



**PRIMARY SIX SCIENCE
PRELIMINARY EXAMINATION**

2013

BOOKLET A

Date : 23 August 2013

Duration : 1 h 45 min

Name : _____ ()

Class: Primary 6 ()

Parent's signature:

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

Booklet A consists of 25 printed pages including this cover page.

Section A (30 x 2 marks = 60 marks)

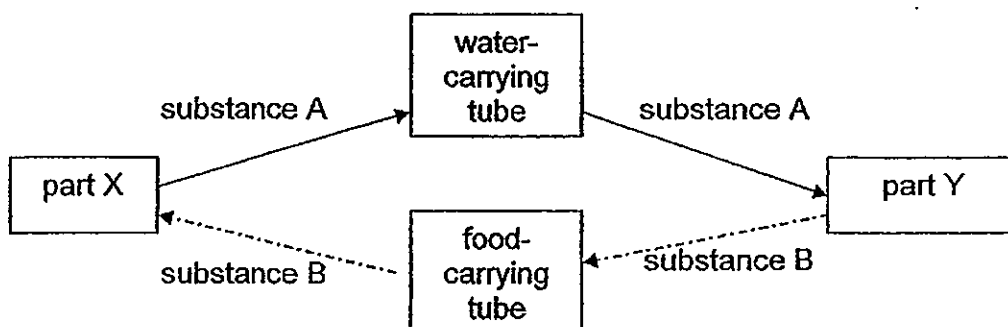
For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.

1. The eggs, larvae and pupae live in water and do not move about very much. At the adult stage, the mosquito can fly.

At which stage of the life cycle is the mosquito hardest to get rid of?

- (1) egg
- (2) larvae
- (3) pupae
- (4) adult mosquito

2. The diagram below represents the transport system of a plant.

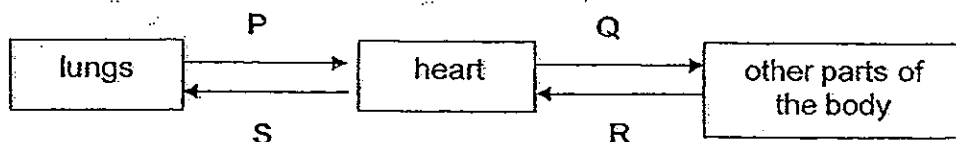


Which one of the following identifies parts, X and Y, and substances, A and B?

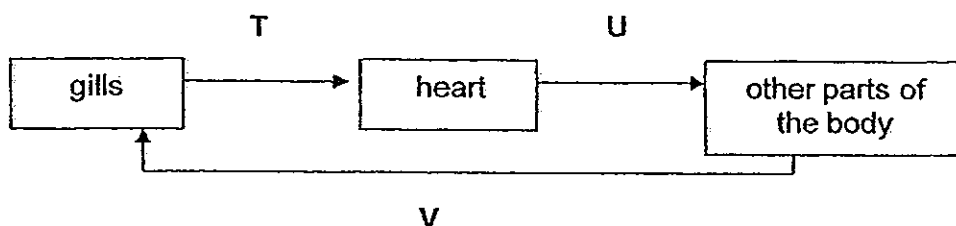
	part X	part Y	substance A	substance B
(1)	root	stem	water	starch
(2)	root	leaf	mineral salts	glucose
(3)	leaf	roots	water	glucose
(4)	stem	leaf	starch	water

3. The diagram below shows the circulatory systems in a human and a fish.

Human



Fish



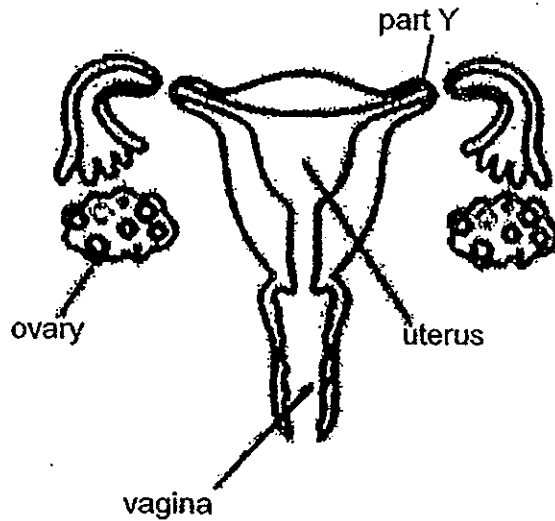
Which one of the following identifies the level of oxygen in blood at the different parts?

	Low oxygen level	High oxygen level
(1)	R, S, V	P, Q, T, U
(2)	P, Q, T, U	R, S, V
(3)	P, T, U	Q, R, S, V
(4)	Q, R, S, V	P, T, U

4. Photosynthesis and respiration are two processes that plants carry out. Which one of the following describes the difference between the two processes?

	Photosynthesis	Respiration
(1)	takes place in the day	takes place at night
(2)	requires oxygen	requires carbon dioxide
(3)	carbon dioxide is given out	oxygen is given out
(4)	traps light energy	releases energy

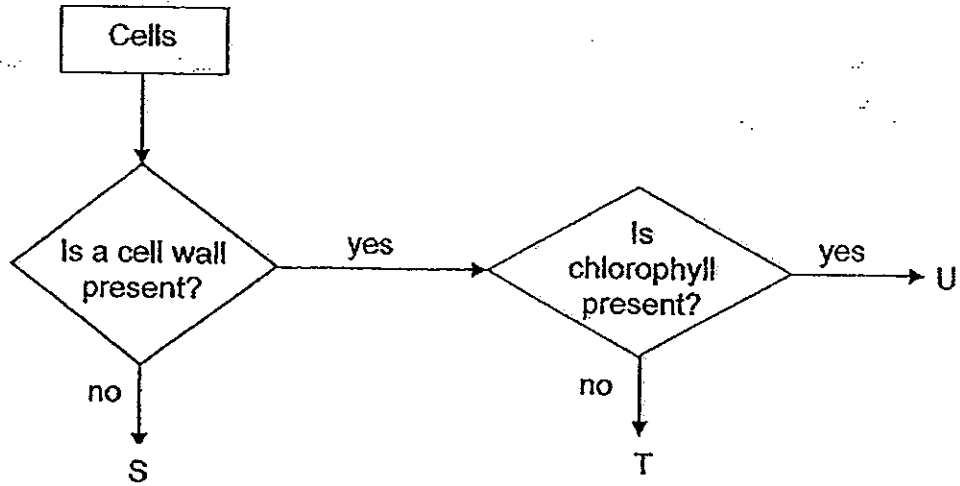
5. The diagram below shows the female reproductive system in a human where part Y is cut.



Which one of the following states why the female reproductive system above is unable to result in an embryo?

- (1) Eggs are removed.
- (2) Mating is unable to take place.
- (3) Fertilisation is unable to take place.
- (4) The fertilised egg is unable to develop into an embryo.

6. The flow chart below identifies the characteristics of 3 different cells.



Which of the following show examples of cells, S, T and U?

	Cell S	Cell T	Cell U
(1)			
(2)			
(3)			
(4)			

7. Organisms show different behaviours in response to the amount of light in their surroundings.

Which one of the following statements is **not** an example of such behaviour in response to light?

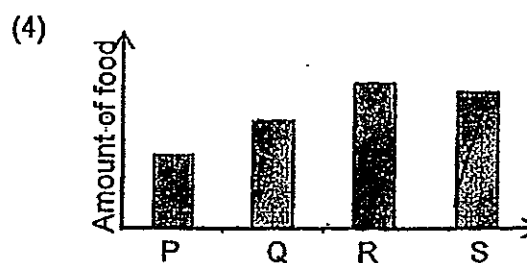
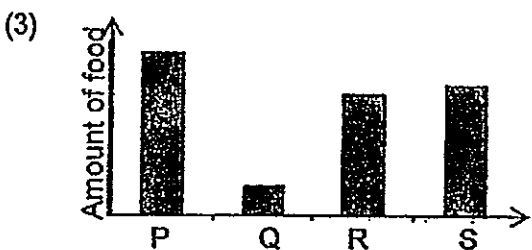
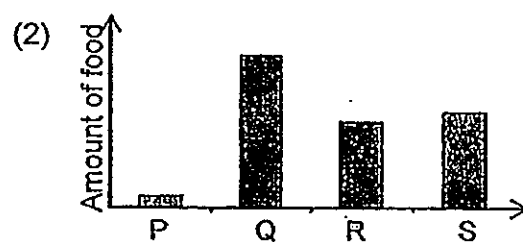
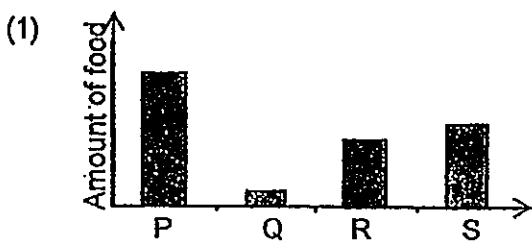
- (1) Owls hunt at night.
- (2) Dolphins dive into the sea.
- (3) Earthworms burrow into the soil.
- (4) Money plants use clasping roots to climb up a fence.

8. Ten litres of water was collected from 4 ponds, P, Q, R and S. The water was then poured into 4 similar tanks and 20 fish A were placed in each tank. The fishes were not fed but left to survive on their own with fresh supply of 10 litres of water from the same pond every day.

The table below shows the observations after 1 week.

Tank containing water from pond	Number of living fish A after 1 week
P	11
Q	30
R	24
S	23

Which one of the following graphs below shows the amount of food available for fish A in pond, P, Q, R and S?



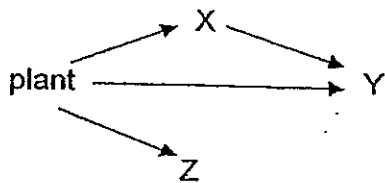
9. Four experiments were conducted on a population of plant and 3 populations of organisms, X, Y and Z, to study their food relationships. The results of the experiment were tabulated based on the number of living organisms present at the end of the experiment.

Experiment	Organisms placed together	Number of organisms	
		Start of experiment	End of experiment
A	plant	50	10
	X	30	10
	Y	20	20
B	plant	50	50
	Y	20	10
	Z	20	20
C	plant	50	8
	X	30	30
	Z	20	12
D	plant	50	50
	Z	20	14

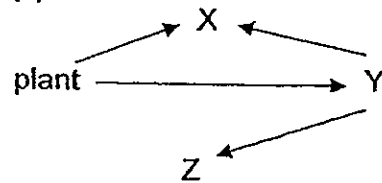
Dead organism Z was only observed in experiments C and D.

