RAFFLES GIRLS' PRIMARY SCHOOL

PRELIMINARY EXAMINATION

2010

Your score out of **100** marks		Class	Level
Highest score			
Average score			
Parent's signature			

Name : _____ Index No: _____Class: P 6____

26 August 2010 **SCIENCE** Att : 1h 45min

SECTION A (30 X 2 marks)
For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS) provided.

1 Which of the following statements is/are true about ferns, mushroom and mould?

A They are decomposers.
B They need to grow in soil.
C They reproduce from spores.
D They are able to photosynthesise.

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

2 The table below shows the characteristics of plants W, X, Y and Z.
A tick (√) in the box indicates the characteristic of the plant.

Characteristic \ Plant	W	X	Y	Z
It bears fruit.	√		√	√
It grows on land.		√	√	

Based on the information above, which one of the following shows the correct classification of the plants W, X, Y and Z?

	plants			
	flowering		non-flowering	
	aquatic	land	aquatic	land
(1)	W	Y and Z		X
(2)		X	W	Y and Z
(3)	Z	X	W	Y
(4)	W and Z	Y		X

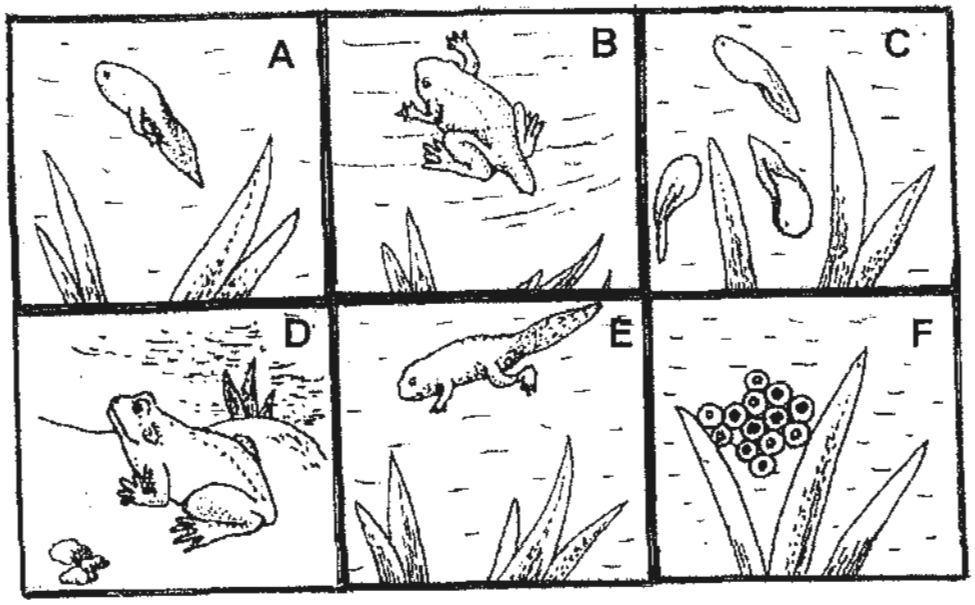
3 The table below describes the stages in the life cycles of four animals, P, Q, R and S.
A tick (√) in the box indicates that the animal fits the description given.

Description	Animal P	Animal Q	Animal R	Animal S
Its young resembles the adult.	√		√	
There are three stages in its life cycle.	√	√		
Its young goes through moulting.		√		√

Which one of the following animals is likely to be a butterfly?

(1) Animal P
(2) Animal Q
(3) Animal R
(4) Animal S

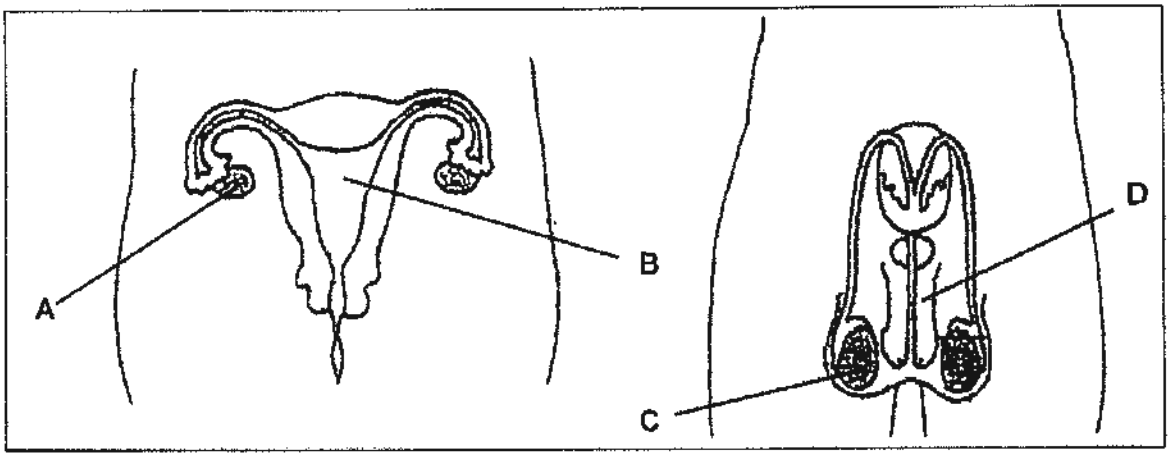
4 The diagram below shows the different phases in the life cycle of a frog. Each phase is represented by the letters A, B, C, D, E and F.



Which one of the following arrangements shows the correct sequence in the development of the frog?

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

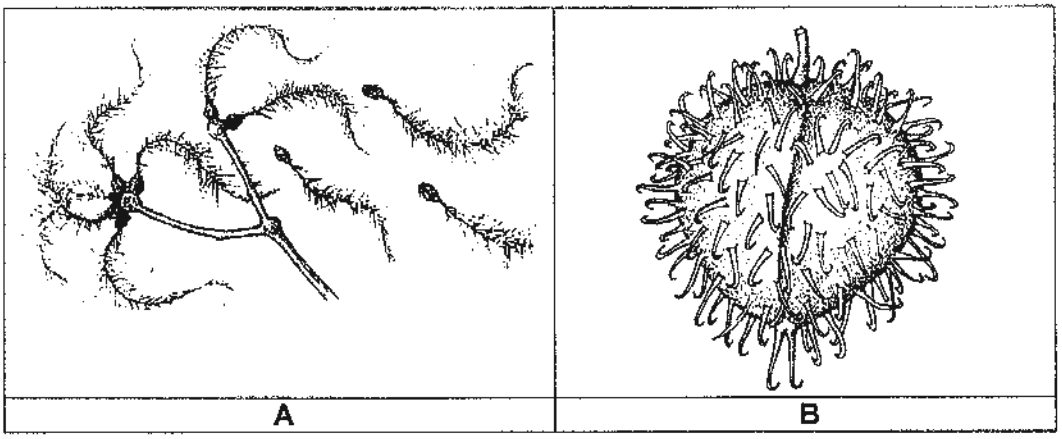
5 The diagrams below show the human reproductive systems.



Which parts of the reproductive systems produce cells that can be fused together to develop into a baby?

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

6 The diagrams below show two seeds / fruits, A and B.



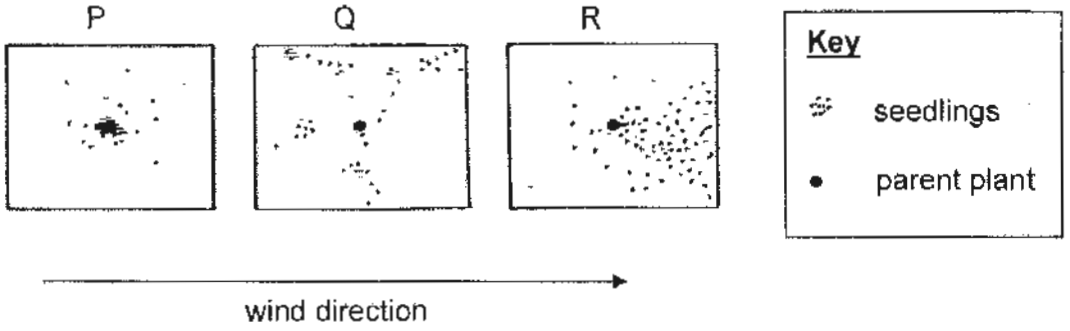
Based on the diagrams, which one of the following shows a correct match of the method of dispersal of the seeds / fruits to its characteristic?

	seed / fruit	method of dispersal	characteristic of seed / fruit
(1)	A	by wind	has feathery structures
(2)	B	by wind	has a wing-like structure
(3)	A	by splitting	has hooks
(4)	B	by animals	is fleshy and juicy

7 The diagrams show the fruits/seeds of three species of plants, X, Y and Z.

X Y Z

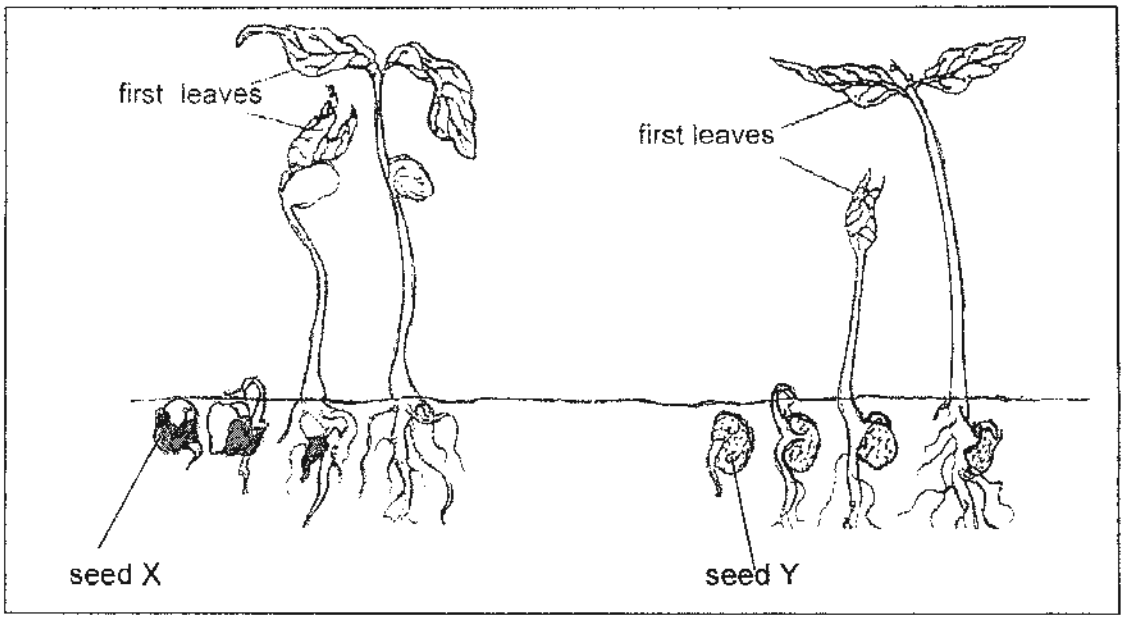
The following diagrams, P, Q, R, show the positions of the parent plants and their respective seedlings over an area of 1km².



Which one of the following represents the positions of the parent plants and their respective seedlings correctly?

	X	Y	Z
(1)	P	Q	R
(2)	P	R	Q
(3)	Q	R	P
(4)	R	Q	P

8 The diagrams below show the stages in the germination of 2 different types of seeds, X and Y.



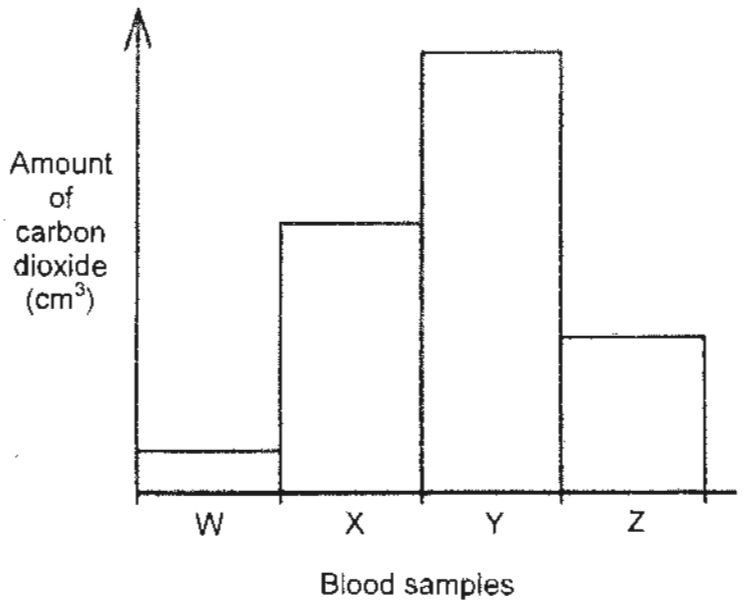
Which of the following statements is/are true about the germination of these seeds?

