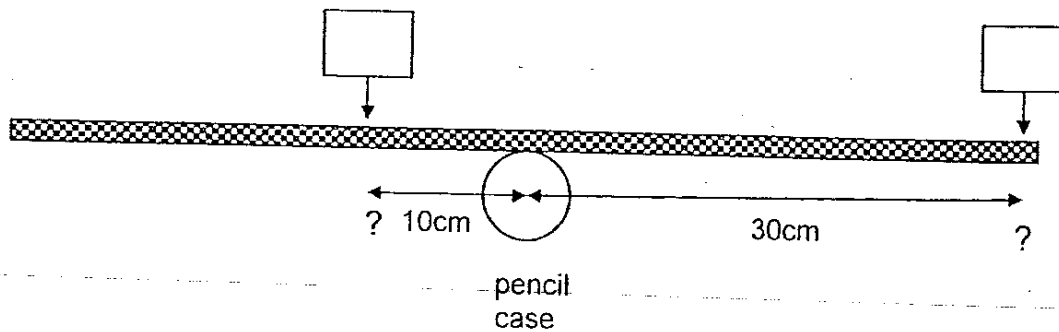
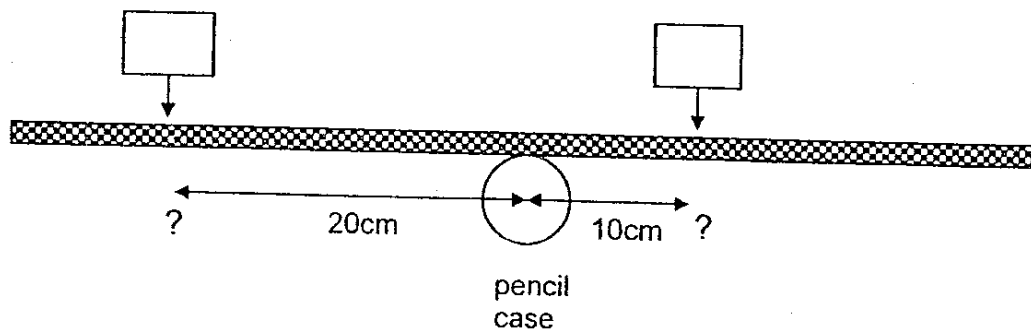
39. Samy used his cylindrical pencil case to balance his 60cm ruler as shown below, such that the ruler is horizontal.



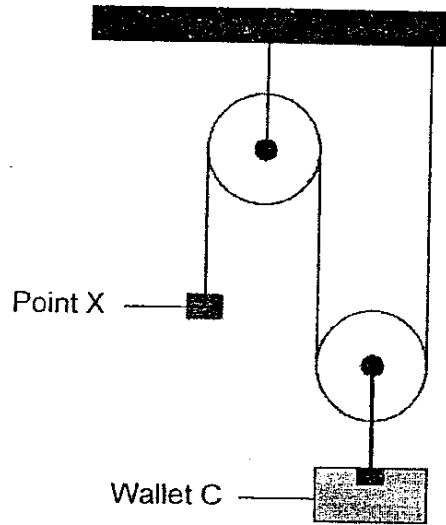
Next, Samy tried to balance 2 wallets at a time on the ruler. The table below shows the masses of the 3 wallets he used.

Wallet	Mass
A	200
B	400
C	600

- (a) In the diagrams below, fill in the boxes with A, B and C so that the ruler will remain horizontal. [2]



