RAFFLES GIRLS' PRIMARY SCHOOL

PRELIMINARY EXAMINATION 2013

Section A	60
Section B	40
Your score out of 100 marks	
Parent's signature	

Name : _____ Index No: ____ Class: P 6 ___

23 Aug 2013 **SCIENCE** Attn: 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.

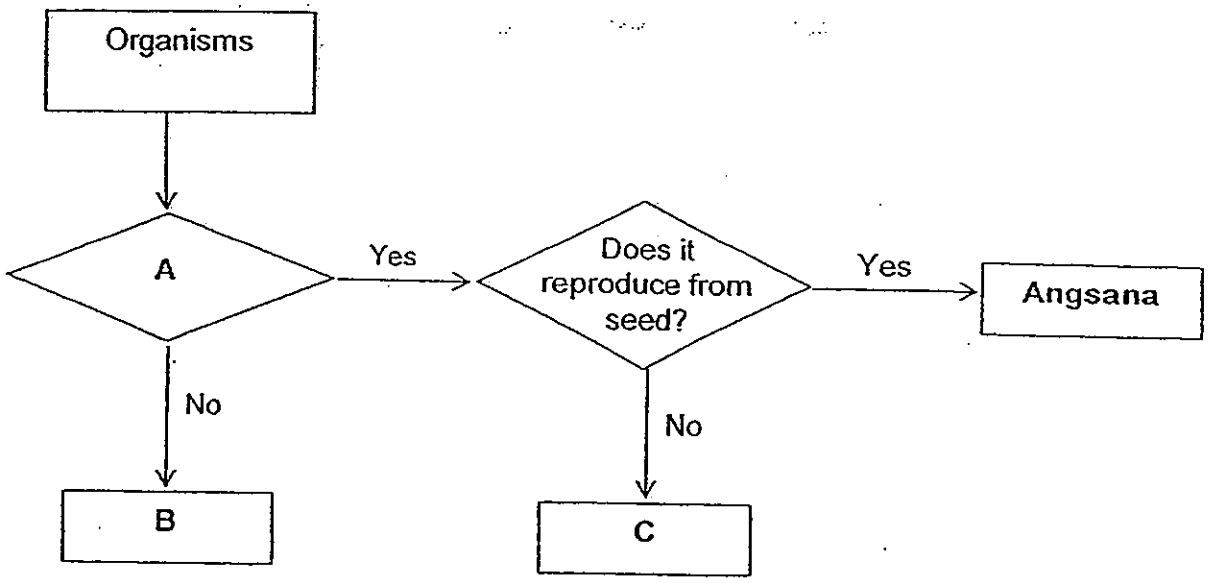
1. Rachel found animal X near the river and recorded her observations on animal X as shown below.

   - Has fur
   - Lays eggs
   - Suckles their young

   Which one of the following groups of animals does animal X belong to?

   (1) Birds
   (2) Fishes
   (3) Insects
   (4) Mammals

2. The flow chart below shows how some organisms are classified.



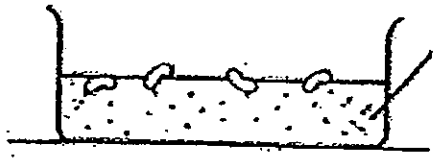
Which one of the following represents A, B and C correctly?

	A	B	C
(1)	Does it have spores?	bracket fungus	bird's nest fern
(2)	Does it bear flowers?	lady's finger	mangrove
(3)	Does it make its own food?	mushroom	moss
(4)	Are its fruits scattered by animals?	coconut	staghorn fern

3. Randy carried out an experiment on the germination of green beans using set-ups A, B, C and D as shown below. All the green beans are placed in identical containers.

Set-up A
Beside an open window

Set-up B
In the freezer



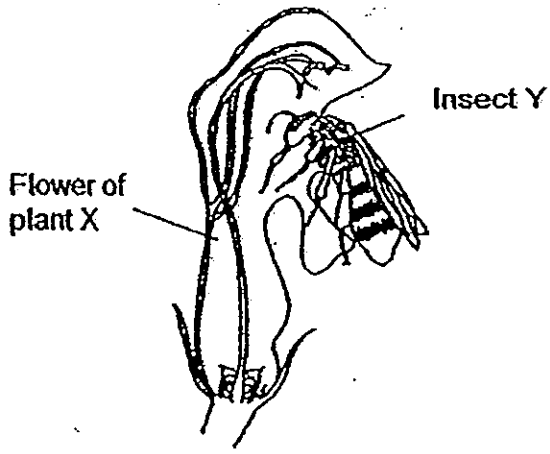
Set-up C
In the room

Set-up D
In a cupboard

In which set-ups, A, B, C and D, would Randy observe the beans germinating after a week?