A The roots appear before the shoots.
B Only the seed leaves of X emerge above the ground when its first leaves appear.
C There is no change in the size of the seed leaves as the seedlings develop.

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

9 Four blood samples W, X, Y and Z were taken from different blood vessels in the body.

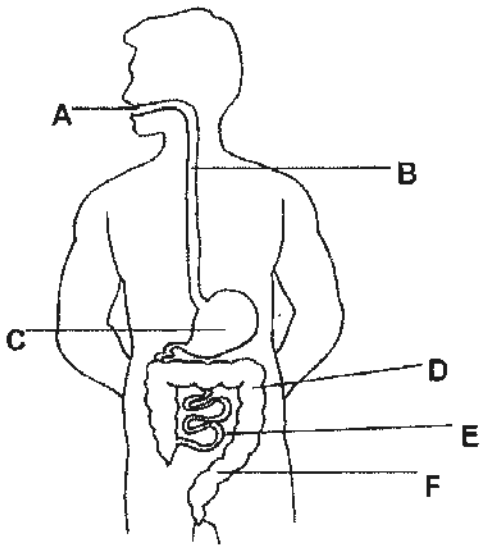
The following graph shows the amount of carbon dioxide present in each of these blood samples.



Which blood sample was most probably taken from the blood vessel carrying blood from the heart to the lungs?

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

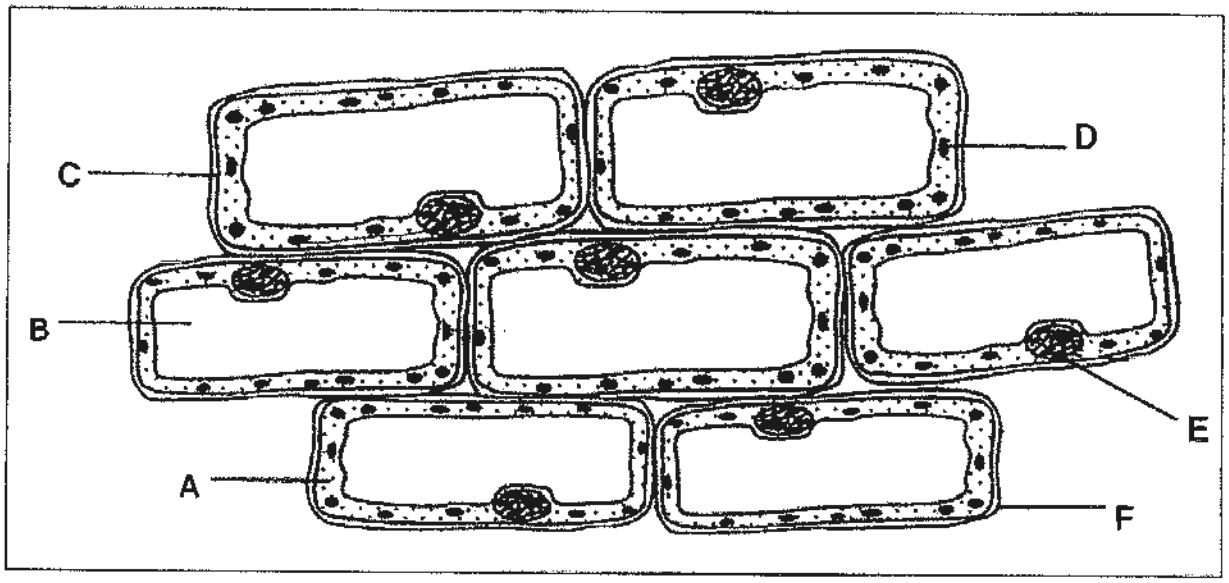
10 The diagram below shows parts of the digestive system of a human.



Which one of the following shows the correct pathway in which food travels through the digestive system before it enters the blood stream?

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

11 Julia observed some cells using a microscope. The cells are shown in the diagram below.



Different parts of the cell are labelled A, B, C, D, E and F.

Which one of the following identifies the parts of the cells correctly?

	where light energy is trapped	controls the entry of substances into the cell	can also be found in animal cells
(1)	A	F	A, C, F
(2)	B	C	B, D, E
(3)	D	C	A, C, E
(4)	D	F	B, E, F

12 Ali conducted an experiment to find out if the addition of fertiliser affects the growth of plant Q.

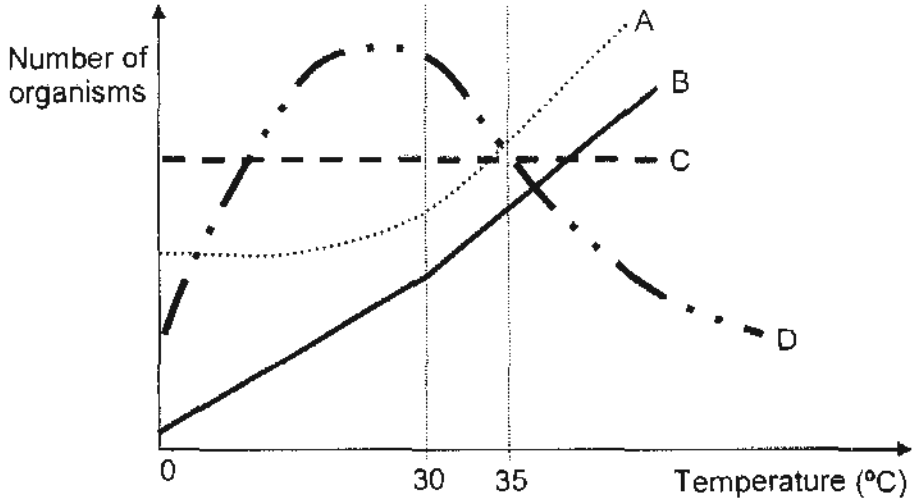
He used two identical pots, X and Y, for his experiment. Pot Y was set up as a control. The variables for his experiment are shown in the table below.

Pot	Amount of fertiliser (g)	Number of plant Q in pot	Number of times the plants were watered per day
X	15	6	2
Y	A	B	C

Which one of the following gives the most suitable set of values for Ali to conduct a fair test?

	A	B	C
(1)	0	2	3
(2)	0	6	2
(3)	15	1	2
(4)	15	6	1

13 The graph below shows the effect of temperature on the populations of four different organisms, A, B, C and D.

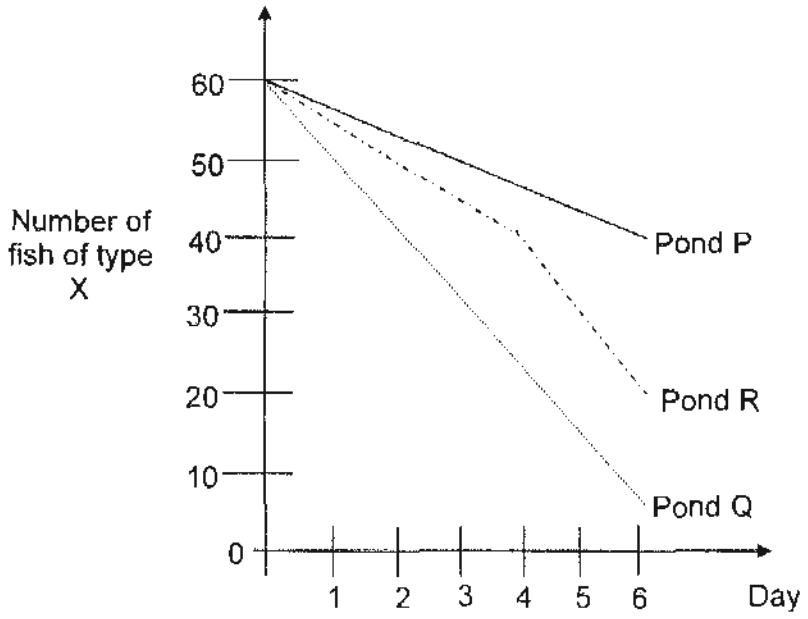


Which of these organisms will continue to thrive when the temperature of the environment is between 30°C to 35°C?

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

14 There were some organisms in Pond P, Q and R. James introduced 60 fish of type X into each pond, P, Q and R. He counted the number of fish that was still alive in each pond over a period of 6 days.

The graph below shows the changes in the population of fish of type X in pond P, Q and R.

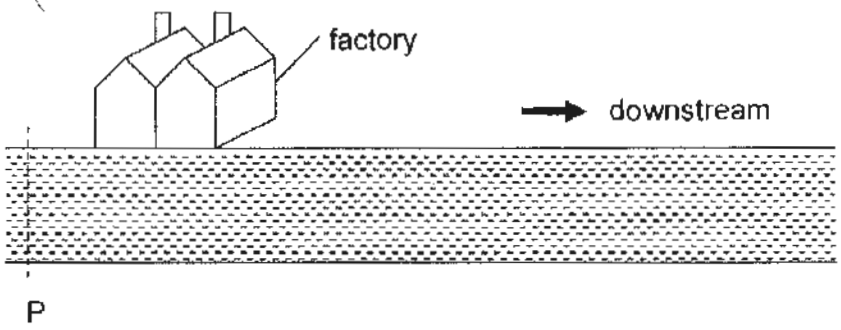


What possible conclusion(s) could James make about the three ponds?

A Pond P had the most number of fish of type X on day 6.
B Pond R had more predators of fish of type X than Pond Q.
C Ponds P and R had fewer fish of type X than Pond Q on day 3.
D Pond Q had more prey than Pond P for the fish of type X to feed on.

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

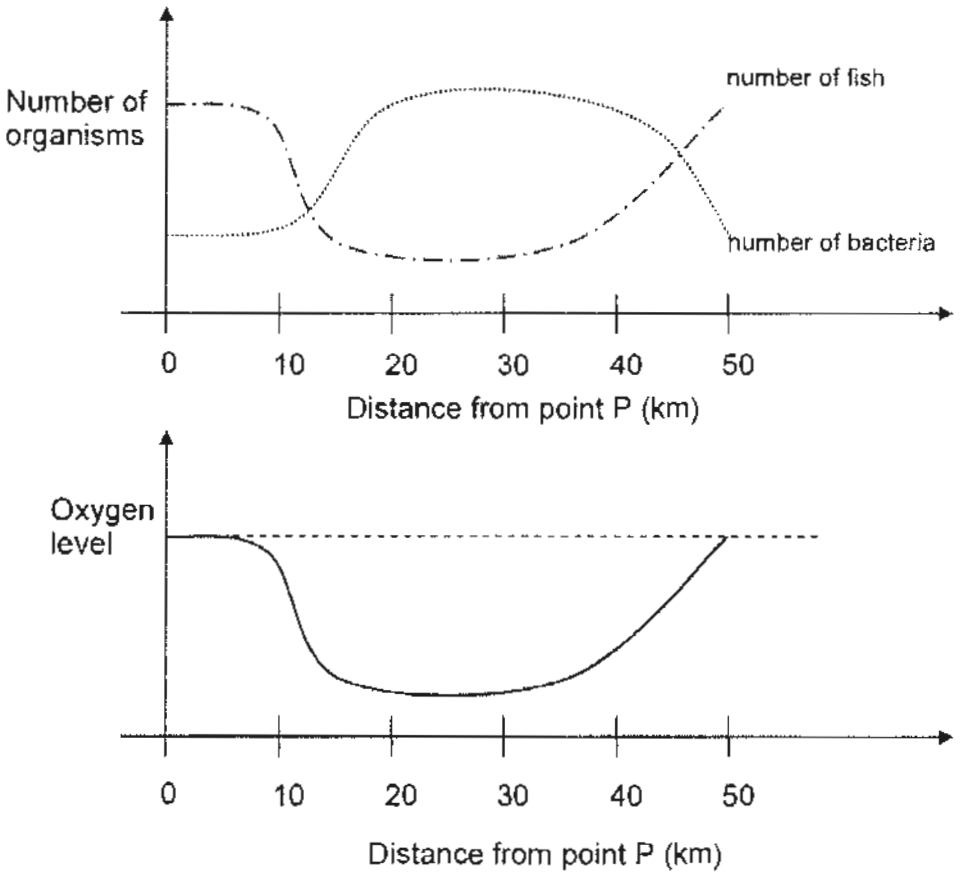
15 The picture below shows a river flowing downstream towards the sea.