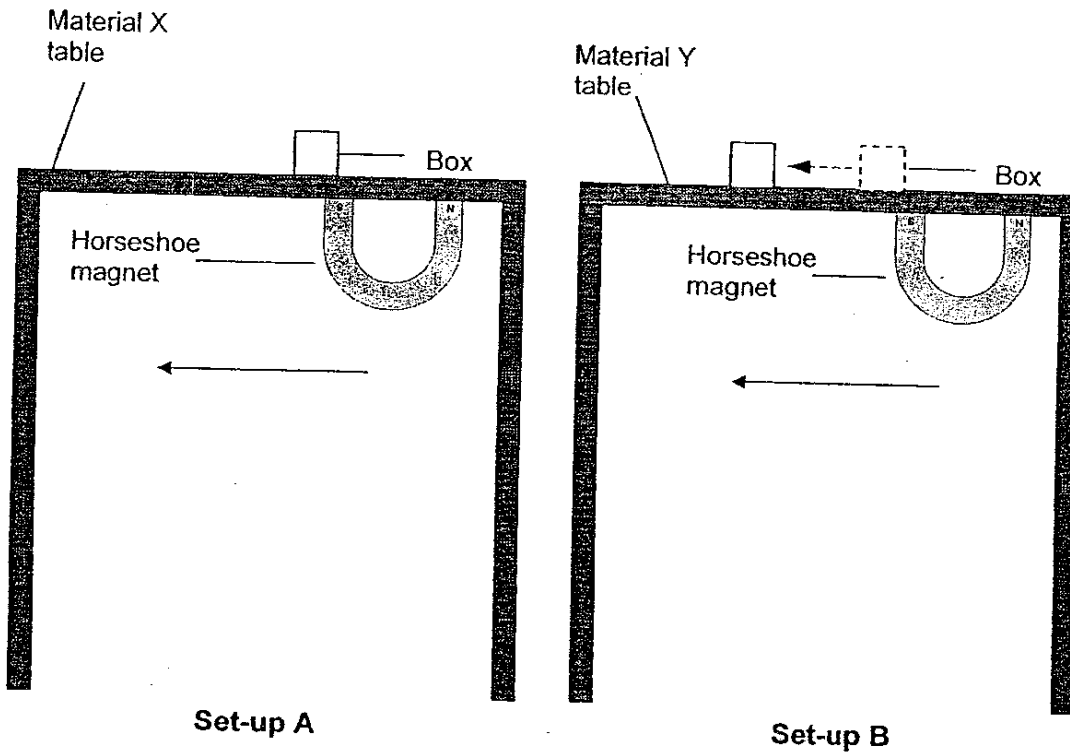
(b) Samy then attached Wallet C to the set-up shown below.



If Wallet B is hung at Point X of the pulley system, can it lift Wallet C?
Give a reason to explain why.

[1]

40. Qian Hui set up an experiment as shown below.

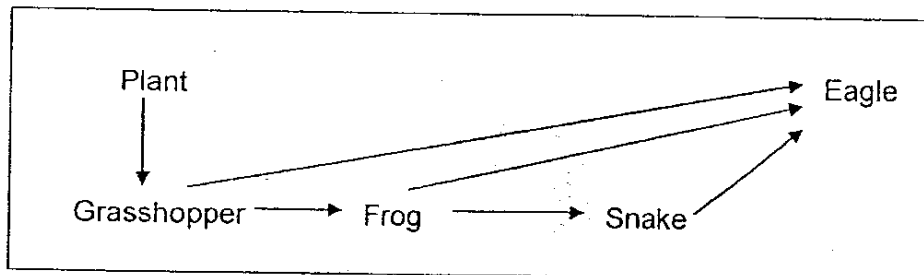


All the apparatus and materials used in Set-up A and Set-up B are kept constant except for the material used to make each table. Qian Hui slid a strong horseshoe magnet across the underside of each table, in the direction indicated by the arrows. She observed that only the box in Set-up B moved while the box in Set-up A remained in its original position.

- (a) Explain the most likely reason for the observation Qian Hui made. [1]

- (b) Name an example of a material that could be used to make the box in both set-ups. [1]

41. Look at the food web below carefully.



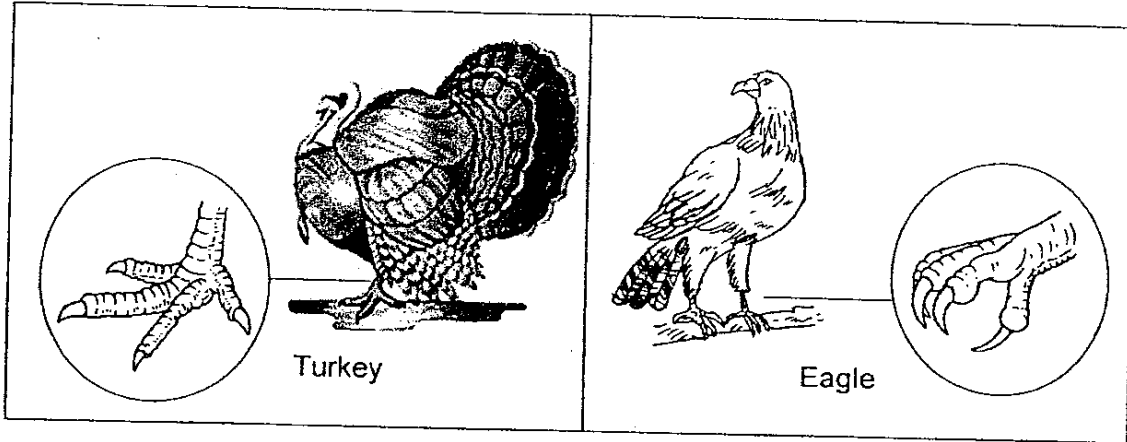
(a) Which organism(s) is/ are both a prey as well as a predator? [1]