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

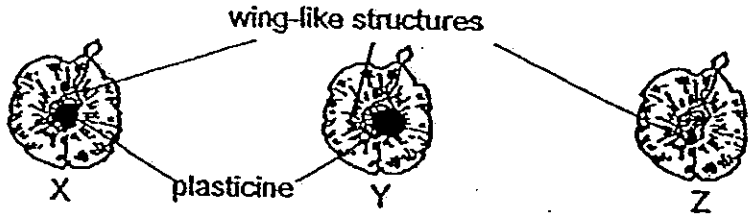
4. The diagram below shows the flower of plant X and insect Y.



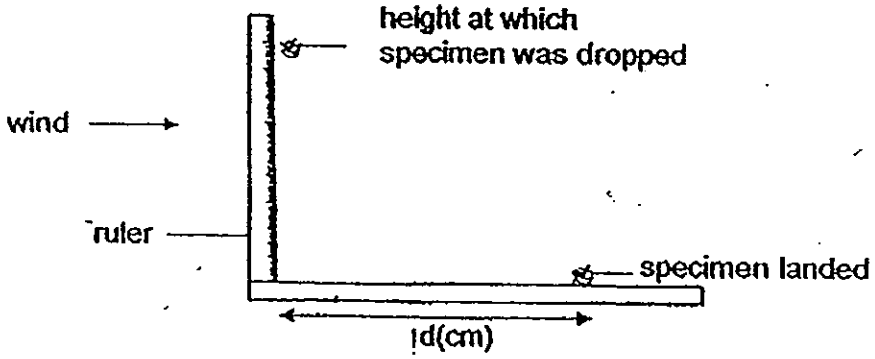
Which one of the following statements best describes the relationship between plant X and insect Y?

(1) Plant X helps insect Y to hide from its prey.
(2) Insect Y depends on plant X to find its mate.
(3) Insect Y helps plant X to pollinate its flowers.
(4) Plant X depends on insect Y to produce its nectar.

5. Ramah conducted an experiment in an enclosed hall, using identical specimen X, Y and Z of the same type and size. He attached a 5-g plasticine to X and a 20-g plasticine to Y as shown in the diagrams below.



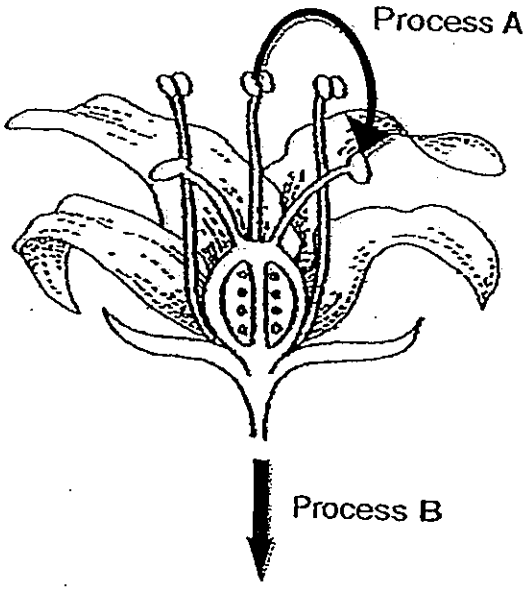
Ramah dropped each specimen, one at a time, from a fixed height above the ground and recorded the distance, d (cm), travelled by each specimen, as shown in the diagram below.



Which one of the following most likely shows Ramah's results?