Which one of the following shows a possible food relationship among the plant and organisms X, Y and Z?

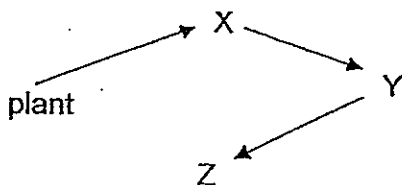
(1)



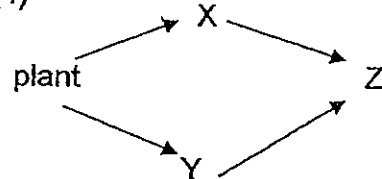
(2)



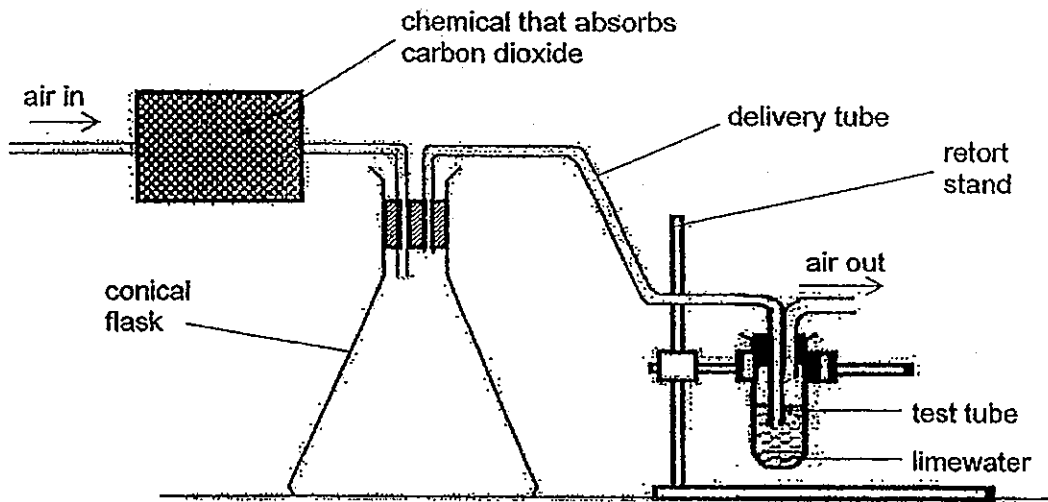
(3)






(4)



10. Johan wanted to set up an experiment to show that carbon dioxide was given out when a dead organism was decomposing. The diagram below showed the general setup for the experiment.



The table below shows the different items placed inside the beaker of each setup.

Setup	Content of conical flask	
A		Dried Shrimp
B		Dead Mouse
C		Live Mouse
D	Empty	

Which pair of the above setups should Johan use in order to conduct a fair test?

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

11. In the diagram shown below, it was observed that fish R was attached to fish S. Fish R not only picked up the scraps after fish S had a meal, it also fed on the parasites found on fish S.



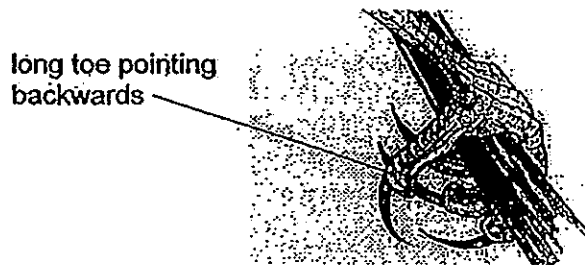
Which of the following describe a similar relationship as that between fish R and fish S?

- A Mosquito biting a man.
- B A blind man with a guiding dog.
- C Hummingbird drinking nectar from a flower.
- D Bird's nest fern growing on the branches of trees.

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

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

12. Perching birds have flexible toes, with one long toe pointing backwards, for grasping. The birds are able to lock their toes around a branch so they will not fall when they are sleeping.



Based on the diagram above, which of the following feet of birds are most likely used in the same way?



A



B



C



D



E



F

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

- (2) C and F only
 (4) A, C, D and F only

13. Which of the followings are examples of behavioural adaptations of animals to escape from their predators?

A



Armadillo rolls into a ball.

B



Frilled lizard pops out the skin around its neck.

C



Stripes on a zebra.

D



Butterfly with eyespots.

E



Grasshopper produces bad-tasting foam.

(1) A and B only

(3) B, C and E only

(2) A, B and E only

(4) A, C, D and E only

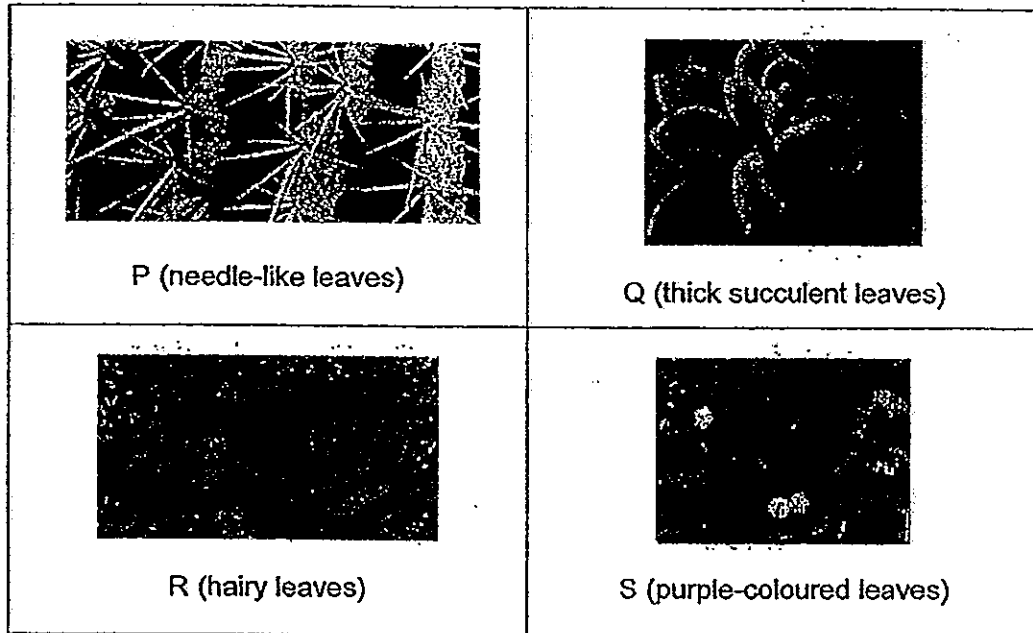
14. The table below shows information about 3 different organisms.

Organism	Information
A	<ul style="list-style-type: none"> • builds home near water • feeds on aquatic animals and plants
B	<ul style="list-style-type: none"> • lives in the Arctic • walks on snow
C	<ul style="list-style-type: none"> • spends most of its time in the air • feeds on small animals

Based on the information given, which one of the following descriptions shows the adaptations of the 3 organisms respectively?

	A	B	C
(1)	<ul style="list-style-type: none"> • webbed feet • streamlined body 	<ul style="list-style-type: none"> • thick coat of fur • large padded feet 	<ul style="list-style-type: none"> • streamlined body • hooked sharp beak
(2)	<ul style="list-style-type: none"> • streamlined body • sharp hooked beak 	<ul style="list-style-type: none"> • urinate very little • sharp claws 	<ul style="list-style-type: none"> • short wingspan • sharp talons
(3)	<ul style="list-style-type: none"> • short wingspan • webbed feet 	<ul style="list-style-type: none"> • large ears • sharp vision 	<ul style="list-style-type: none"> • streamlined body • active at night
(4)	<ul style="list-style-type: none"> • long wingspan • sharp talons 	<ul style="list-style-type: none"> • active at night • large padded feet 	<ul style="list-style-type: none"> • hollow bones • short beak

15. Plants P, Q, R and S have different leaves which enable them to survive well in their respective habitats.



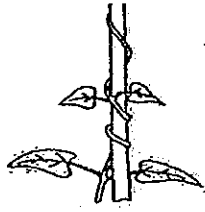
Which one of the following best describes the function of the structural adaptations listed for the plants?

	P	Q	R	S
(1)	self defence	food storage	reduce water loss	absorb more light
(2)	prevent water accumulation	water storage	self defence	self defence
(3)	reduce water loss	water storage	prevent water accumulation	help in pollination
(4)	hook on support	prevent water accumulation	help in pollination	absorb more light

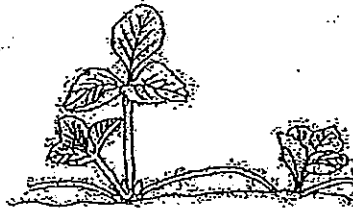
16. Study the pictures of the following structural adaptations of plants.



woody stem



twining stems



creeping stems

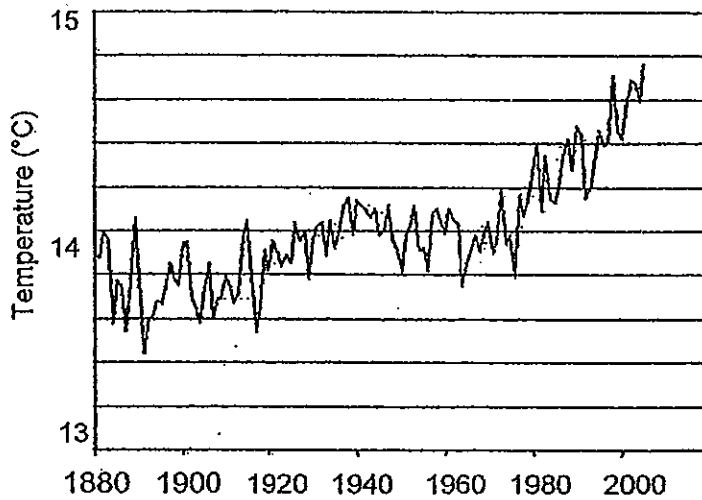


widespread leaves

Based on the examples given, which one of the following is a common purpose for the adaptations?

- (1) Adaptation for pollination
- (2) Adaptation for reproduction
- (3) Adaptation for obtaining light
- (4) Adaptation for obtaining water

17. The graph below shows the average global temperature from the year 1880 to 2000.



Which one of the following is **not** a possible cause for the above observation?