(b) Based on the above food web, state 2 possible reasons why spraying insecticides on the food producer reduces the population size of the eagle. [2]

(i) _____

(ii) _____

42. Compare the two animals below.



How are the feet of each of these animals adapted for obtaining their food? [2]

Turkey: _____

Eagle: _____

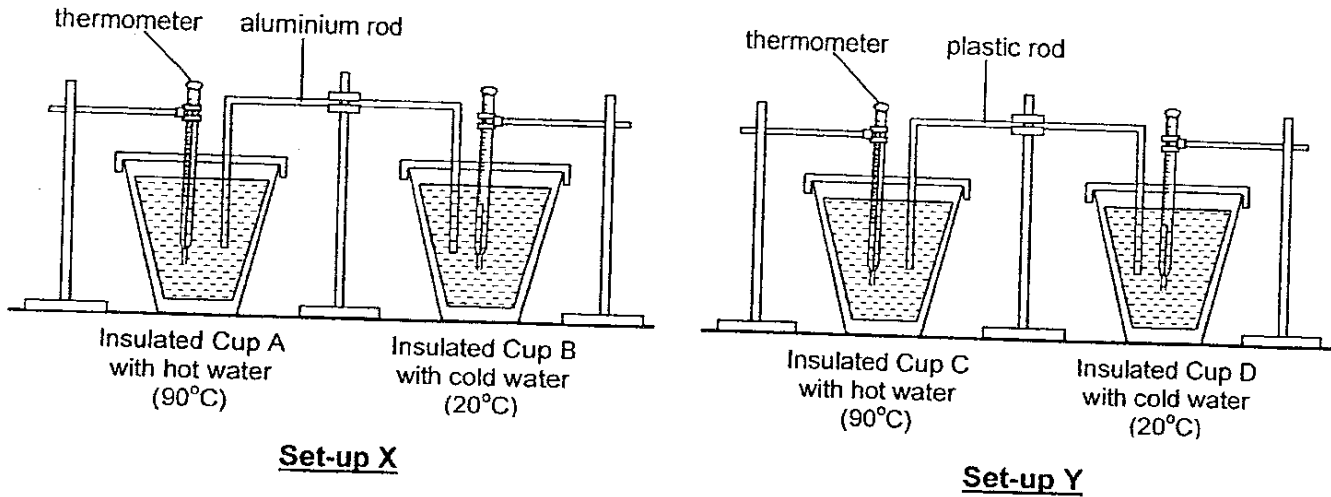
43. Muthu set up an experiment in which he put 5 pots containing 10 similar plants each, under different coloured lights for the same period of time. He recorded the masses of the 10 plants in each pot at the start and end of the experiment in the table given below. Similar pots containing the same amount and type of soil were used for this experiment. The plants were also given the same amount of water.

Pot	Colour of light	Mass of 10 plants at beginning of experiment (g)	Mass of 10 plants at the end of the experiment (g)
A	red	0.8	4.6
B	blue	0.7	4.7
C	green	0.8	1.1
D	violet	0.9	3.9
E	yellow	0.7	3.8

- (a) What do you think the aim of Muthu's experiment was? [1]

- (b) What conclusion can Muthu draw from the results he recorded in the table shown above. [1]

44. John set up the experiment shown below using three identical insulated cups. This diagram shows the apparatus at the start of the experiment.