	Distance moved by specimen, d (cm)		
	X	Y	Z
(1)	23.9	56.7	89.0
(2)	56.7	23.9	89.0
(3)	56.7	89.0	23.9
(4)	89.0	56.7	23.9

6. Study the diagram below.

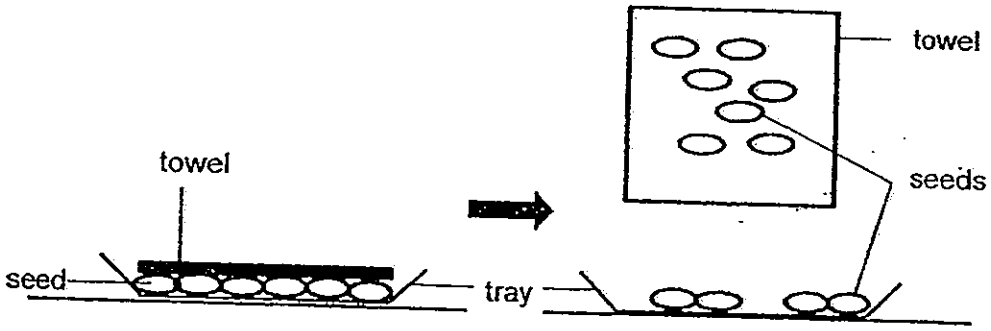


- The ovary develops into W
- The ovule develops into X

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

	A	B	W	X
(1)	fertilisation	seed dispersal	seed	fruit
(2)	fertilisation	germination	fruit	seed
(3)	pollination	fertilisation	fruit	seed
(4)	pollination	seed dispersal	seed	fruit

7. Minah conducted an experiment as shown below to find out which type of seeds, W, X, Y or Z, is most likely to be dispersed by animals. She placed 20 seeds of each type on a tray. Next, she placed a woolen towel on the seeds and then lifted the towel. She counted the number of seeds left on each tray.



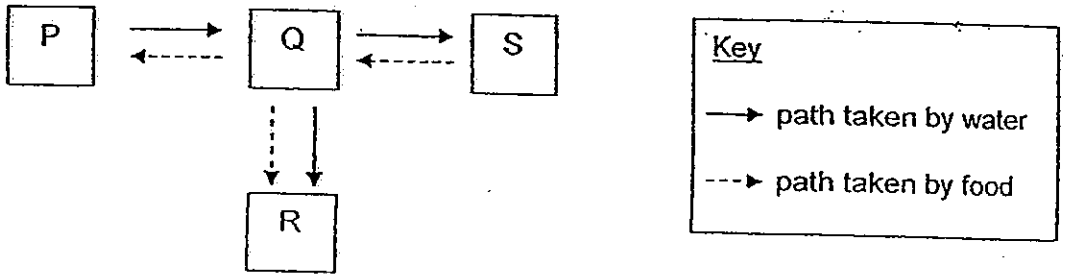
She repeated the experiment twice and recorded her results in the table below.

Types of seeds	Number of seeds left on the tray			
	1st try	2nd try	3rd try	Average
W	18	16	17	17
X	4	2	3	3
Y	10	9	8	9
Z	20	20	20	20

Which of the following seeds, W, X, Y or Z, is/are most likely dispersed by animals?

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

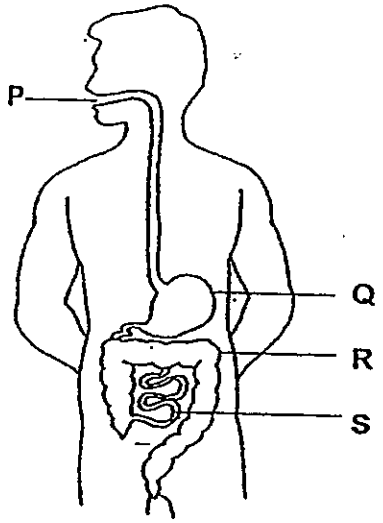
8. The diagram below shows the different paths taken by water and food in plant X. P, Q, R and S represent the various parts of plant X.



Which one of the following best represents P, Q, R and S?

	P	Q	R	S
(1)	roots	leaves	flowers	stem
(2)	leaves	flowers	stem	roots
(3)	roots	stem	fruits	leaves
(4)	leaves	roots	stem	flowers