Situated near the river is a factory which is suspected to be a source of water pollution that causes a particular type of fish to die.

Water samples are collected at various points in the river starting from point P.

The graphs below show the oxygen level present in the river at various points in the river starting from point P and how the oxygen level in the river can affect the population size of the fish and the bacteria.



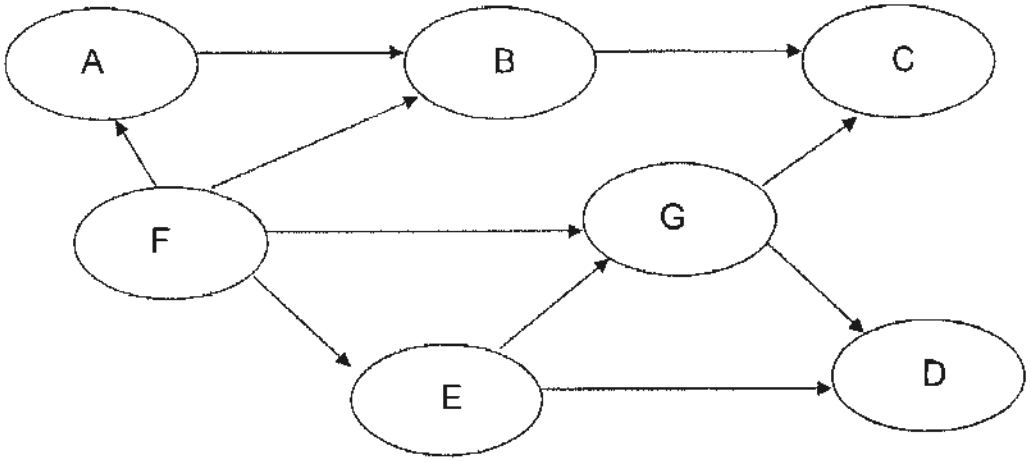
15

Based on the graphs, which of the following is/are true?

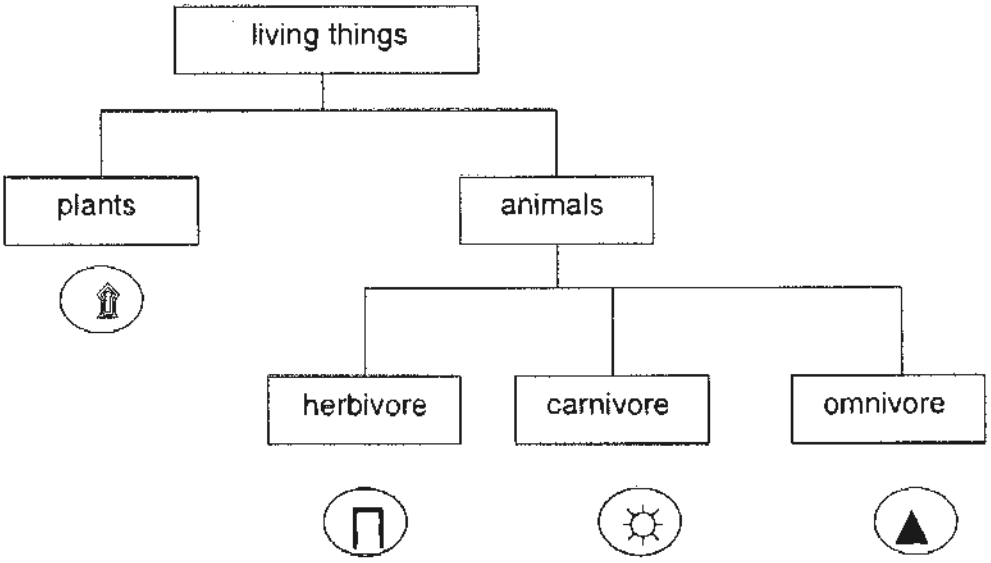
A The river became polluted only after 20 km.
B The oxygen level in the river was returned to its original level at 50 km.
C Pollution caused the number of bacteria to increase, hence reducing the oxygen level in the river.

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

16 The food web shows the food relationships among 7 organisms, A, B, C, D, E, F and G.



Based on the information above, organisms A, B, C, D, E, F and G are classified as shown below.

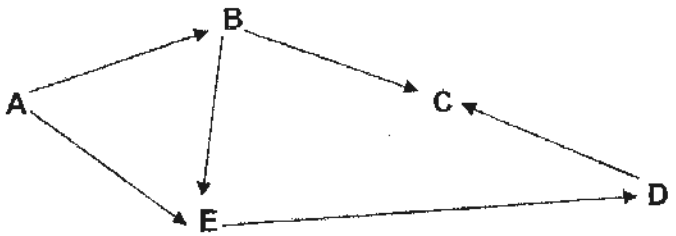


Which one of the following identifies the organisms for each of these symbols, 🏛, ⊓, ☼ and ▲, correctly?

	🏛	⊓	☼	▲
(1)	A	E	D	B
(2)	E	B	C	G
(3)	F	A	D	C
(4)	F	E	C	G

15

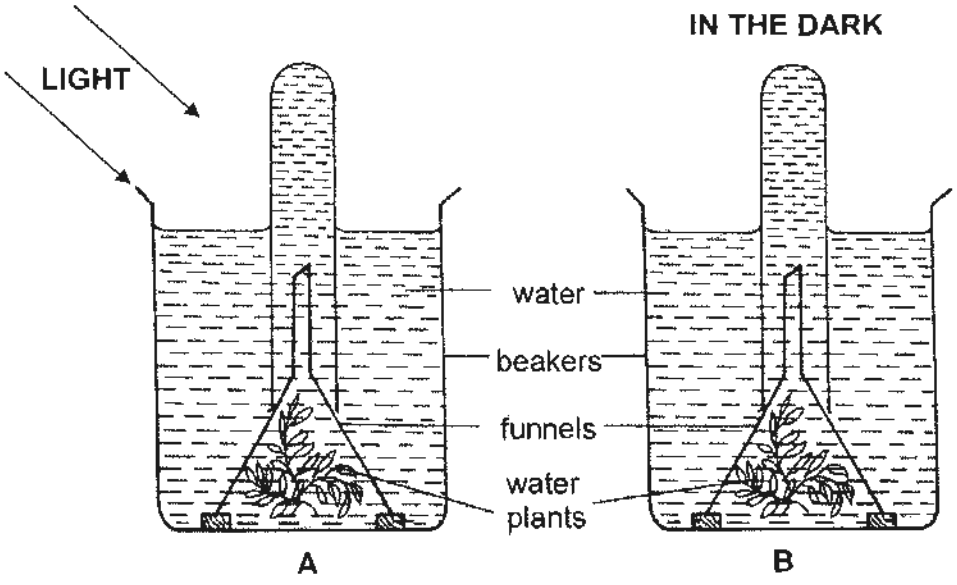
17 The diagram below shows a food web involving 5 organisms, A, B, C, D and E.



Which of these organisms is/are **both** a prey and a predator?

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

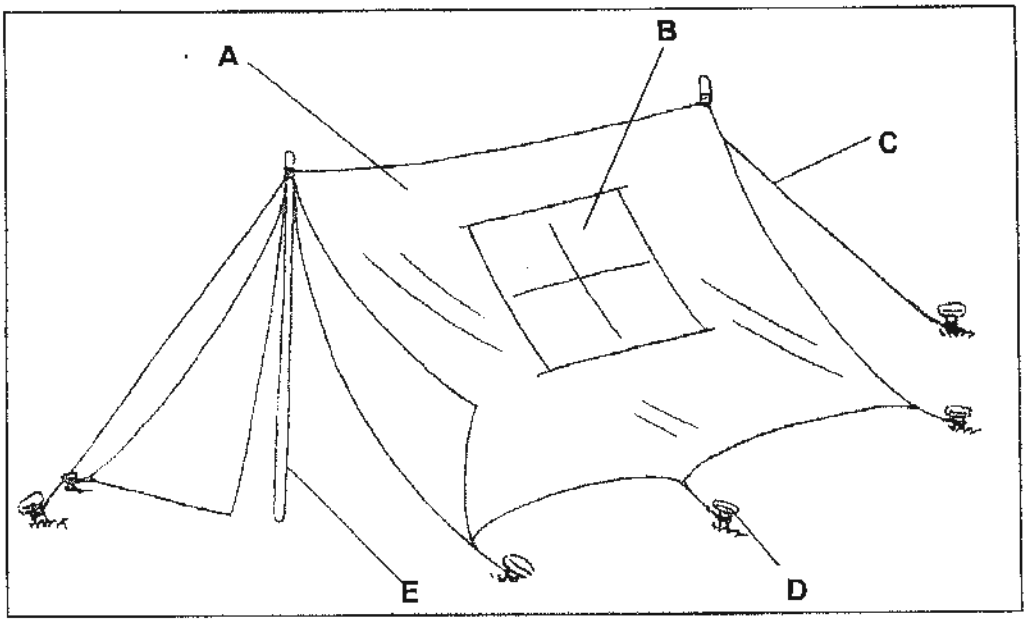
18 Wenwu set up an experiment to demonstrate how light affects the rate of photosynthesis of plants. He prepared set-ups A and B as shown below.



Which one of the following should Wenwu do to obtain his results?

(1) Add more water plants to set-up B
(2) Place set-up A in the cupboard for two days
(3) Measure the temperature of water in both set-ups
(4) Compare the remaining water left in the test tubes after two days

19 Some pupils in Mrs Wong's class came up with the following sketched design for their camping tent which included a 'window', B.



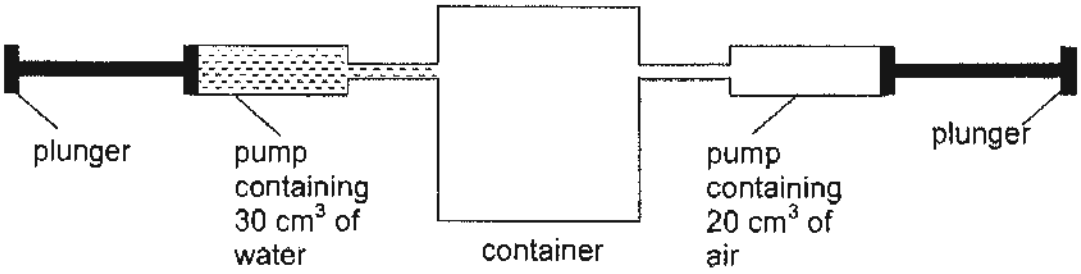
They chose these five different materials based on their properties indicated in the table below.

material	properties
P	• waterproof • transparent
Q	• hard • durable • does not rust
R	• waterproof • is not transparent
S	• strong • flexible
T	• hard • strong

Which one of the following shows the best material used for each labelled part of the tent?