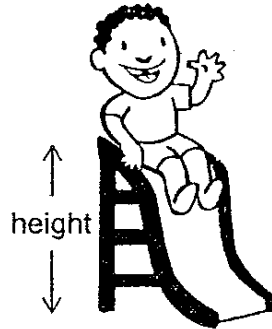
- (a) Ten minutes after the start of the experiment, John recorded the temperature of the water in each cup. In the boxes below, arrange the cups according to the temperature of the water in them from the hottest to the coolest. [1]

Cup _____ Cup _____ Cup _____ Cup _____

Hottest \longrightarrow Coolest

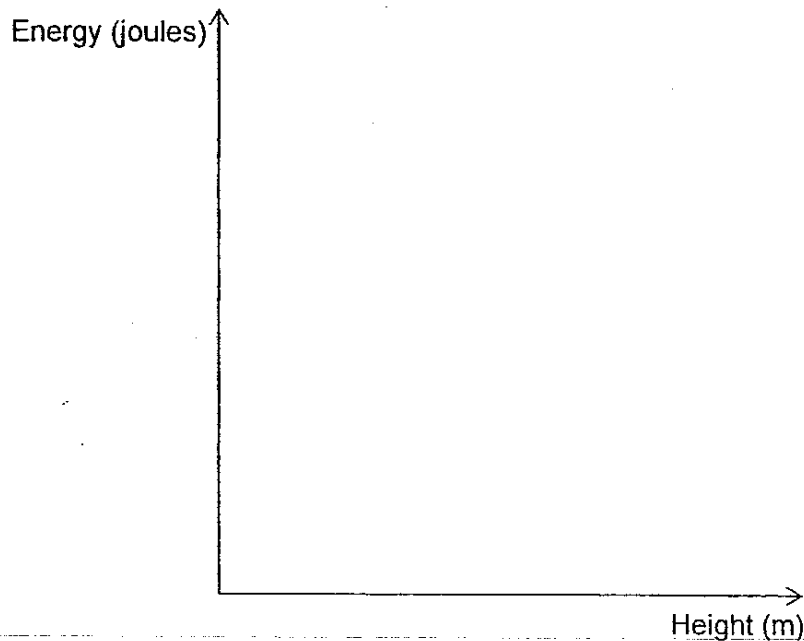
- (b) What do you think John was trying to find out? [1]

45. The diagram shows Ali getting ready to go down the slide.



In the space below, draw two line graphs to represent the changes in the gravitational potential energy and kinetic energy Ali possesses as he goes down the slide. Use a solid line for the graph representing changes in gravitational potential energy and a dotted line to represent changes in kinetic energy. [2]

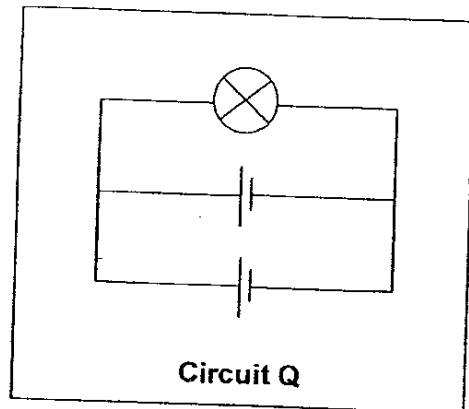
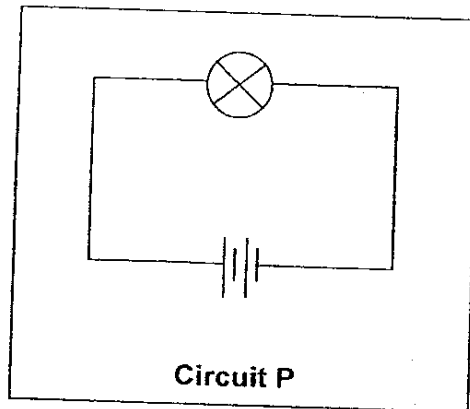
Key
Gravitational potential energy _____
Kinetic energy _____



83

46 Siti wants to investigate what factors affect the brightness of bulbs in closed circuits.

(a) Siti carried out an experiment by setting up the two circuits, P and Q, shown below.