- (1) Deforestation
- (2) Rise in sea level
- (3) Burning of fossil fuel
- (4) Increase in the number of motor vehicles

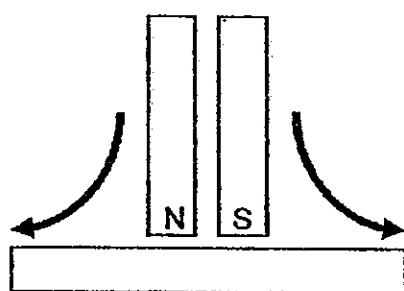
18. Study the statements below.

- A The main cause of acid rain is deforestation.
- B Acid rain will cause imbalance to the ecosystem.
- C Greenhouse effect causes ozone layer depletion.
- D Greenhouse effect is needed to keep the earth warm.

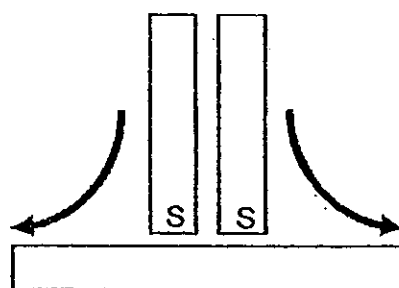
Which of the above statements are **incorrect**?

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

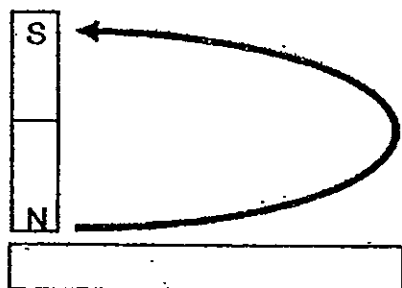
19. George wanted to use stroking method to make a temporary magnet.



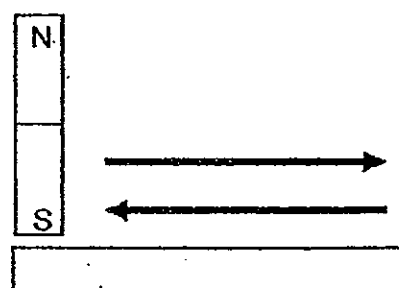
Method A



Method B



Method C

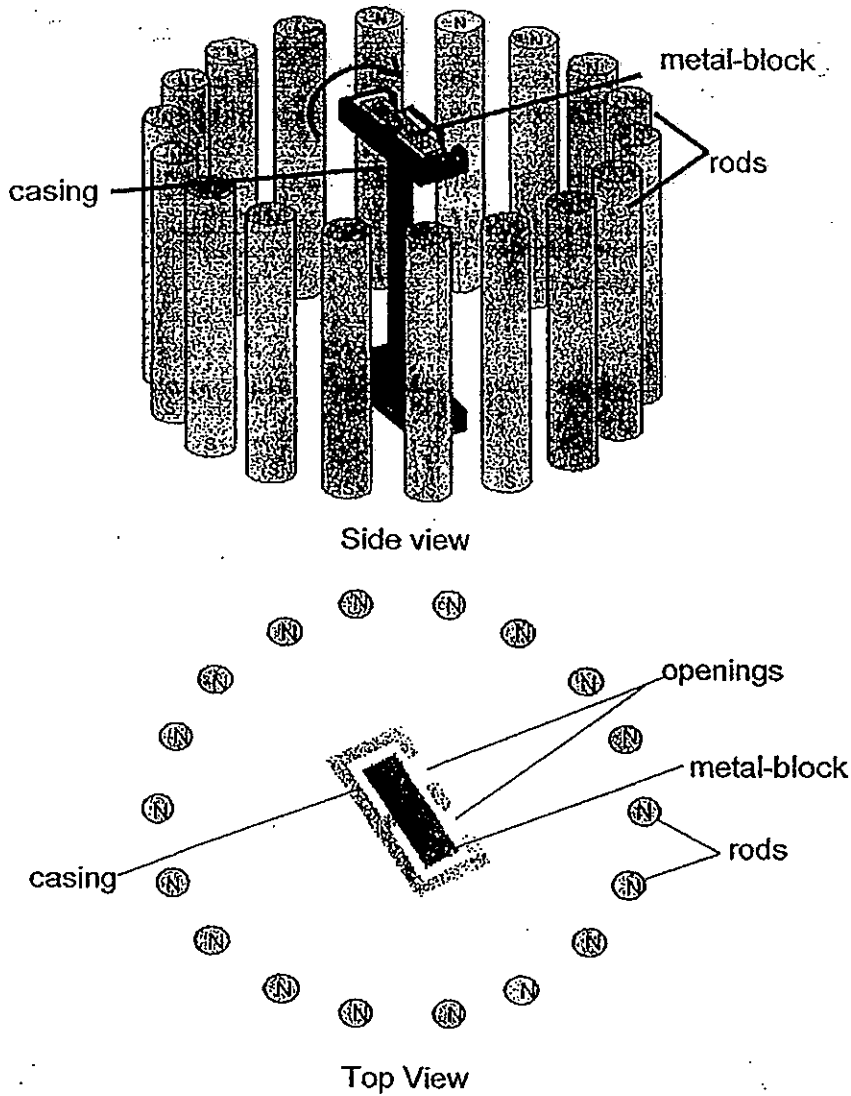


Method D

Which of the above method(s) should George use to make a temporary magnet?

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

20. Mr Chia set up the following experiment to share with the class.

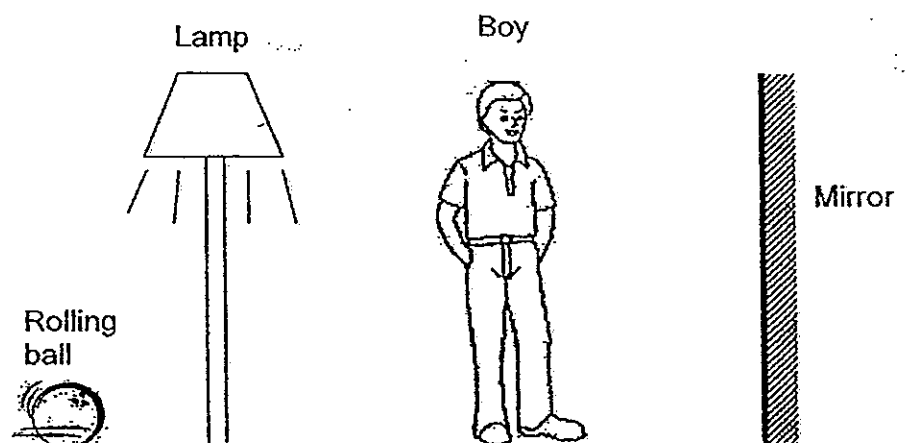


The metal block in the middle was rotating in a clockwise direction. Mr Chia told the class that apart from gravity acting on it, the metal block was also experiencing a push and pull force. The casing holding the metal block does not allow magnetism to pass through except at the openings.

Based on the information above, which of the following statements is correct?

- (1) The metal block will stop rotating after a while.
- (2) The metal block is made of a magnetic material but not a magnet.
- (3) Part A is the north pole of a magnet while B is the south pole of a magnet.
- (4) The metal block will continue to rotate if the position of the metal block is half the height of the rod.

21. Study the diagram shown below.

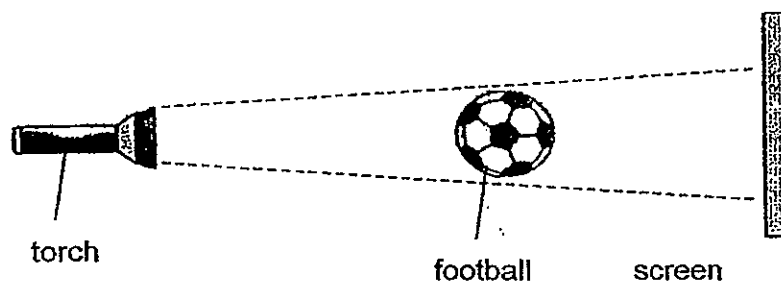


Looking into the mirror, the boy can see the ball rolling towards him.

Which one of the following identifies the path of light that makes it possible for the boy to see the ball in the mirror?

- (1) lamp → rolling ball → boy
- (2) boy → mirror → rolling ball
- (3) lamp → rolling ball → mirror → boy
- (4) boy → mirror → rolling ball → lamp

22. Matthew shone a torch on a football and a shadow was cast on the screen.

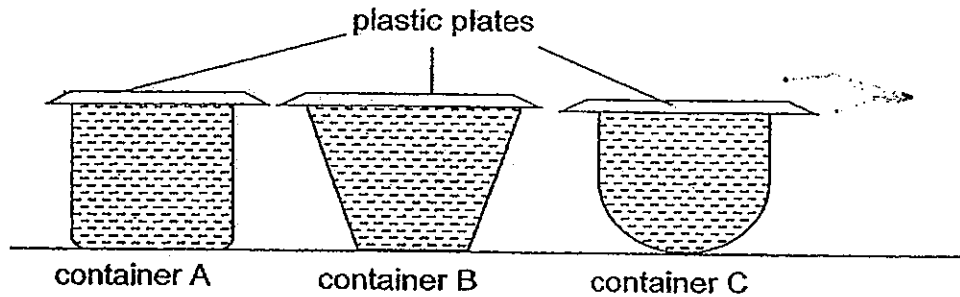


What could Matthew do to enlarge the shadow on the screen?

- A Move the torch towards the football.
- B Move the screen towards the football.
- C Move the torch away from the football
- D Move the screen away from the football.

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

23. Container A, B and C are filled to the brim with the same amount of water. Each container is covered completely with a plastic plate that has different number of holes in it. These holes are of the same size.



The table below shows the number of holes cut from the plastic plate.