	A	B	C	D	E
(1)	P	R	Q	S	T
(2)	Q	P	R	T	S
(3)	R	P	S	T	Q
(4)	S	Q	P	R	T

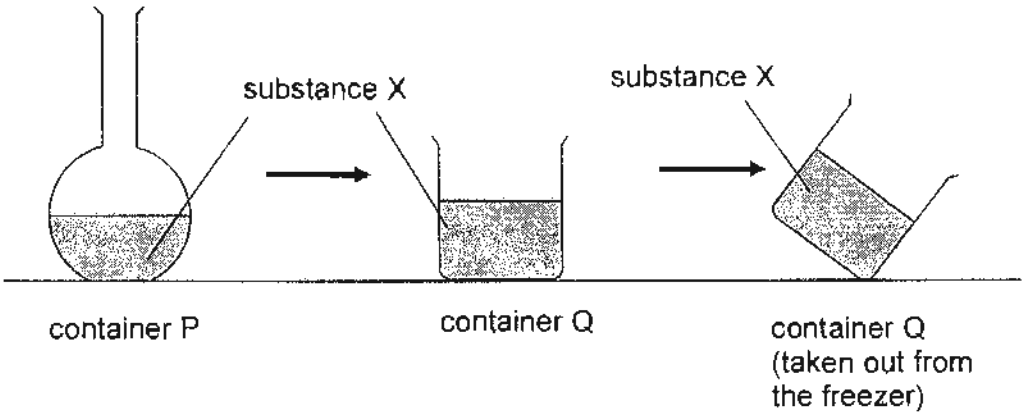
20 Two identical syringes were fitted to a container with a capacity of 150 cm^3 as shown in the diagram below.



What was the total volume of air in the container when the plungers were completely pushed into the pumps?

(1) 100 cm^3
(2) 120 cm^3
(3) 150 cm^3
(4) 170 cm^3

21 Chloe transferred substance X from container P to container Q. Then she placed container Q in the freezer until substance X changed its state. Next, Chloe removed the container Q from the freezer and tilted it as shown in the diagram below.

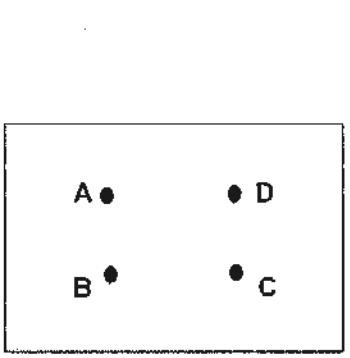


Based on the information above, what could substance X possibly be?

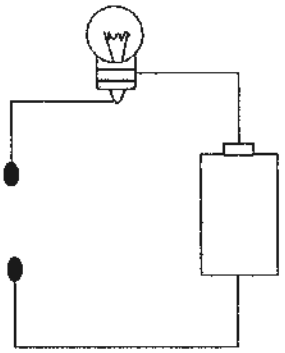
A oil
B sand
C water

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

22 The circuit card shown below has a metal thumbtack at each point, A, B, C and D. Some of the thumbtacks are connected by wires behind the card.



circuit card



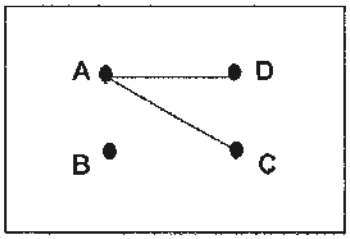
circuit tester

A circuit tester is used to test the circuit cards. The results are recorded in the table below.

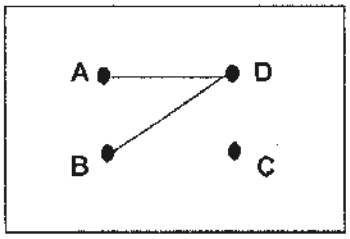
Circuit tester connected to thumbtacks at	Does the bulb light up?
A and C	yes
B and D	no
B and C	yes

Which one of the following circuit cards shows the correct connections of the wires?

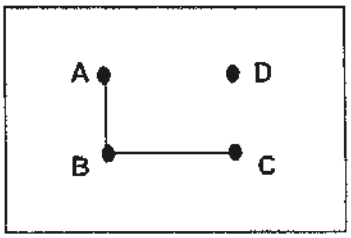
(1)



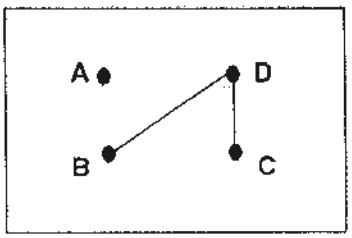
(2)



(3)

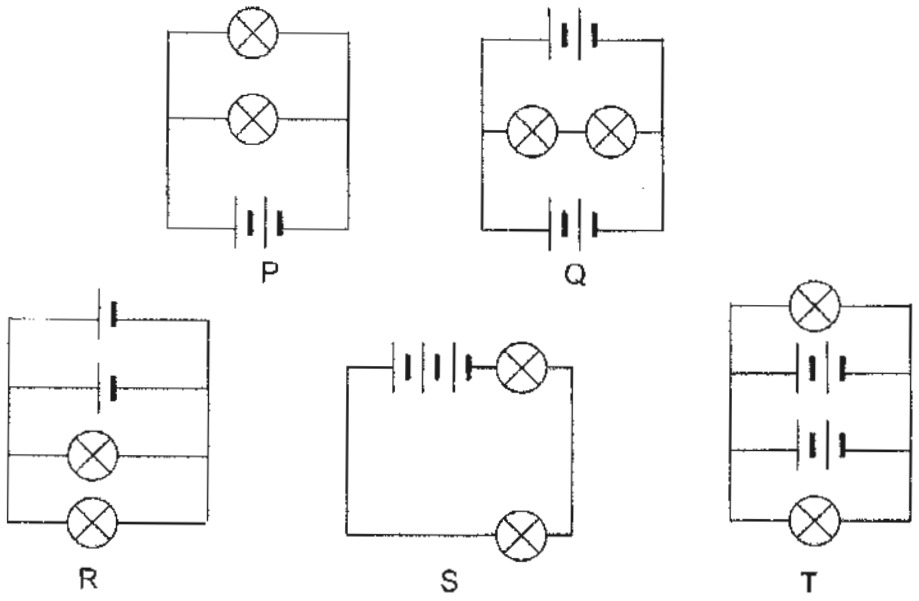


(4)



~9

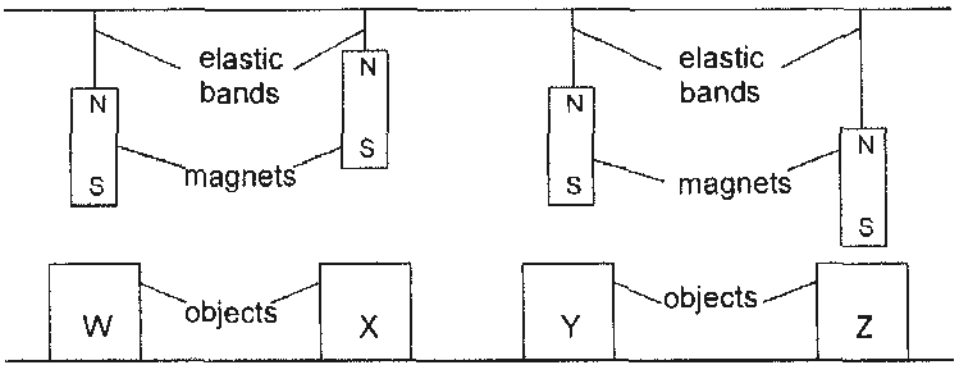
23 Sandy wanted to find out if the arrangement of dry cells in a circuit affects their brightness. She set up the following circuits using identical components.



Which of these two circuits should Sandy use to ensure a fair test?

(1) P and R
(2) P and S
(3) Q and S
(4) Q and T

24 Alan placed objects W, X, Y and Z below identical magnets, which were attached to identical elastic bands, as shown in the diagrams below.

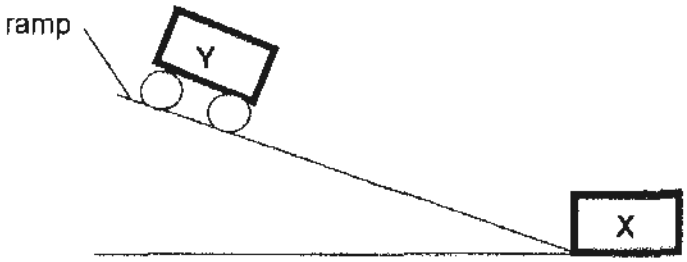


Based on the information above, which of the following statements is/are true?

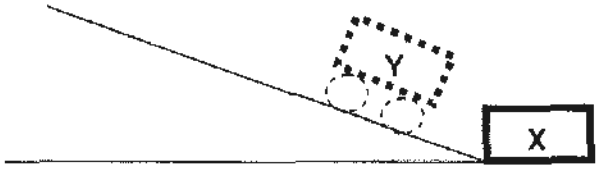
A Z was a magnet.
B W and Y were not made of magnetic materials.
C Unlike poles of X and the magnet were facing each other.

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

25 Object X was placed at a fixed point at the bottom of the ramp with a rough surface.



Object Y, with wheels attached to it, was released from the top of the ramp. It rolled down the ramp and stopped close to object X suddenly as shown in the diagram below.

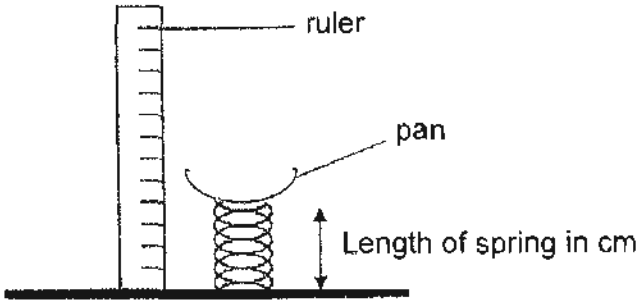


Which of the following could possibly explain why Y stopped close to X?

A Friction prevented X from moving forward.
B Like poles of magnets X and Y were facing each other.
C Gravity acting on X was greater than gravity acting on Y.
D Friction prevented Y from reaching the bottom of the ramp.

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

26 The original length of the spring was 7 cm. John used the spring to make a weighing machine as shown in the diagram below.

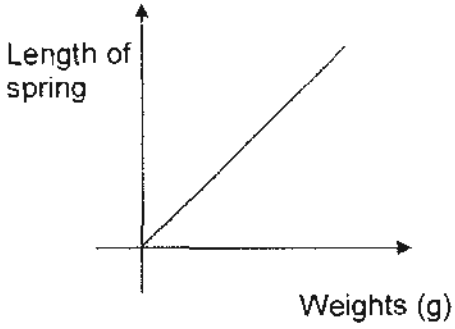


John added weights, 10 g at a time, to the pan and measured the length of the spring. Each time a weight was added, he measured the length of the spring.

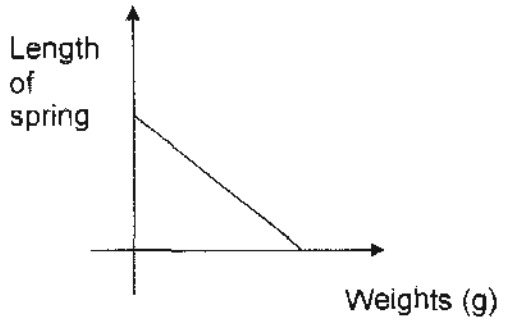
Next, he removed the weights, one at a time, till all the weights were removed. He also measured the length of the spring each time a weight was removed.

Which one of the following graphs shows the results of John's experiment?