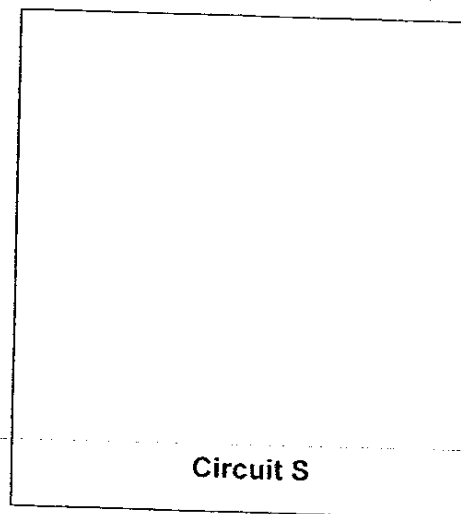
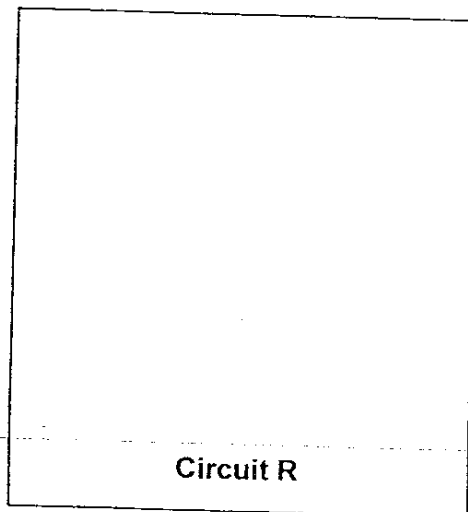
What is the aim of Siti's experiment?

[1]

(b) In Siti's next experiment, she wants to test how the brightness of bulbs in closed circuits is affected by the number of batteries used.

In the spaces given below, draw two circuit diagrams, R and S, to represent actual circuits Siti might use to carry out this experiment. (Remember to use the appropriate symbols for the different parts of the circuit.)

[2]



- (c) Siti wants to carry out another experiment to continue with her investigations. Suggest another factor that might affect the brightness of bulbs in closed circuits. [1]

- END OF PAPER -

Setters: Ms Aishah
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Ms Jelynn Phua

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Raffles Girls' Primary School
Primary 6 Science Preliminary Exams (2006)

(ANSWER KEY)

SECTION A : (60 MARKS)

Qn no.	Ans
1	3
2	3
3	4
4	3
5	2
6	3
7	2
8	2
9	3
10	4

Qn no.	Ans
11	3
12	4
13	3
14	3
15	1
16	3
17	4
18	3
19	4
20	1

Qn no.	Ans
21	4
22	1
23	4
24	3
25	4
26	4
27	4
28	1
29	4
30	2

SECTION B (40 MARKS)

Qn No.	Answers
31a	Diaphragm
31b	Damaged air sacs have greatly reduced surface area; hence less gas exchange take place in the lungs.

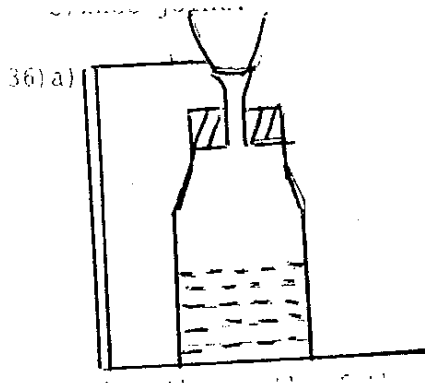
32a	Plastic Y
32b	It is lighter than glass and plastic X.

33a	Frog
33b	D
33c	They are grouped by their outer coverings.

34a (i)	D
(ii)	A
(iii)	B
(iv)	C
34b	fertilisation
34c	It will become a fruit

Qn No.	Answers
35a	Contract, relax
35b	Knee joint.

36a



36b When the mouth of the bottle is sealed or covered, air in the bottle cannot escape. Since air takes up space, water cannot enter the bottle to take the space of the air.

37a The temperature dropped.

37b The water gained heat and evaporates, hence cooling down the air inside the tube.

37c It is to act as a control to prove that without water added, the temperature in the cardboard tube will not change.

38a 2cm

38b 20cm

38c The length of the elastic band.

39a A) 200g B) 400g C) 600g, A) 300g

39b The effort needed to lift the load using a fixed and movable pulley is less than that of the load.

40a Magnetic force can only pass through non-magnetic materials, hence this allows the magnet in set up B to attract the box and move it in the direction indicated by the arrow.