Container	Number of holes on the plastic plate
A	7
B	10
C	5

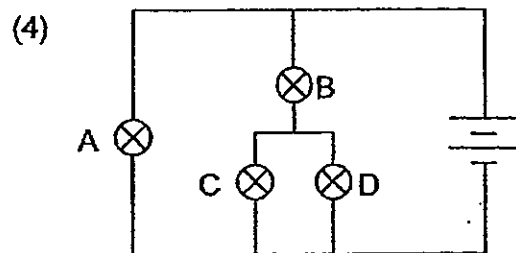
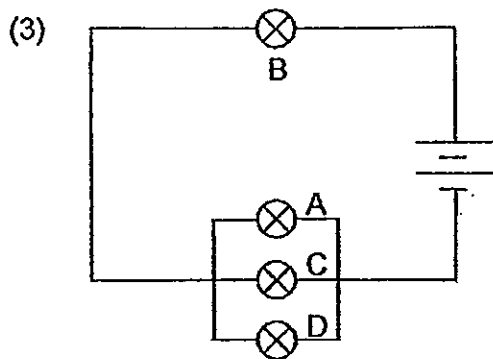
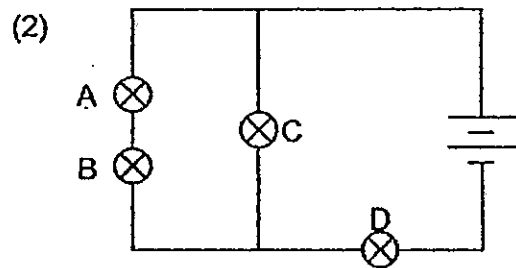
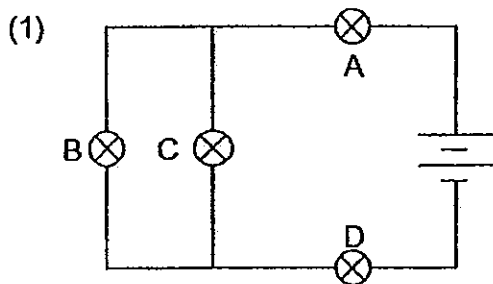
Which one of the following arranges the amount of water left in the containers from the most to the least at the end of two days?

- most \longrightarrow least
- (1) A , B , C
 (2) C , B , A
 (3) C , A , B
 (4) B , A , C

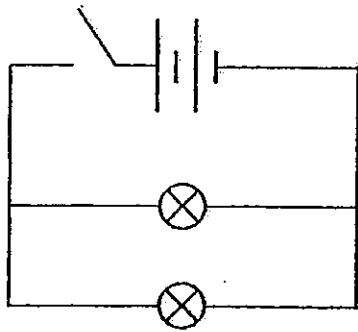
24. John was asked to guess how four bulbs could be arranged. All the bulbs were initially lit. The table shows information on which bulbs would continue to light up when one of the bulbs had fused.

Fused bulb	Bulb(s) that light up
A	B, C and D
B	A
C	A, B and D
D	A, B and C

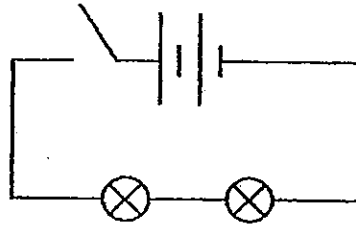
Based on the information from the table, which one of the following circuit diagrams is correct?



25. Timmy set up 2 circuits as shown below. He closed the switches in both the circuits at the same time. Circuit A remained lit for 5 hours while circuit B remained lit for 7.5 hours before the batteries stopped working. A light sensor attached to a data logger was used to record the brightness of the bulbs in each circuit throughout the experiment.

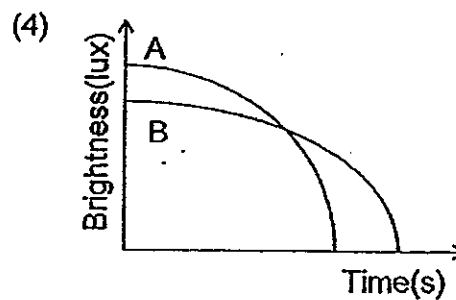
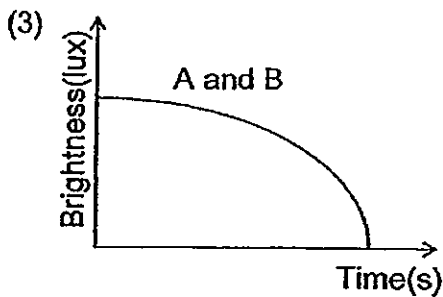
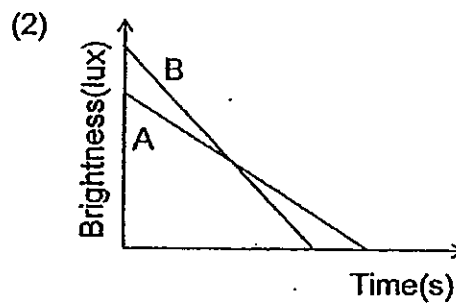
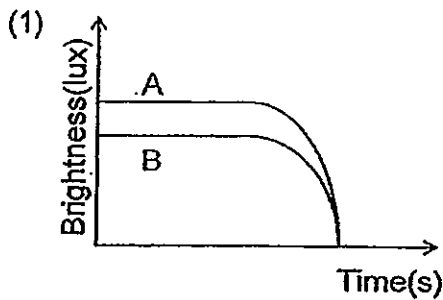


Circuit A



Circuit B

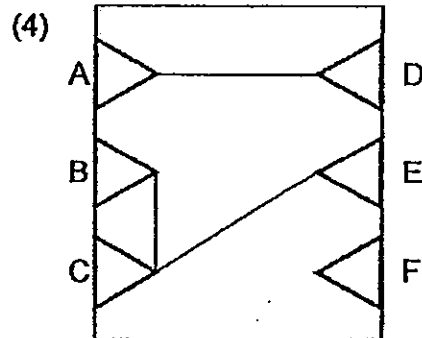
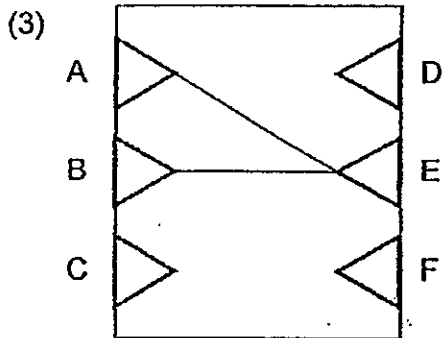
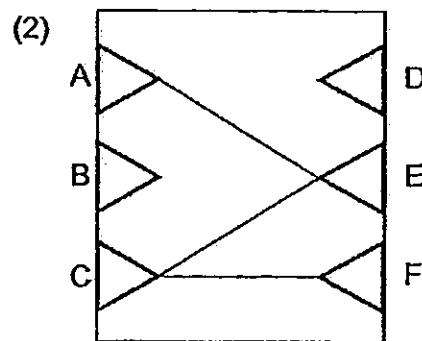
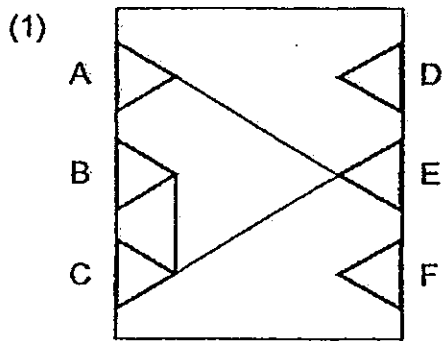
Which one of the following graphs shows how the brightness of the bulbs in the respective circuits changes with time?



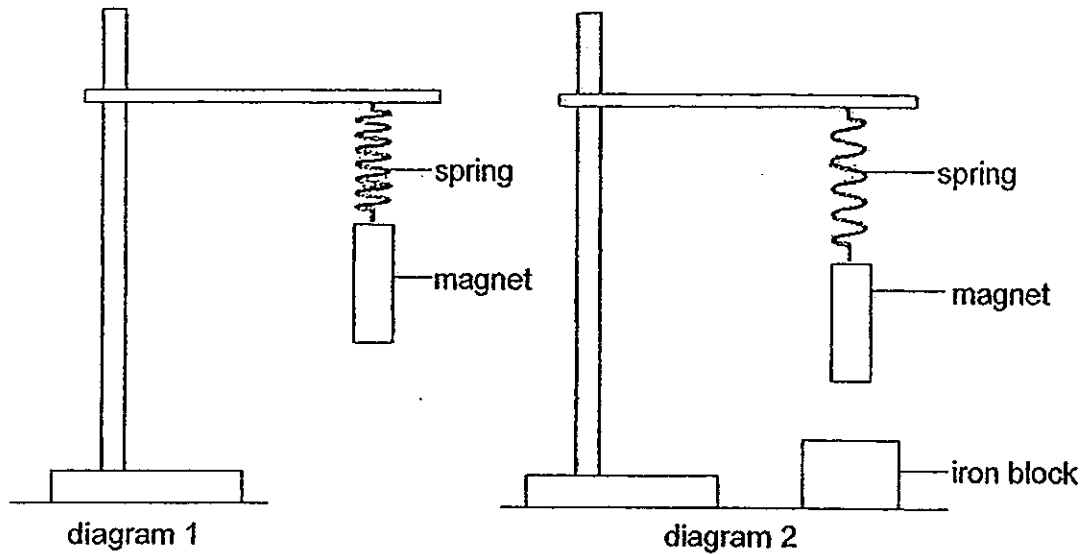
26. Jasmine was asked to determine the connection of a circuit card made by Randy. The following table showed her results when she connected various points to test if the bulb would light up. A tick showed that the bulb lighted up.

	A	B	C	D	E	F
A		✓	✓	X	✓	X

Which one of the following was the circuit card made by Randy?



27. Jason attached a bar magnet to a spring as shown in diagram 1 below. He then placed a heavy block of iron below the magnet as shown in diagram 2.

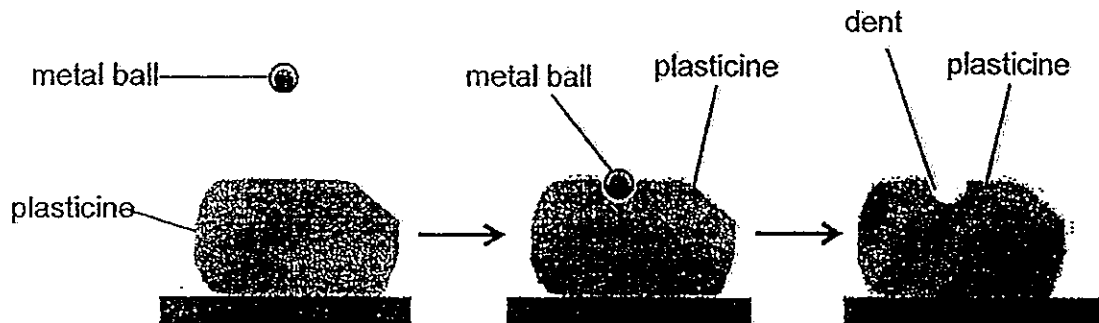


Which of the following forces are acting on the magnet in diagram 2?