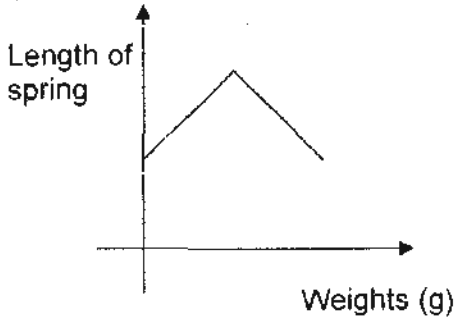
(1)



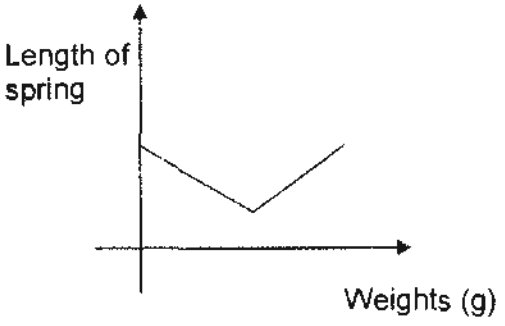
(2)



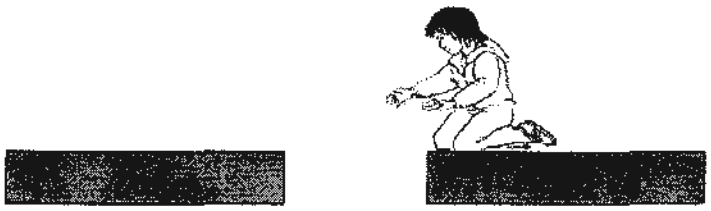
(3)

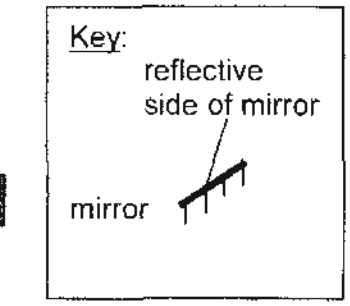


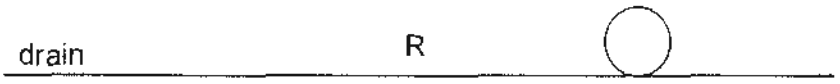
(4)



27 Sally dropped her ball that glowed in the dark into the deep drain. She wanted to retrieve her ball but she could not see it.





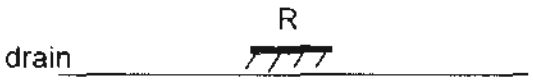


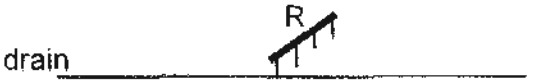
Sally lowered a mirror into the drain and placed it at position R.

At which angle should Sally place the mirror to see the ball in the drain?

(1)

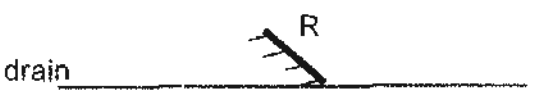
(2)



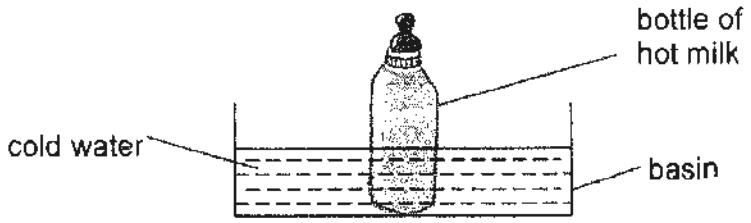


(3)

(4)

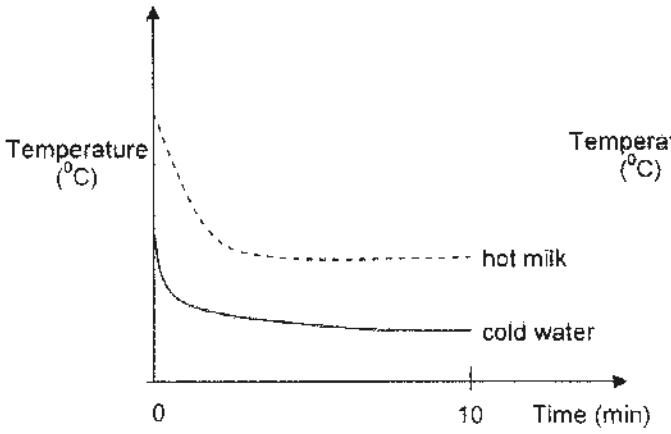


28 Mrs Tan placed a bottle of hot milk into a basin of cold water as shown in the diagram below.

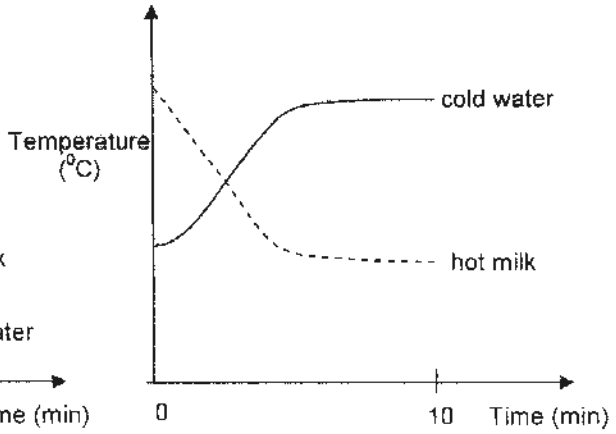


Which one of the following graphs shows the temperatures of the hot milk and the cold water after ten minutes?

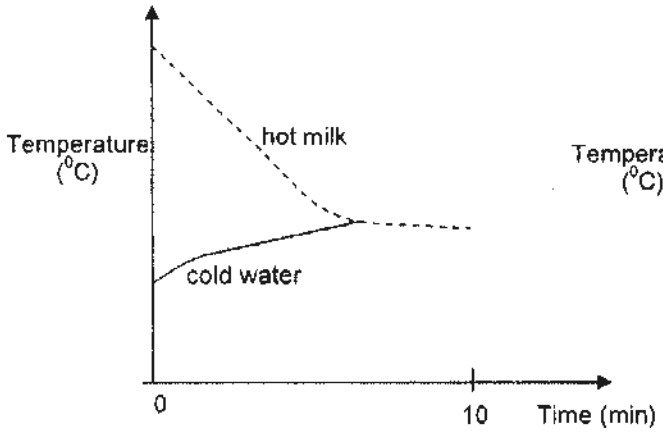
(1)



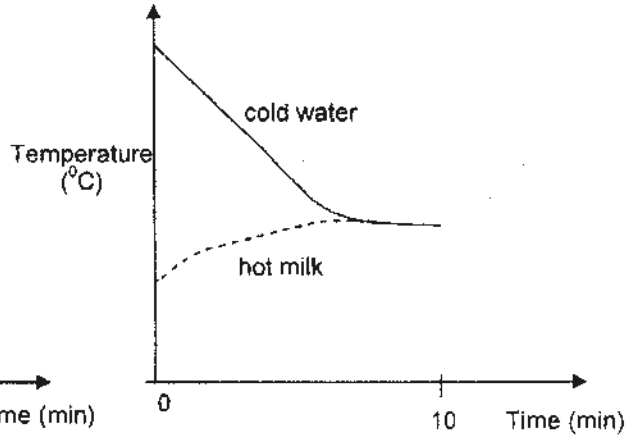
(2)



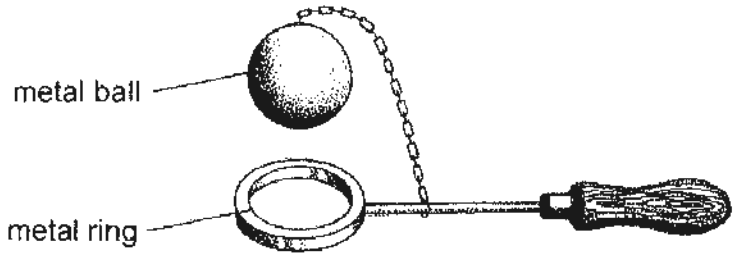
(3)



(4)



29 John wanted to put the metal ball to pass through the metal ring. However, the size of the metal ball was bigger than the metal ring.

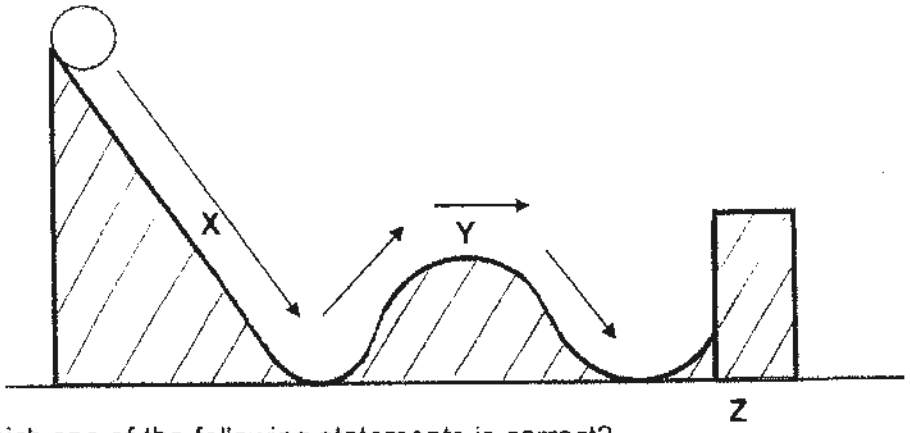


What should John do to allow the metal ball to pass through the metal ring?

A Heat the ball over a flame
B Heat the ring over a flame
C Dip the ball into the cold water
D Dip the ring into the cold water

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

30 Sally released a tennis ball from the top of ramp X. The ball rolled downwards, travelled up and down ramp Y and was finally stopped by a wooden block Z as shown in the diagram below.



Which one of the following statements is correct?

(1) When the ball was stopped by Z, its energy was destroyed.
(2) When the ball was released, it gained gravitational potential energy.
(3) The ball gained more kinetic energy when it was rolling down X than when it was rolling down Y.
(4) There was no friction between the surfaces of the ball and the ramps when the ball was rolling down the slope.

Name: _____ Index No: _____Class:P6_____ 40

SECTION B (40 marks)
For questions 31 to 44, write your answers clearly in the spaces provided.

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

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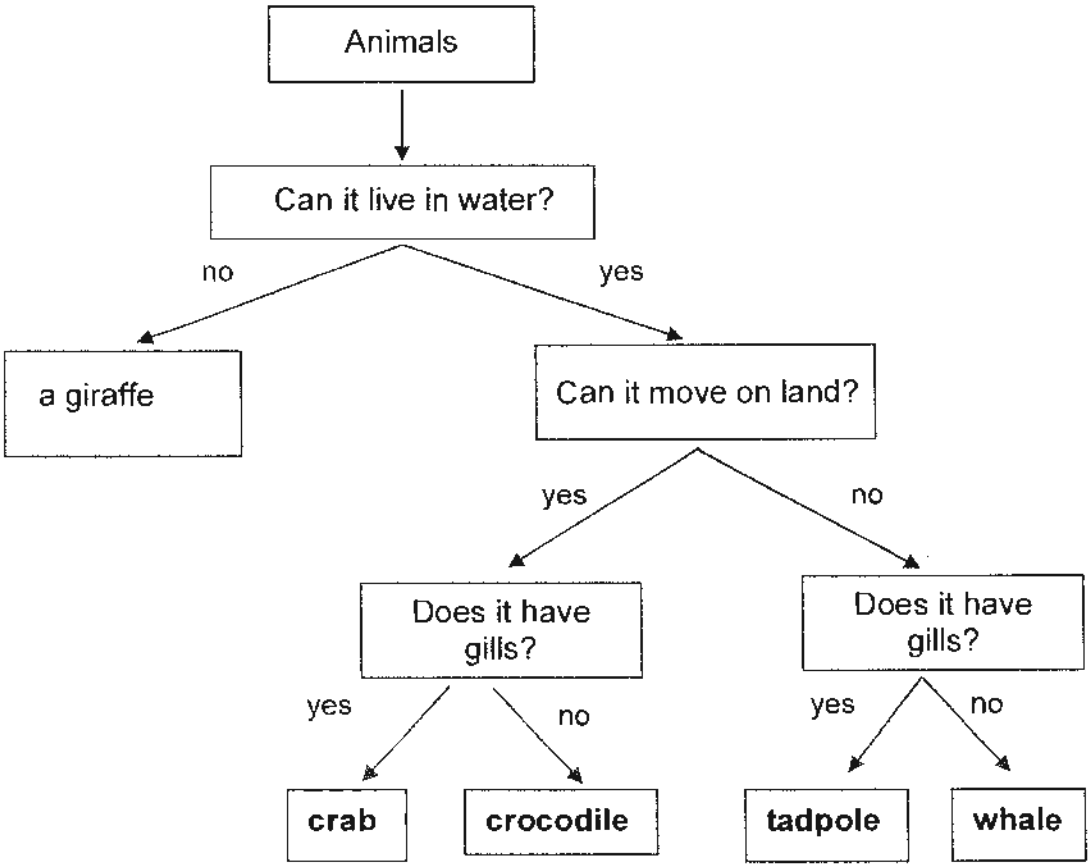
31 The flow chart below classifies some organisms.