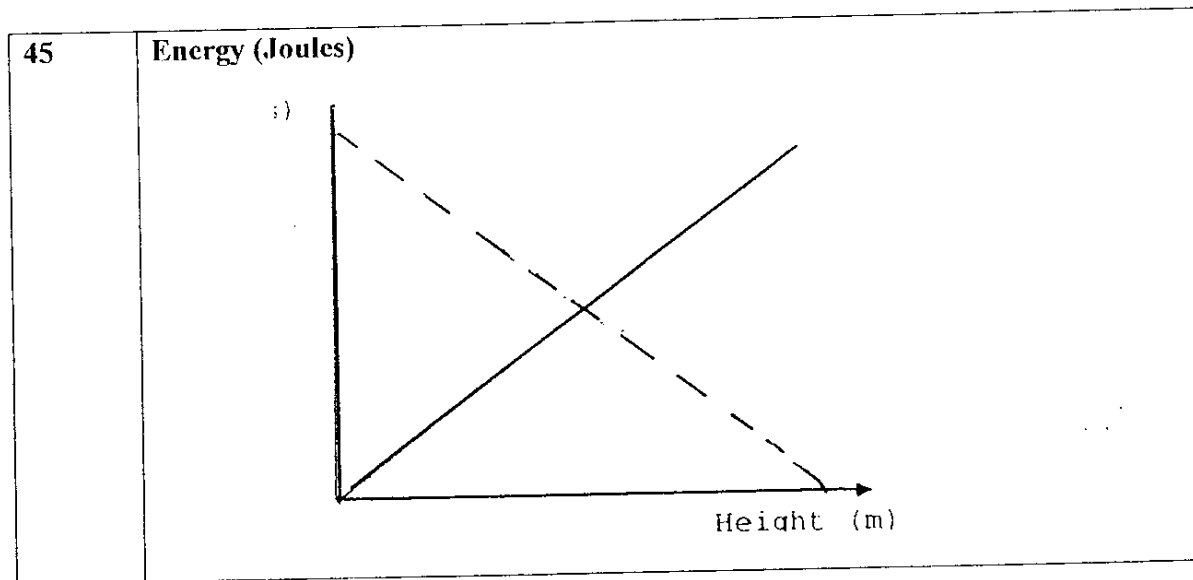
40b Iron

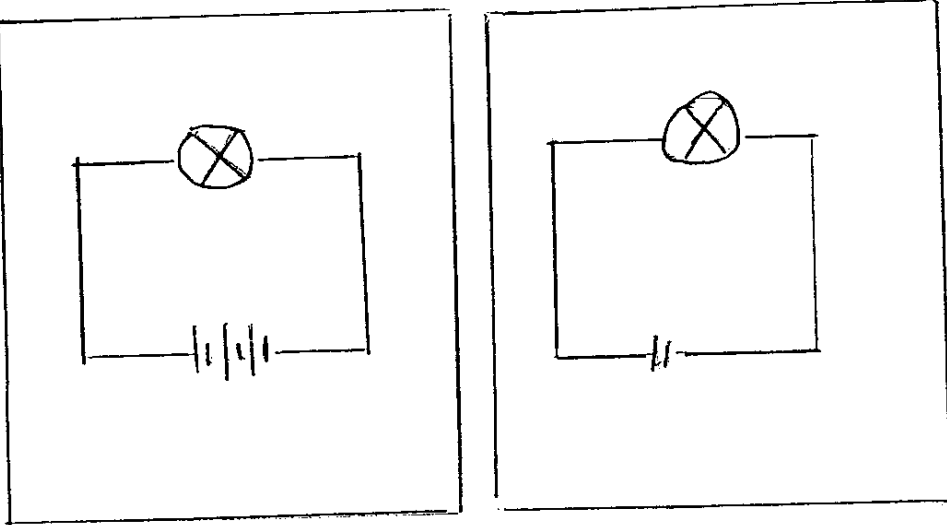
Qn	Answers
41a	Frog and snake
41b (i)	The poison of the insecticides has entered the food web, poisoning the eagle.
(ii)	The population of the animals will decrease due to the poison so there will be lesser food for the eagle.

42a	Turkey A : A turkey's short and sharp claws are for digging the ground for prey.
	Eagle : An eagle's long. Curved and sharp claws are for catching prey.

43a	To see if the colour of light will affect the mass of the plants.
43b	Plants grow the best in blue light and the worst in green light.

44a	C, A, B, D
44b	John is trying to find out if aluminium or plastic is a better conductor of heat.



46a	To find out if the arrangement of batteries will affect the brightness of the bulbs.
46b	<p>c)</p> 
46c	The voltage of the batteries.