- A Elastic spring force
- B Magnetic pull force
- C Magnetic push force
- D Gravitational force

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

28. The diagram below shows a metal ball being released from a height above the plasticine.



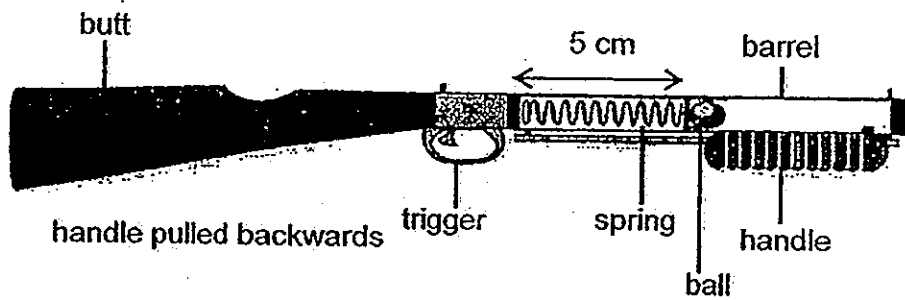
Rachel observed that the metal ball stopped moving when it landed on the plasticine. There was also a dent left in the plasticine after she removed the metal ball from it.

Which of the following effects of forces are demonstrated in the experiment?

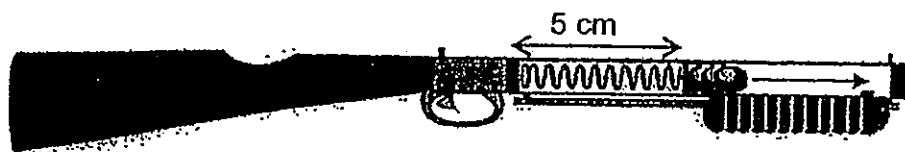
- A A force can change the size of an object
- B A force can change the shape of an object
- C A force can change the speed of a moving object
- D A force can change the direction of a moving object

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

29. The diagrams below show a spring operated toy gun. The spring is compressed by pulling the handle backwards and it is released when the trigger is pressed.



spring loaded



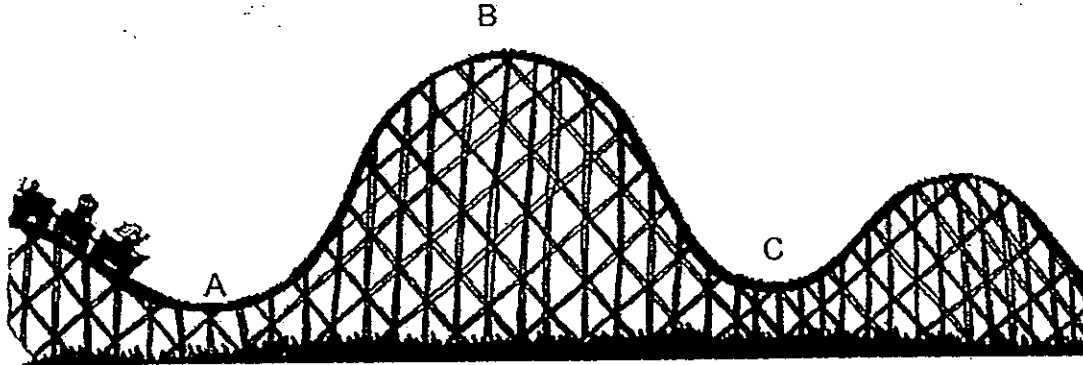
trigger pressed

Which of the following modifications to the set-up will enable the ball to travel a further distance?

- A Use a barrel which is longer
- B Use a 5 cm spring which is stiffer
- C Use the same spring of length 10 cm
- D Use a ball made of different material but of the same mass

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

30. A group of children took a roller coaster ride.



Which one of the following shows the changes in the kinetic energy and gravitational potential energy as the roller coaster travelled from A to C?

	Change in kinetic energy from A to B	Change in gravitational potential energy from B to C
(1)	increase	increase
(2)	increase	decrease
(3)	decrease	increase
(4)	decrease	decrease

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PRIMARY SIX SCIENCE
PRELIMINARY EXAMINATION

2013

BOOKLET B

Date : 23 August 2013

Duration : 1 h 45 min

Name : _____ ()

Class: Primary 6 ()

Marks Scored:

Booklet A:		60
Booklet B :		40
Total :		100

Any query on marks awarded should be raised by 5th September 2013. We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.

Parent's signature:

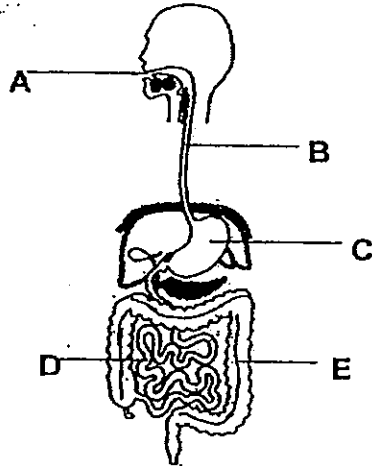
**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.**

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

Section B (40 marks)

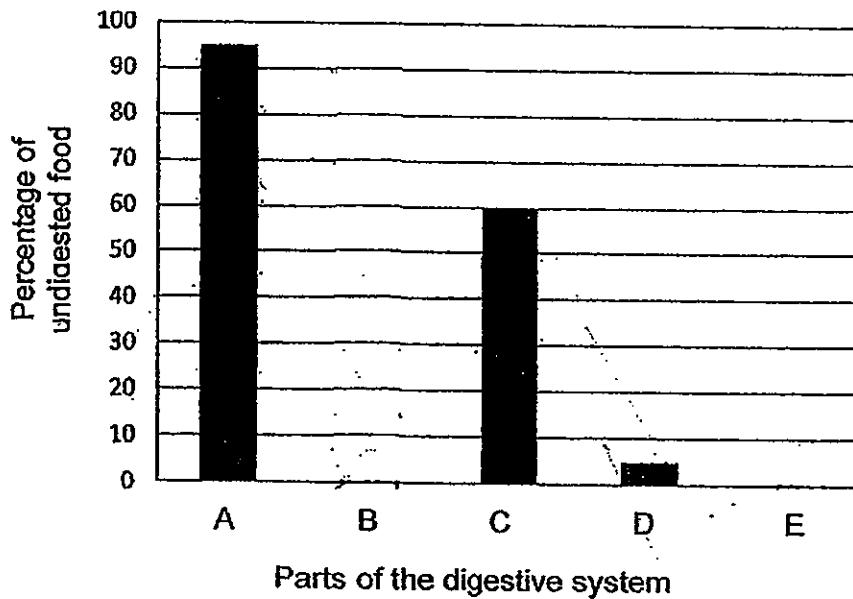
Write your answers to questions 31 to 44 in the spaces provided.
Marks will be deducted for misspelt key words.

31. The diagram below shows the human digestive system.



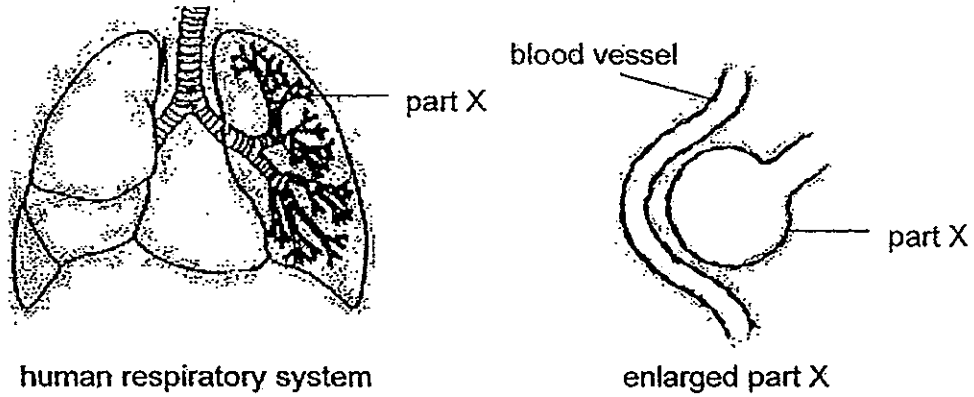
The graph below shows the percentage of undigested food in each part of the digestive system just before it travels to the next part.

(a) Draw bars to show the percentage of undigested food at B and E on the graph below. [1m]



(b) Explain what happened to the digested food at D. [1m]

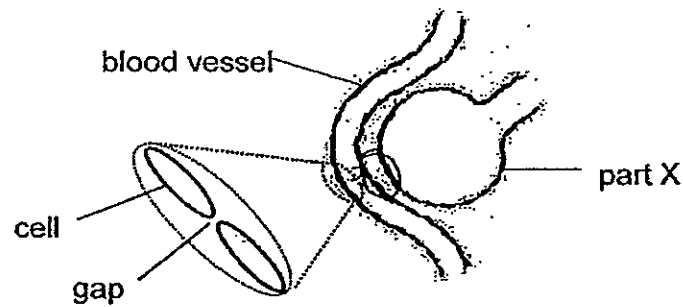
32. The diagrams below show the human respiratory system and an enlarged view of part X.



(a) Identify part X and state its function.

[1m]

In June 2013 during the haze period, PM 2.5 readings were measured hourly. 'Particulate matter' (PM), is a mixture of extremely small substances which are 2.5 units in size. They are a concern because they can pass through the throat and nose and enter the lungs.



(b) Part X is made up of a layer of cells. Given that the size of the gap between two cells is 2 to 15 units, what would happen to these small substances upon entering the lungs? [1m]

33. Sam found two organisms, A and B, in the sea. He wanted to find out which one was an animal and which was a plant. He filled 2 beakers with sea water. He placed organism A in one beaker and organism B in the other beaker. Both beakers were placed in the light.

At the end of six hours, he added a drop of liquid Y in each beaker and the following results were obtained.

Beaker with Organism	Colour of Liquid Y
A	Yellow
B	Red

The table below showed the colour of liquid Y in the presence of more oxygen and more carbon dioxide.