Based on the information above, answer the following questions:

(a) State a similarity between 'crab' and 'whale'. [1]

_____

(b) List two characteristics of the crocodile. [2]

CHARACTERISTIC 1	
CHARACTERISTIC 2	

32 The table below shows some characteristics that Jason and his family members possess.

family member	characteristics		
	eye colour	eyelids	hair length
Jason's grandfather	black	single	long
Jason's grandmother	brown	double	short
Jason's father	brown	double	short
Jason's mother	brown	single	long
Jason	black	?	long

Based on the information above, answer the following questions:

(a) Would Jason have single or double eyelids?
Explain your answer. [1]

_____

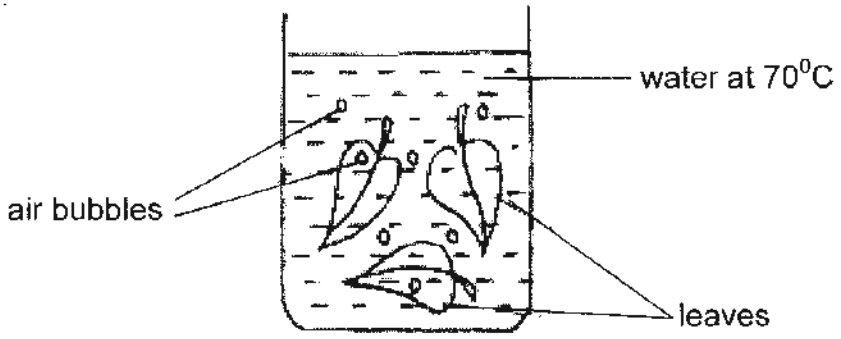
_____

(b) Why does Jason have black eyes although his parents have brown eyes? [1]

_____

_____

33 Michelle placed a few leaves in a beaker of water at 70°C. After a short while, she observed some air bubbles formed on both sides of each leaf.



(a) Name the part of the leaf where the bubbles escaped from. [1]

_____

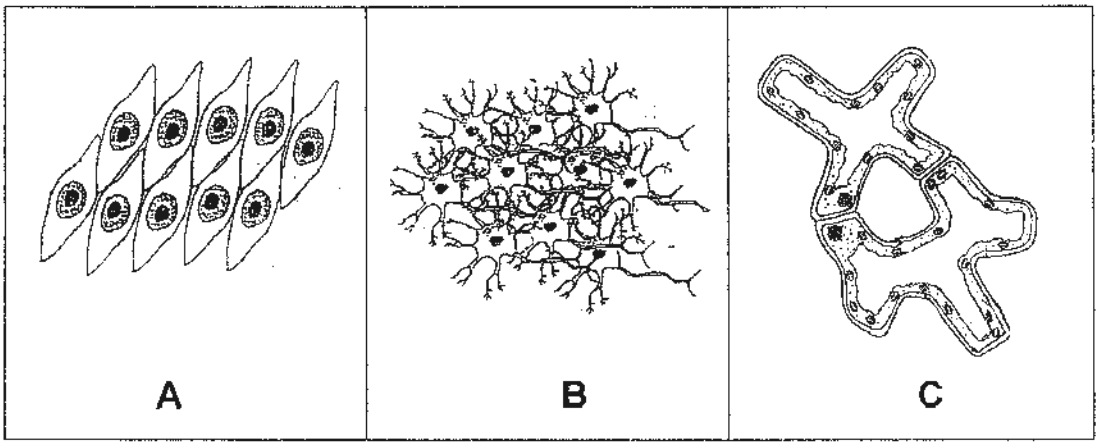
(b) Michelle observed that there were more bubbles on the underside of the leaves.

What could she conclude from her observation? [1]

_____

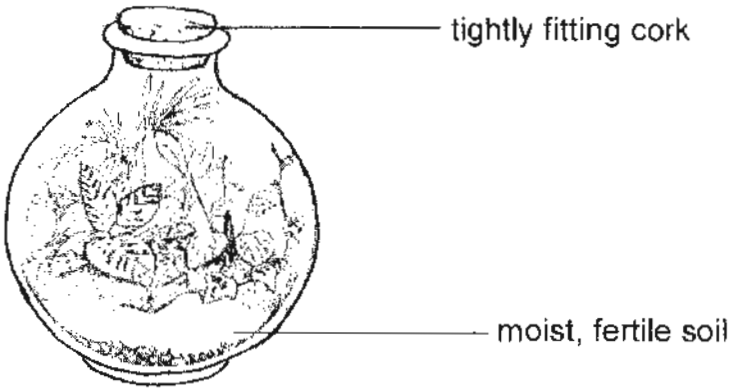
_____

34 The diagram below shows three different groups of cells.



Which of these cells (A, B and/ or C) is a /are plant cell(s)?
Give a reason for your answer. [2]

35 Kimberly set up a 'bottle garden' and placed it outside the classroom near the windows.



(a) Kimberly did not water the 'bottle garden'.

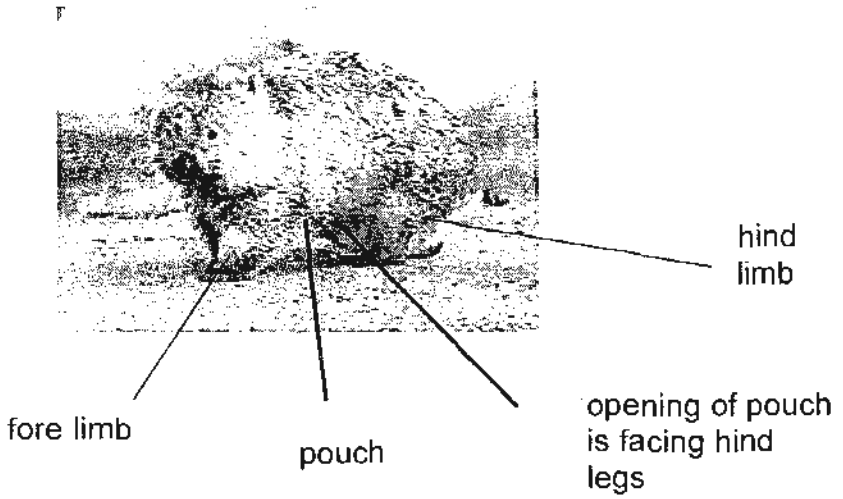
Explain why the plants in the 'bottle garden' were still able to obtain a continuous supply of water. [2]

Kimberly introduced a carnivorous animal X in the bottle garden and it continued to survive for the next 3 days.

The bottle garden supplied sufficient water for animal X and the plants.

(b) Explain how animal X and the plants were interdependent on each other. [2]

36 The picture below shows a wombat.



Wombats are Australian marsupials. They dig and burrow into the ground. The females carry their young in pouches which face backwards.

(a) Explain how having such a pouch helps its young when the wombat burrows into the tunnel. [1]

_____

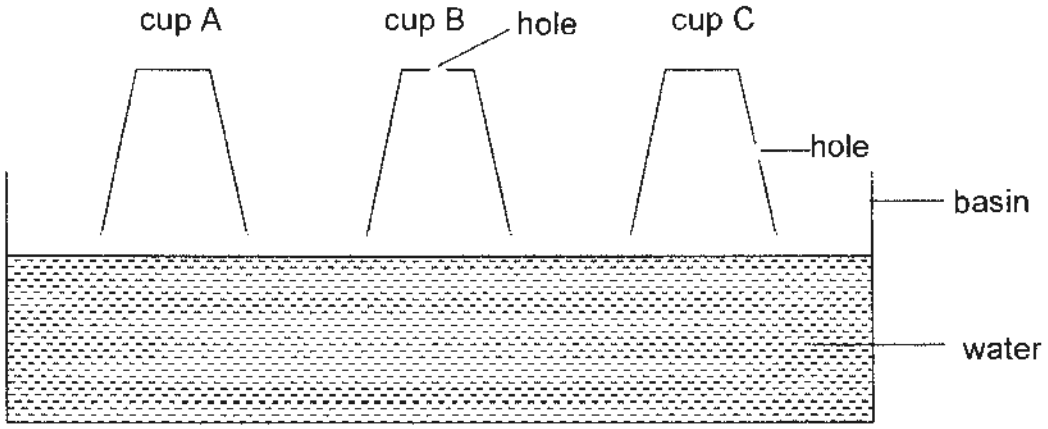
_____

_____

(b) Besides its rodent-like front teeth, name **ANOTHER** structural adaptation a wombat has to enable it to dig tunnels or burrow easily. [1]

_____

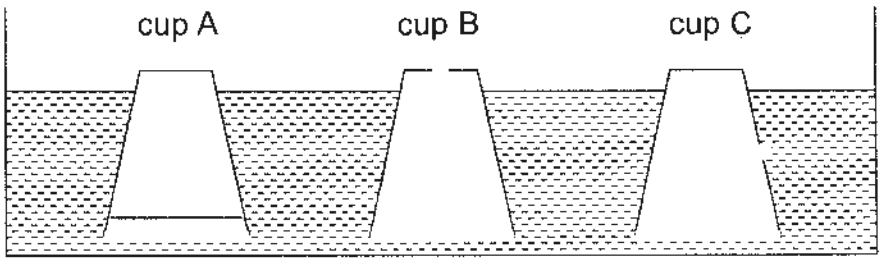
37 Susan carried out an investigation on the property of air using three identical plastic cups, A, B and C, and a basin of water. A hole was made in each of cups B and C.



The cups were pushed vertically downwards into the basin of water as shown in the diagram below.

(a) Complete the diagram by **drawing** in the correct water levels in cups B and C when they were held in the positions as shown below.

The water level in cup A has been drawn for you. [2]

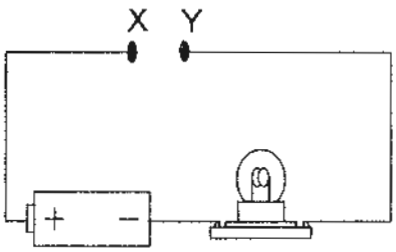


(b) Explain your answer in part (a) for cup B. [2]

_____

_____

38 The diagram below shows a circuit. The table shows what happens to the light bulb when four different rods, A, B, C and D, were connected, one at a time, to the contact points X and Y.



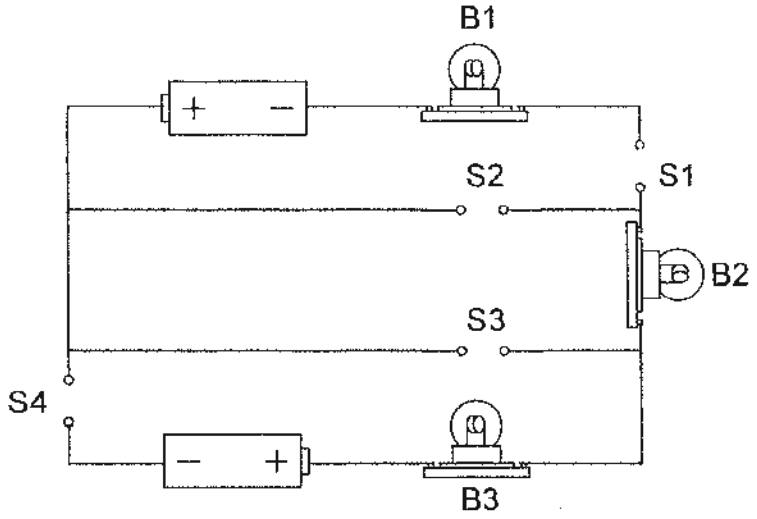
rod across XY	Did the bulb light up?
A	yes
B	no
C	no
D	yes

(a) What can be said about the rods from the results above? [1]

_____

_____

In another experiment, the same four rods, A, B, C and D, were placed at different positions, S1, S2, S3 and S4, in the following circuit.