	When more oxygen is present	When more carbon dioxide is present
Colour of liquid Y	Yellow	Red

- (a) State whether organism A and B is a plant or animal. [1m]

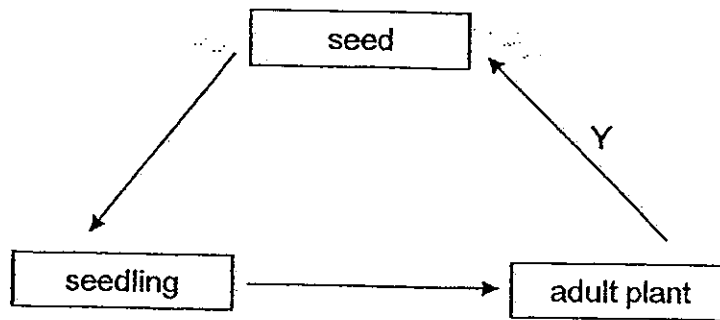
Organism A: _____

Organism B: _____

- (b) Sam conducted another experiment. He put both organisms A and B in a beaker of sea water and left the beaker in the dark for six hours. Then, he added a drop of liquid Y into the beaker.

What would be the colour of liquid Y after 6 hours? Give a reason for your answer. [1m]

34. Study the life cycle of a flowering plant shown below.



(a) Besides seed dispersal, name two other processes that happen at Y. [1m]

(i) _____

(ii) _____

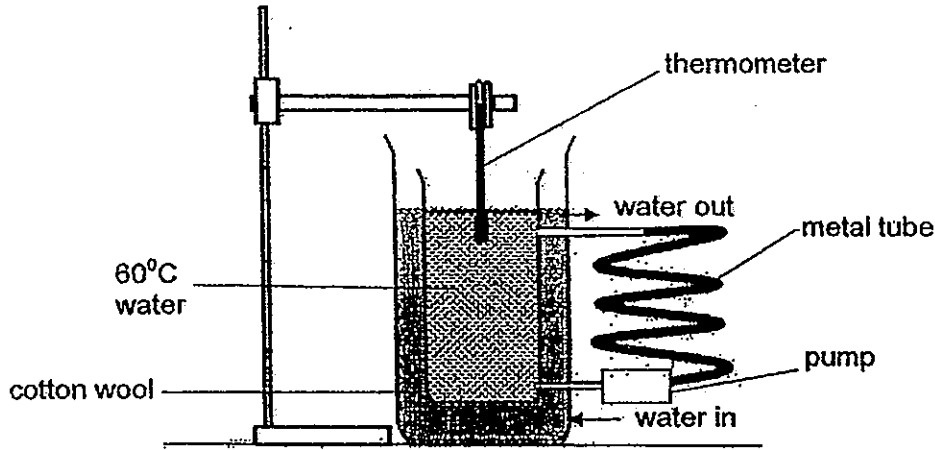
Darryl wanted to find out the conditions that seeds needed to germinate. He prepared 4 setups, A, B, C and D as shown in the table below.

Setup	Number of seeds	Amount of water(ml)	Surrounding Temperature (°C)	Is oxygen present?	Is light present?
A	3	0	30	present	present
B	3	20	30	absent	present
C	3	20	70	present	absent
D	3	20	30	present	absent

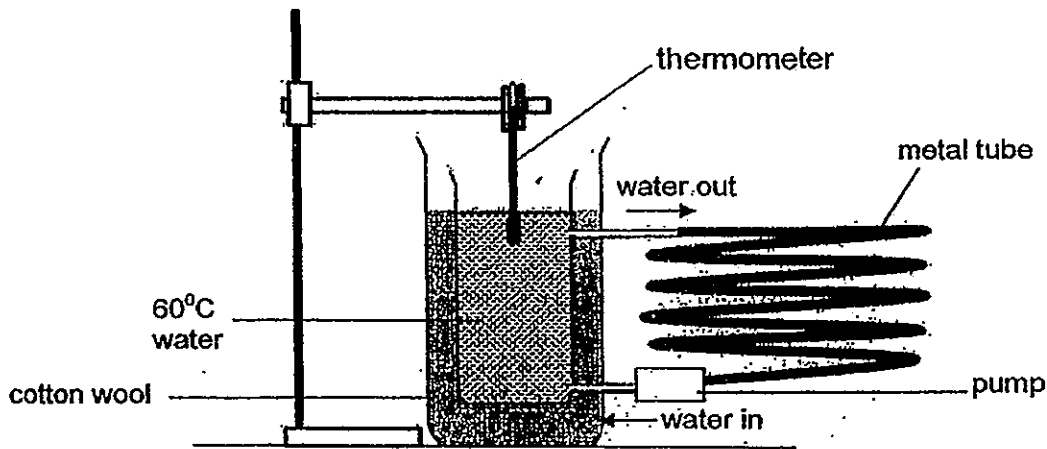
(b) In which setup would the seeds germinate after a week? Explain your answer. [1m]

(c) What could Darryl do to ensure that the results he obtained were reliable? [1m]

35. Two identical containers were each filled with 3 litres of water heated to 60°C . Each container was then placed in identical bigger tanks filled with cotton wool. A tube and a pump were attached to each container to allow a continuous flow of water out of the container then back again. Setup A has a shorter tube than setup B.



setup A



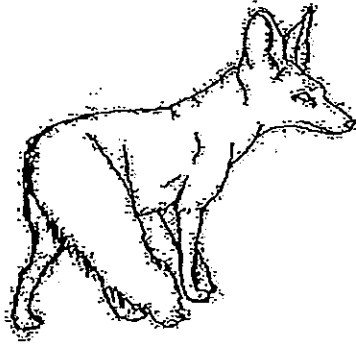
setup B

It was observed that water in setup B took a shorter time to reach room temperature than in setup A.

(a) Based on the information given, explain the results of the experiment.

[2m]

The pictures below show 2 different species of foxes, F and G.



fox F



fox G

(b) Based only on what could be observed in the pictures, which fox is better adapted to survive in a very hot environment? Explain your choice clearly. [2m]

36. Army ants are aggressive insects that move in groups in search of prey, such as insects and even small mammals. As the army ant colony travels on the forest floor, they stir up various flying insects species. As the insects try to escape from the army ants, birds following the ants are able to catch the escaping insects.

Describe the relationship between the birds and the army ant colony. [2m]

37. Kelly wanted to find out how chemical X could prevent the eggs of water snails from hatching. She set up an experiment using 30 identical snails in the 3 setups as shown below.

Conditions	A	B	C
Number of snails	10	10	10
Water plants	present	present	present
Amount of sunlight	moderate	moderate	moderate
Food given	once daily	once daily	once daily
Amount of chemical X	0 ml	5 ml	10 ml

Kelly recorded her observations in the table below.

Observations	A	B	C
1 week later	eggs present	eggs present	eggs present
3 weeks later	30 snails	25 snails	10 snails

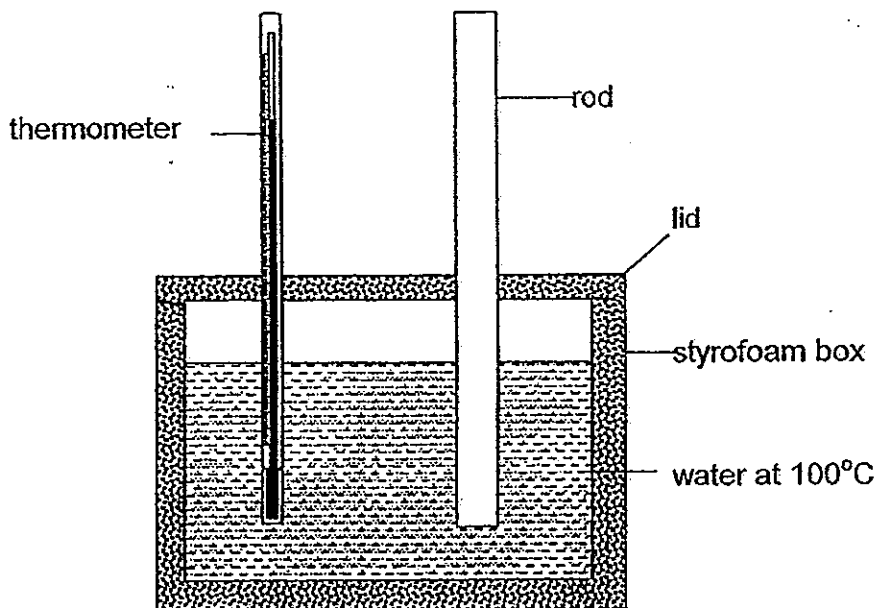
- (a) What was the relationship between the amount of chemical X and the numbers of eggs hatched? [1m]

- (b) List 2 variables not stated in the question that Kelly must keep constant so as to conduct a fair test. [2m]

- (i) _____
- (ii) _____

- (c) What is a disadvantage of using chemical X to control the population of snails in a pond? [1m]

38. Dalvin wanted to test the heat conductivity of 4 different materials, W, X, Y and Z. He poured water at 100°C into a styrofoam box. He inserted a rod and thermometer and covered the box with a lid as shown in the diagram below.



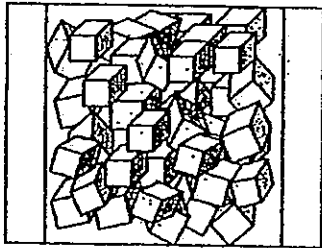
After thirty minutes, the temperature of the water was recorded. Dalvin repeated the experiment with rods of different materials. He recorded his results as shown in the table below.

Material	Temperature of water at the start (°C)	Temperature of water after twenty minutes (°C)
W	100	62
X	100	90
Y	100	70
Z	100	86

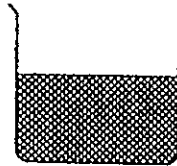
Using the information from the table above, which one of the materials was most suitable to make into an ice bucket? Explain your choice. [2m]

39. Jordan wanted to find out if adding salt to ice would make ice melt faster.

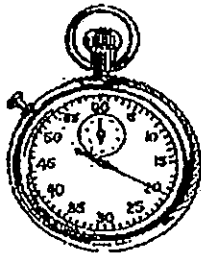
a bag of ice



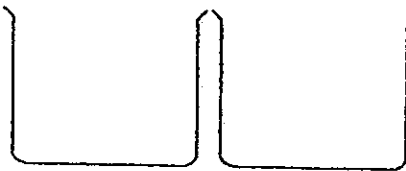
half a beaker of salt



a stopwatch



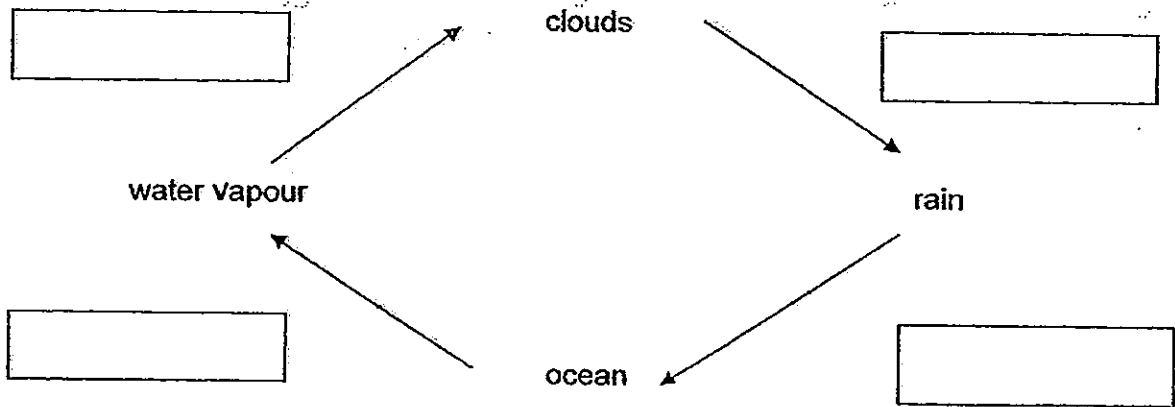
two beakers



Using all the materials above, write down the procedures he should take to conduct his experiment. [2m]

Step	Procedures
1	Put equal amount of ice into the two beaker.
2	
3	
4	

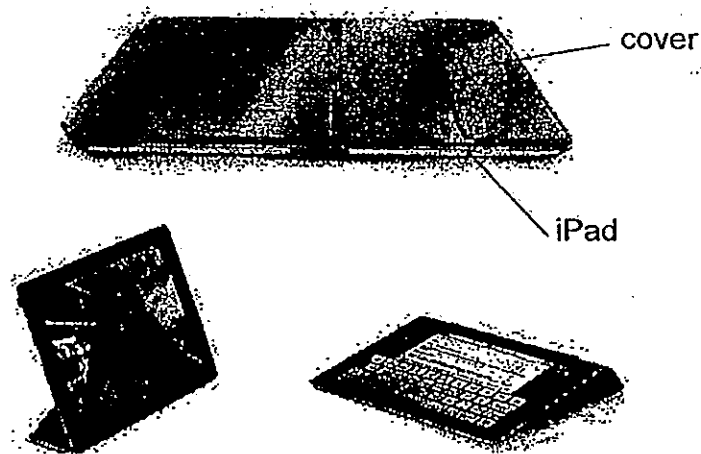
40. The diagram below shows the water cycle.



(a) Fill in the blanks in the diagram above with the words "condensation" and "evaporation" to indicate where the 2 processes take place. [1m]

(b) One of the consequences of global warming is more heavy rainstorms occurring. Explain how an increase in temperature causes heavier rainstorms to occur. [2m]

41. The diagram below shows an iPad with the iPad smart cover.



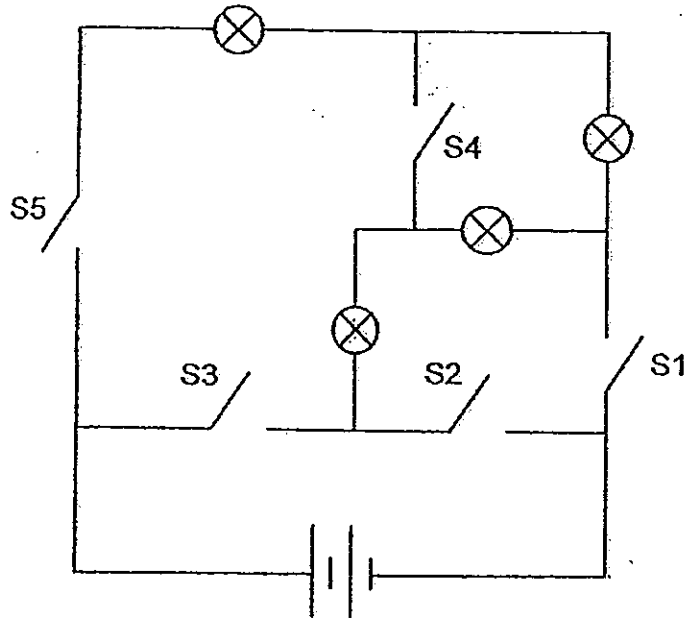
The iPad smart cover makes use of magnets which are found inside both the iPad cover and the iPad. The screen lights up when a user opens the cover and the screen goes off when the cover is closed.

- (a) Using the symbols provided below, draw simple circuit diagrams that shows what happens when the cover is opened and when the cover is closed. [2m]

<u>Key:</u>	
	Light bulb (represent the screen)
	Magnet X (ipad)
	Magnet Y (ipad cover)
	Battery (power source)
	wire

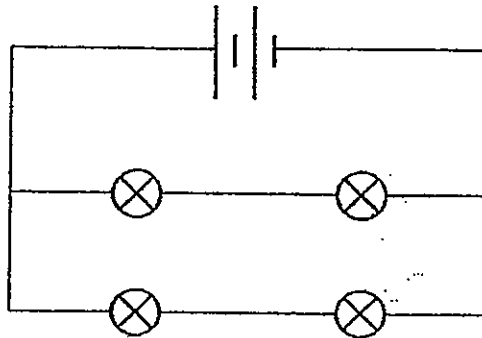
opened cover	closed cover

Jordan drew a circuit diagram as shown below.



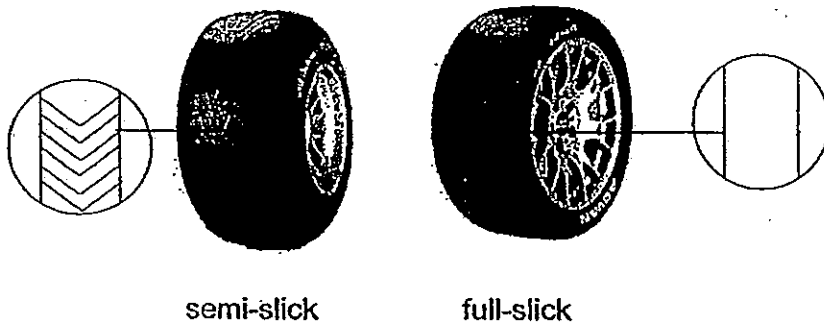
- (b) What is the minimum number of switch(es) that Jordan should close in order for all the bulbs to light up? Name the switch(es). [1m]

Study the circuit diagram below.



- (c) Using the same circuit diagram that Jordan drew in part (b), which switch(es) should he close in order for the bulbs to achieve the same brightness as the bulbs in the circuit above? [1m]

42. In the formula one race, different tyres are used under different weather conditions to move around the track which consists of tight corners and straight roads. It is important to slow down at tight corners. The 2 main types of tyres used are semi-slick and full slick tyres as shown below.



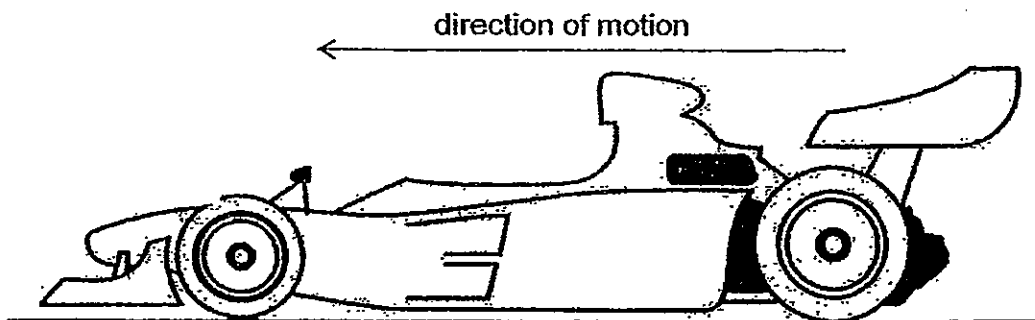
The table below shows the amount of water that is found in between the different types of tyres and the road surface under wet conditions.

Type of tyres	Amount of water (cm ³)
Semi-slick	10
Full slick	12

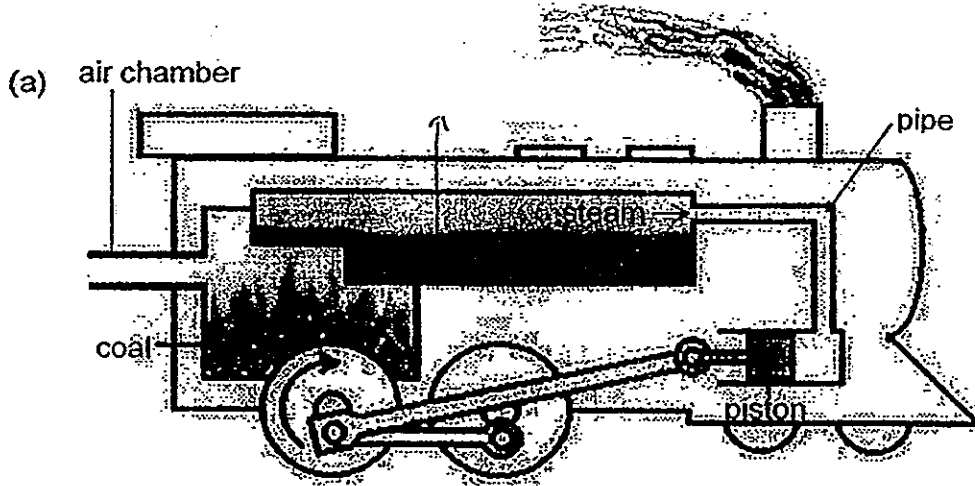
It was observed that the time needed for a race car with full slick tyres to come to a complete stop in wet weather, is longer than a race car with semi-slick tyres when it is travelling at 100 km/h.