(b) Complete the following table.
Put a tick (✓) in the appropriate box to show that the bulb lit up.
[1]

position where each rod was placed				bulbs		
S1	S2	S3	S4	B1	B2	B3
B	D	C	A			

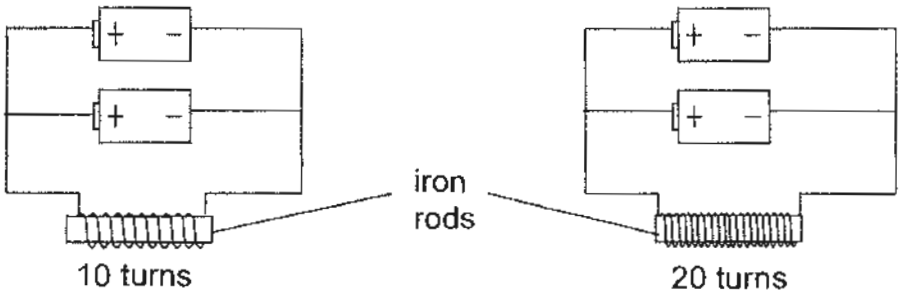
(c) All the 3 bulbs, B1, B2 and B3, lit up.

Write letters A, B, C or D in each appropriate box below.
Each letter can be written **ONCE** only. [1]
A tick (√) in the box shows that the bulb lit up.

position where each rod was placed				bulbs		
S1	S2	S3	S4	B1	B2	B3
				✓	✓	✓

39 An iron rod becomes a magnet when it is placed in a coil of wire connected to the dry cells.

Sally wanted to find out whether the number of turns of the coil affects the strength of a magnet. Using two identical iron rods, some identical wires and some identical dry cells, she set up two arrangements as shown below.



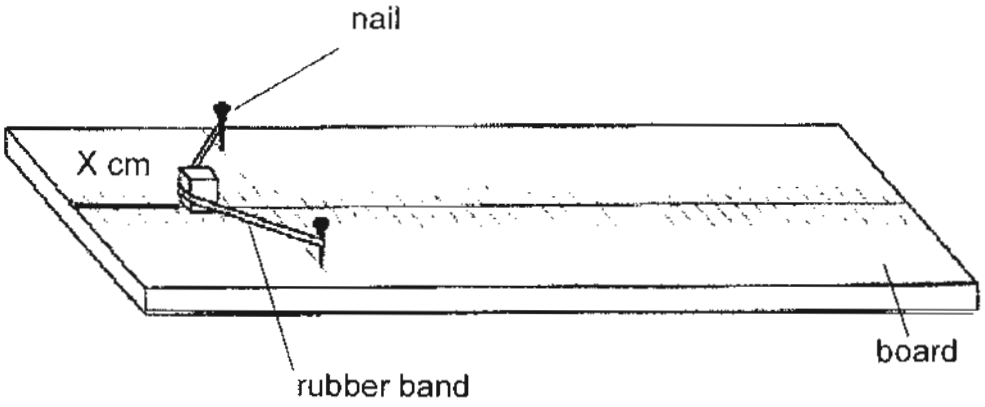
arrangement A arrangement B

(a) What should Sally measure to find out the strength of the magnetised iron rod in each arrangement using **ONLY** a paper clip and a ruler? [2]

(b) Besides increasing the number of turns of coils, suggest **ANOTHER** method to increase the strength of the magnetised iron rod for each arrangement. [1]

(c) How can Sally improve the reliability of her results? [1]

40 Karen stretched a strong rubber band between 2 nails on a board as shown below.



She pulled back a wooden cube against the rubber band. When she released it, the cube shot forward. She did this several times, each time pulling the rubber band back at a different distance.

She recorded her results in the table below.

length of X (cm)	2	3	4	5	6
distance the cube travelled (cm)	63	55	42	(a)	15

(a) Predict the distance moved by the cube when length of X was 5 cm. [1]

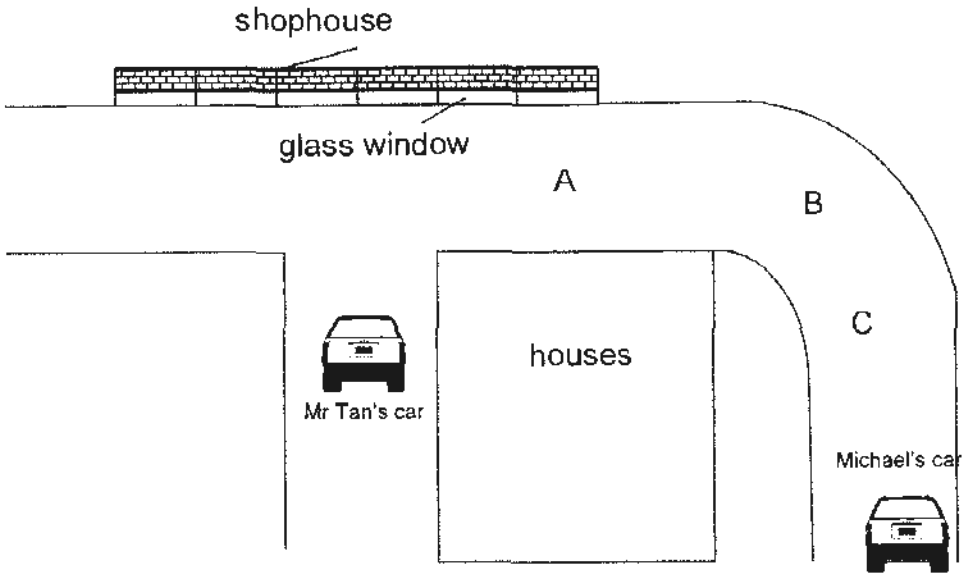
_____

(b) If Karen were to repeat the experiment using a bigger and heavier cube of the same material, predict the relationship between the mass of the cube and the distance it would travel. [1]

_____

_____

41 A row of shophouses with glass windows were built opposite the road junction.



Michael is driving his car round the bend. The houses blocked Mr Tan's view of Michael's car round the bend.

(a) At which position, A, B or C, will Michael's car be when Mr Tan first sees it? [1]

_____

(b) Explain how the glass windows on the shophouses help Mr Tan to see Michael's car. [2]

_____

_____

(c) State the property of light illustrated in the above situation. [1]

_____

42 A company made a new material called 'Keepwarm' to make winter coats.

A scientist tested 'Keepwarm' to find out how well it can retain heat. She tested 'Keepwarm' and three other materials. She poured 50 mℓ of water in each of the 4 identical beakers and wrapped each beaker with a different material.

She recorded her observations in the table below:

time (minutes)	temperature of water (°C) in beaker wrapped with			
	material A	material B	material C	material D
0	80	80	80	80
20	68	60	58	62

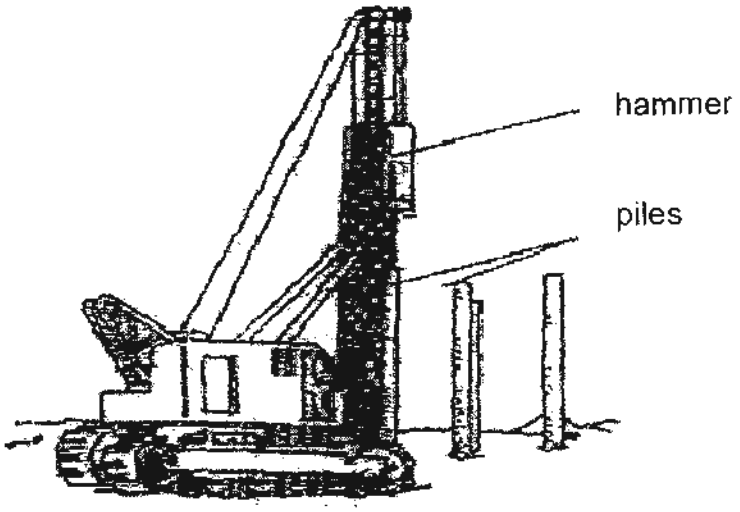
Based on the information above, answer the following questions:

The scientist said that 'Keepwarm' was the best material to make coats.

Which material, A, B, C or D, was 'Keepwarm'?

Explain why the scientist made the above comment. [2]

43 The diagram below shows a piling machine used in construction sites. A hammer drives piles into the ground.



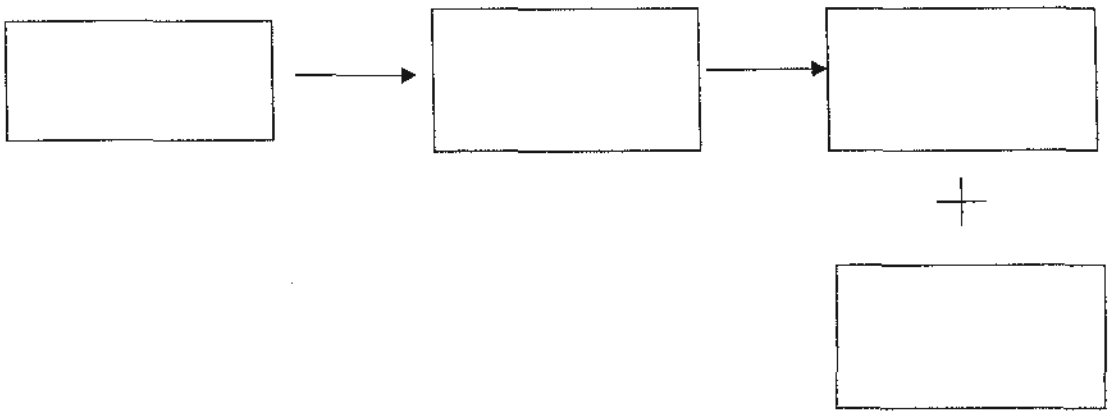
(a) State the relationship between the height from which the hammer is dropped and the depth of the pile driven into the ground. [1]

_____

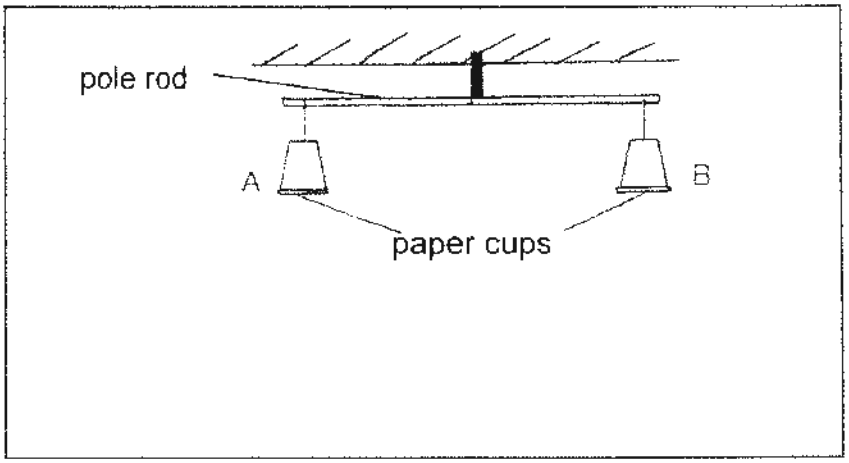
_____

_____

(b) State the energy change that takes place when the hammer is dropped on the pile. [2]

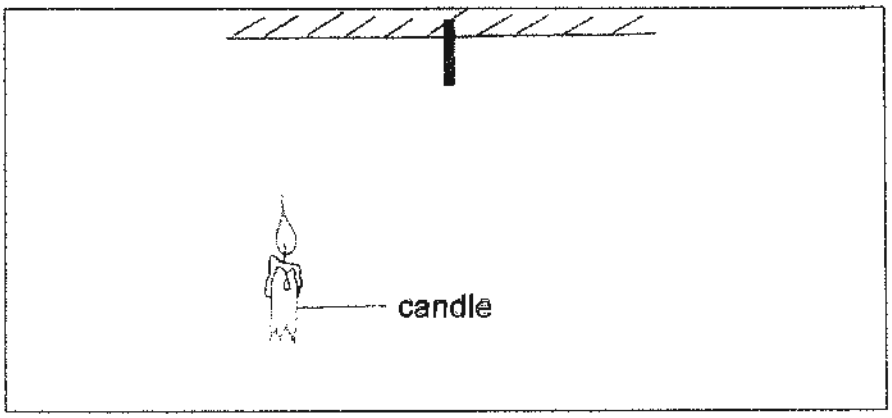


44 Mathilda balanced two paper cups, A and B, on a rod as shown in the diagram below.



Next, she placed a lighted candle directly below paper cup A and made some observations.

(a) In the space below, **DRAW** how the set-up would look like when the candle was lit. [1]



(b) Complete the boxes below.
Trace the energy transfer that took place from the burning candle.
[2]

candle	burning flame	rising hot air	paper cup
(i)	(ii)	(iii)	(iv)

- END OF PAPER -

Setters: Mrs Christina Lim, Mdm Lim Sok Yen, Mrs Martha John and Miss Lee Suan Khim

RAFFLES GIRLS' PRIMARY SCHOOL

2010 PRIMARY 6 SCIENCE PRELIMINARY ANSWER KEY

Setters : ***Mdm Lim Sok Yen (Section A), *Mrs Christina Lim (Section B), Mrs Martha John, Ms Lee Suan Khim**

* compiler

SECTION A (30 X 2 marks)

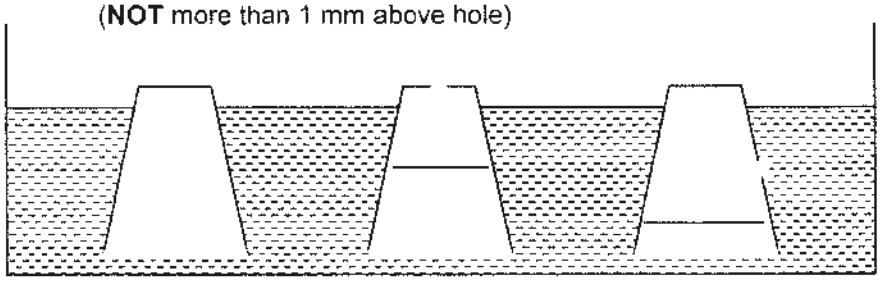
1.	**1**	6.	**1**	11.	**3**	16.	**4**	21.	**3**	26.	**2**
2.	**4**	7.	**3**	12.	**2**	17.	**2**	22.	**3**	27.	**4**
3.	**4**	8.	**3**	13.	**1**	18.	**4**	23.	**1**	28	**3**
4.	**2**	9.	**3**	14.	**1**	19.	**3**	24.	**2**	29	**4**
5.	**1**	10.	**2**	15.	**3**	20.	**2**	25.	**1**	30.	**3**

SECTION B (40 marks)

No.		Marks	Suggested answer(s)	Remarks
31	a	**1**	Both can live in water.	
	b	**2**	• It does not have gills. • It can move on land. • It can live in water.	Any two of the correct answers
32	a	1	Single He inherited it from his mother. **OR** Double He inherited it from his father.	could either be single or double, depending on who he inherited from: father or mother
	b	1	He inherited them from his parents [½] who have genes for black eyes which are "masked" [½].	[0] **NOT ACCEPTABLE:** He inherited the traits / characteristics from his grandfather.
33	a	1	stomata	-[½] for wrong spelling of stomata (penalise **ONCE** only)
	b	1	More stomata were found on the underside of the leaves. [0] • **WITHOUT** more • More stomata are usually found on the underside of the leaves. (not answering to the question given)	

No.		Marks	Suggested answer(s)	Remarks
34		2	**Answer**: C **Explanation**: Only C has • a cell wall • a cell wall and chloroplasts • chloroplasts • regular-shaped cells	[0] **NOT ACCEPTABLE:** Only C has chlorophyll (cannot be seen from the picture) -[½] if child writes a cell wall/ chloroplasts **and chlorophyll**
35	a	2	Water **evaporated** from the moist fertile soil [½] to form water vapour [½] which **condensed** on the inner side of the bottle [½] as water droplets [½].	-[½] for each wrong spelling of • evaporated • condensed [1] Water evaporated from the moist fertile soil and condenses into water droplets
	b	2	Any two of the following: **[1] Plants' dependence on animal X** • Droppings / waste of animal X act as fertilisers for the plants. • Droppings / waste of animal **X** provide nutrients for the plants. • Animal **X** respires to give out carbon dioxide for plants to photosynthesise. **[1] Animal X's dependence on plants** • Plants photosynthesise to provide oxygen for animal **X** to respire.	Answers must show 2 different interdependence -[½] for each wrong spelling of • photosynthesise • respire • carbon dioxide • oxygen
36	a	1	Its young will be protected from the • dust • soil particles when the adult wombat digs or burrows into the soil **OR** Its young will not • be hit by the soil • drop out of the pouch when the adult wombat digs or burrows into the soil.	[½] Its young will not be injured (answer not clear enough)
	b	1	It has • strong claws • strong paws • powerful forelimbs	-[½] the word powerful is missing -[½] powerful limbs

<table>
<tr><th colspan="2">No.</th><th>Marks</th><th>Suggested answer(s)</th><th>Remarks</th></tr>
<tr><td rowspan="2">37</td><td>a</td><td>2</td><td>[1] Cup B: same as water level in basin

[1] Cup C: water level just above hole
(NOT more than 1 mm above hole)
  </td><td></td></tr>
<tr><td>b</td><td>2</td><td><u>Explanation</u>:
[1] <u>Air escaped through the hole</u> in cup B.

[1] Hence, water entered cup B
• to occupy the space
• to displace the <u>escaped</u> air</td><td>If Cup B in (a) is wrong, (b) 0 m</td></tr>
<tr><td rowspan="3">38</td><td>a</td><td>1</td><td>A and D are <u>conductors of electricity</u> [½]

while B and C are
• <u>non-conductors of electricity</u> [½]

• insulators of electricity[½]</td><td>The question 38a is marked [0] if students mention B and C are poor conductors of electricity even if they WRITE A and D are <u>conductors of electricity. (They will not be awarded</u> [½])

Table given did NOT indicate the brightness of the bulbs.

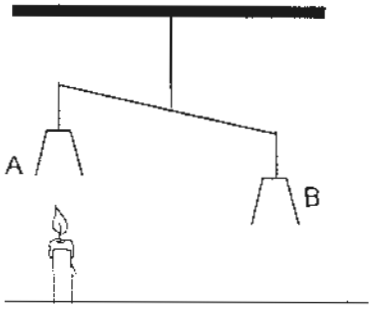
-[½]
for wrong spelling of
• non-conductors
• conductors
• electricity

penalise conductors ONCE only</td></tr>
<tr><td>b</td><td>1</td><td><table><tr><td>B1</td><td>B2</td><td>B3</td></tr><tr><td></td><td>✓</td><td>✓</td></tr></table></td><td rowspan="2">NO partial marks</td></tr>
<tr><td>c</td><td>1</td><td><table><tr><td colspan="4">position where each rod was placed</td></tr><tr><td>S1</td><td>S2</td><td>S3</td><td>S4</td></tr><tr><td>A/ D</td><td>B/ C</td><td>C/ B</td><td>D/ A</td></tr></table></td></tr>
</table>

No.		Marks	Suggested answer(s)	Remarks
39	a	2	She could use the ruler to measure the **greatest distance** between the paper clip and the iron rod [1] at which the paper clip will be **attracted** [1]. [2] **Other acceptable answers**: • Measure the **distance** between the paper clip and the magnet **right before** [1] the magnet can **attract** the paper clip. [1] • Move the paper clip **towards** the iron rod. Measure the **distance** [1] when the paper clip was **attracted** to the iron rod. [1] • Move the paper clip **away from** the iron rod. Measure the **distance** [1] when the paper clip was **not attracted** to the iron rod. [1] • Measure greatest distance between the paper clip and the iron rod at which the paper clip attract the iron rod [1½]. → - [½] wrong concept [1] **Partial acceptable answers**: • Measure the distance at which the paper clip was **attracted**. • Find out / measure which iron rod could attract the paper clip from the further/furthest distance. → not answering question directly, but just making comparison [0] Answers **NOT** accepted: • Measure greatest distance between paper clip and iron rod. → no mention of attraction • Measure greatest distance between the paper clip and the iron rod at which the iron rod attract the magnet. → mention magnet instead of paper clip	-[½] for wrong spelling of **attracted** [0] Did not mention **distance and attract**
	b	1	connect the **dry cells in series** to the circuit [1]	-[½] for wrong spelling of **series** [0] Use more dry cells
	c	1	She should repeat the procedures at least 2 times [½] **and** find the average reading of the greatest distance between the paper clip and the iron rod from which the paper clip was attracted [½] . Alternative answer • She should repeat the procedures and find the **average** [½]	

No.		Marks	Suggested answer(s)	Remarks
40	a	1	any answer between 16 cm and 41 cm	-[½] for wrong unit/ **NO** unit
	b	1	• The heavier the mass of the cube, the shorter distance it would travel. • The lighter the mass of the cube, the longer distance it would travel.	

No.		Marks	Suggested answer(s)	Remarks
41	a	1	At C	
	b	2	 **NOTE:** [1] for each of the following: • Light which falls on Michael's car is reflected on the glass windows • Light reflected on the glass windows is reflected to Mr Tan's eyes (not to Mr Tan) **Acceptable answers**: The glass windows reflect light from Michael's car into Mr Tan's eyes. [1] Reflection of Michael's car on the glass windows help Mr Tan to see. [1] The glass windows reflect the image of Michael's car into Mr Tan's eyes. [1] The glass windows act as mirrors as they reflect light. Light is reflected from Michaels' car on the glass windows [1] and is then reflected into Mr Tan's eyes. [1] Light is reflected on the glass windows from Michael's car into Mr Tan's eyes [1]. Light from Michael's car is reflected off the glass windows and into Mr Tan's eyes [1]. Image of Michael's car is reflected by the glass windows into Mr Tan's eyes. [1] The glass windows reflect light from Michael's car to Mr Tan. [1]	Bouncing off light is the synonym for reflecting light (Pupils who use the term are given the mark as deserved) [0] **NOT** acceptable as no reference to the question. The glass windows act as a mirror. The glass windows reflect light. The glass windows show the reflection of Michael's car. Light from the sun falls on Michael's car The glass windows reflect light from Michael's car.
	c	1	• Light travels in a straight line. • Light can be reflected. **NOT** acceptable: Light **is** reflected.	**ACCEPTABLE**: Light travels in straight lines. -[½] if additional information about light is mentioned, as long as the main property is stated correctly e.g. Light can be reflected from shiny objects.

No.		Marks	Suggested answer(s)	Remarks
42	a	2	**Answer**: material A **Explanation**: [1] The drop in temperature for A is the least. [1] This shows that • least heat escaped from "Keepwarm" • "Keepwarm" conducted heat most slowly	**Mark holistically:** **NO** marks for wrong choice of material or correct choice of material but wrong explanation -[½] when **NO** comparison is shown [0] The temperature is the highest.
43	a	1	• The **higher** the hammer is dropped, the **deeper** the pile is driven into the ground. • The **lower** the hammer is dropped, the **shallower** the pile is driven into the ground.	
	b	2	gravitational potential energy ⟶ kinetic energy ⟶ heat energy + sound energy + [kinetic energy]	
44	a	1	A moved upwards and cup B tilted down  	
	b	2	(i) chemical potential energy/ stored energy (ii) heat energy [+ light energy] (iii) kinetic/ movement energy (iv) kinetic/ movement energy **OR** kinetic energy + gravitational potential energy **OR** gravitational potential energy	**NO** partial marks

- END OF PAPER -