- (a) Explain this observation based on the information above. [2m]

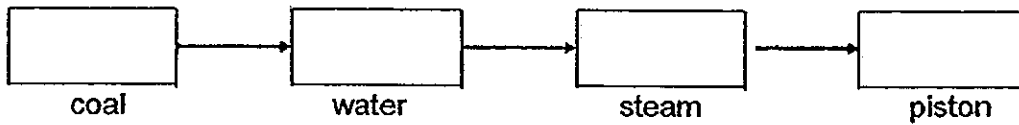
- (b) Apart from the frictional force between the tyres and the surface of the road, draw and label arrows to identify the direction of the other force(s) that is/are acting on the car as it moves in the direction as shown. [2m]



43. The diagram below is a simplified illustration of how the locomotive train works.

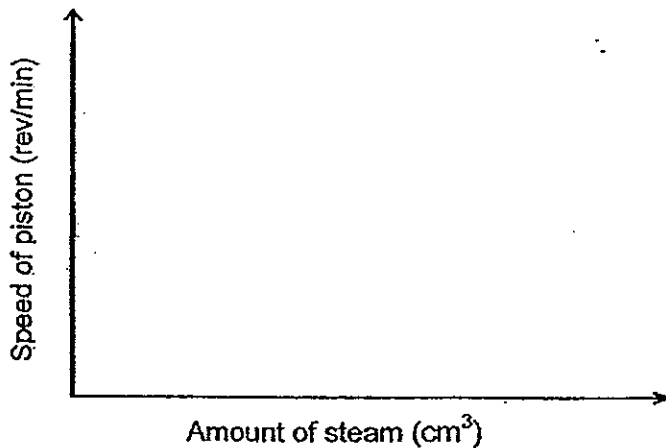


State the energy conversion which enables the locomotive train to move. [1m]



(b) Without adding more coal or reducing its weight, suggest one modification to the train such that it is able to move faster. Explain your answer. [2m]

(c) Draw and label a graph to show the relationship between the speed of the piston (rev/min) and the amount of steam (cm^3) that passes through the pipe. [1m]



44. One of the newest products invented is the floating bed as shown in the diagram below.



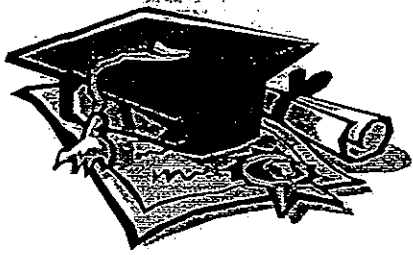
The floating bed consists of a magnet plate below the bed and a special object is placed at the base of the bed. This enables the bed to float in the air.

- (a) Identify the object that must be placed at the base of the bed in order for it to float. [1m]

It is **not** recommended for a person with mass of greater than 100kg to use the bed as it will not be able to float.

- (b) Using the concept of forces, explain why the bed will not float when the mass placed on it is greater than 100 kg. [1m]

—————END OF PAPER—————



ANSWER SHEET

EXAM PAPER 2013

SCHOOL : NANYANG

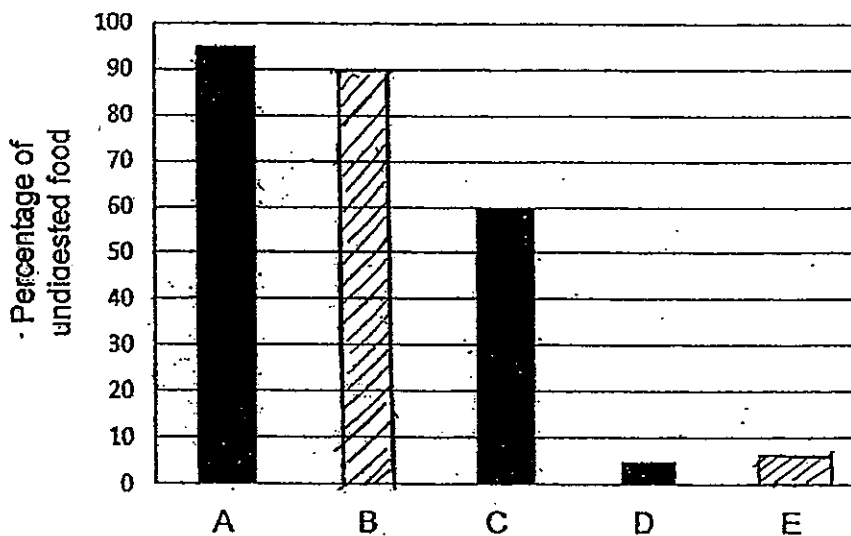
SUBJECT : PRIMARY 6 SCIENCE

TERM : PRELIM

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

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

31)a)



b) All the digested food has been absorbed and has entered the blood stream of body.

32)a) Air sac. Its function is to go through the gaseous exchange more efficiently provide the oxygen needed to be absorbed by the blood vessel.

b) These small substances will enter the air sacs, it will go through the gaps in between the cells of the blood vessels, enter the blood stream and will be circulated in the whole body.

33)a) A: Plant. B: Animal.

b) It will turn red. Organism A can not go through photosynthesis in the dark, so it will not be able to give out oxygen, it will be respiring with organism B, taking in the dissolved oxygen remained in the sea water and giving out dissolved carbon dioxide, thus, Liquid Y will turn red.

34)a) i) Pollination ii) Fertilisation

b) Set-up D. As it has sufficient air, water and warmth, the three components needed for the seed to germinate.

c) Darryl can repeat the experiment another two times.

35)a) The metal tube in set-up B is much longer than the metal tube in set-up A, metal is a good conductor of heat, thus the metal tube in set-up B will lose heat to the surrounding much faster and efficiently than the metal tube in set-up A.

b) Fox F. As it has larger ears more exposed surface area thus, it lose greater amount of heat to the surroundings.

36) The birds benefit from the relationship because it can find food easier, but the ant are not affected by the birds.

37)a) The more amount of chemical X, the lesser amount of water snail eggs will hatch.

b) i) The type of water used for the experiment must be the same experiments.

ii) The amount of feed given to the snails.

c) When they use chemical X to control the population of water snail, there will be a lesser amount of water snails hatching and the population of snails will decrease, thus, other organisms who are depending on the snail will also slowly die.

38) Material X. It is the worst conductor of heat out of the four materials and it can retain heat very well, thus, if it is made into an ice bucket, the ice in it will not gain heat from the surrounding that fast.

39) 2) Place ice in both beakers and add salt to one of the beakers.

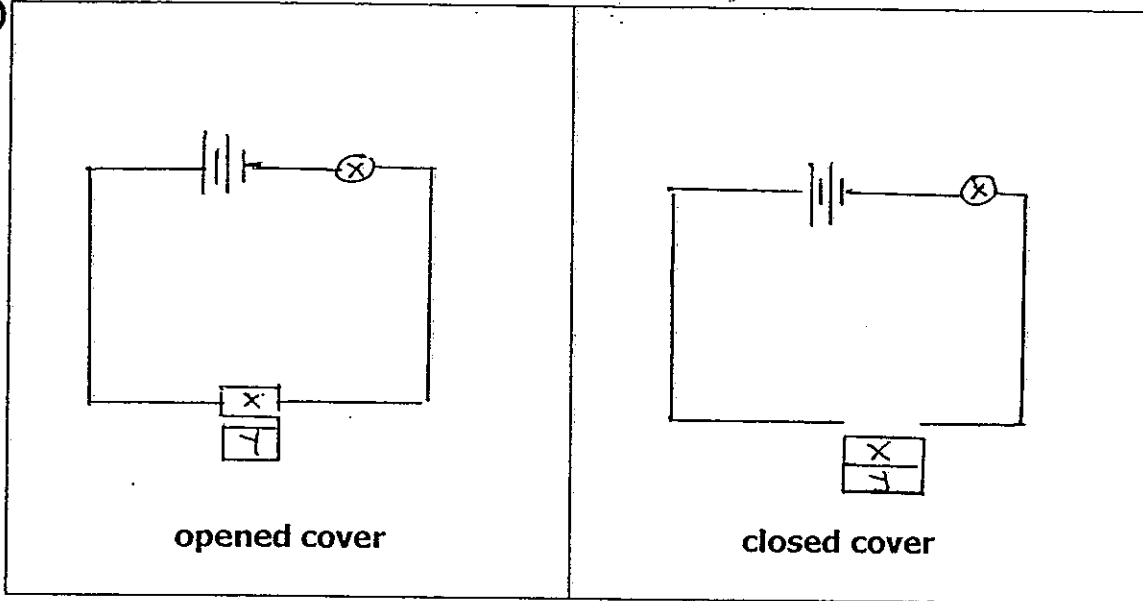
3) Stop the stopwatch once any one of the beakers with the ice melts fully.

4) Record down and compare the timing for both beakers.

40)a) Condensation
Evaporation

b) The increase in temperature allows the water from the oceans to be evaporated at higher speed, more condensation the clouds will be heavy easily and thus, it will cause heavier rain storms to occur.

41)a)



b) 2. S2 and S5

c) S1, S3, S5

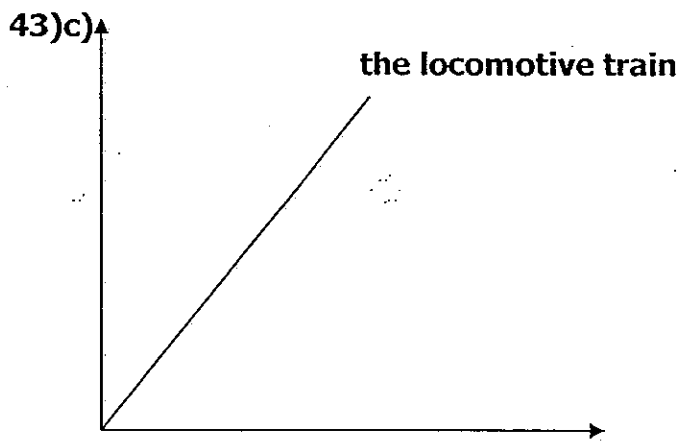
42)a) The semi-slick tyres have grooves that increase the amount of friction between the tyres and the track but the full slick tyres do not have any grooves, in addition in the wet weather, the water acts as a lubricant and reduces friction between the tyres and the track, thus, it will take a longer time for cars using full slick tyres to come to a halt.

b)

↓
gravitational force.

43)a) Chemical potential energy of the → heat energy of the → kinetic of the → kinetic energy of the

b) Apply a lubricant on the wheels of the train. When a lubricant is applied to the wheels of the train, it reduces the friction between the wheels of the train and the track, thus, making it be able to move faster.



44)a) Another strong magnetic plate.

b) When a mass of 100kg is placed on the bed the amount of gravitational force acting on the floating bed is greater than the magnetic force acting on the magnet plates, thus, it will not be able to float.