9. The diagram below shows the digestive system of a human.

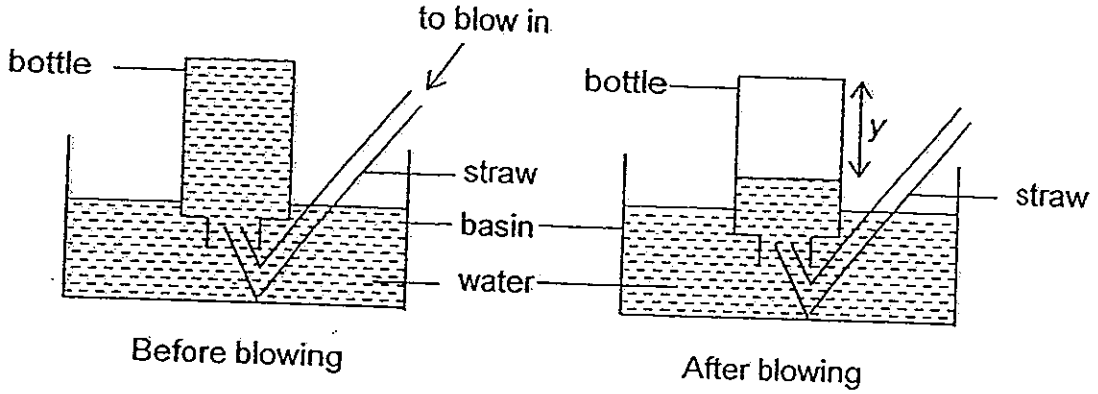


Which of the following statements is/are correct?

A Digestive juices are released at P and Q only.
B Food is broken down into simpler substances at Q and R.
C Absorption of water into the blood stream occurs at S only.
D Absorption of digested food into the blood stream occurs at S.

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

10. Susan set up the experiment as shown below to compare the lung capacity of three of her classmates. Lung capacity refers to the maximum amount of air in the lungs after taking the deepest breath.



Each pupil took a deep breath and blew as much air as she could into the straw. Susan measured and recorded the decrease in the height of the water level in the bottle after each pupil had blown into the straw, as shown in the table below.

Name of pupil	Height, y (cm)
Wei Wei	17
Mei Mei	25
Bin Bin	21

Which of the following statements is/are correct?

A Wei Wei has the greatest lung capacity.
B Mei Mei displaced more water in the bottle in one breath than Bin Bin.
C Mei Mei has the smallest amount of air in the lungs after taking a deep breath.

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

11. Sam wanted to study the food relationships among three different types of aquatic organisms, X, Y and Z. He set up two identical aquariums, P and Q, of similar physical conditions and placed different organisms into each aquarium.

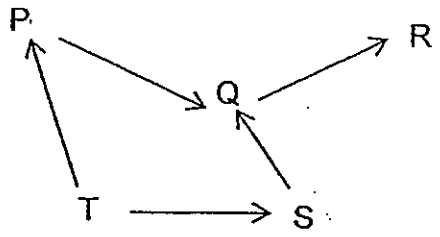
He recorded the number of organisms in the aquariums at the beginning of the experiment and at the end of one week, as shown in the table below. He did not observe any dead organisms in the aquariums.

Set-up	Organisms placed together	Number of organisms	
		At the start of the experiment	At the end of the experiment
P	X	10	5
	Y	10	10
Q	X	10	10
	Z	10	3

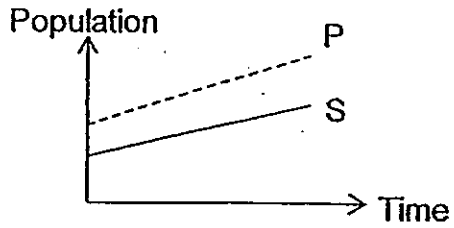
Which one of the following shows the correct food chain?

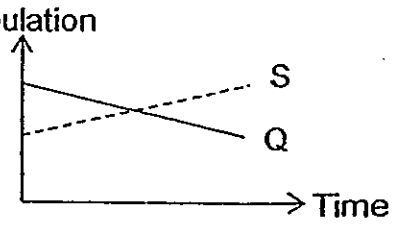
(1) X → Y → Z
(2) Y → Z → X
(3) Y → X → Z
(4) Z → X → Y

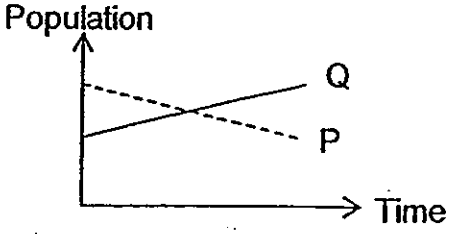
12. The diagram below shows a food web in habitat X.

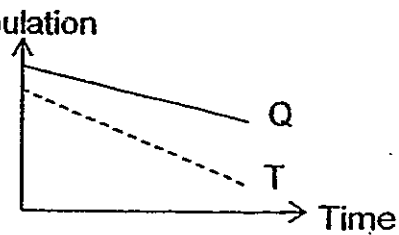


A disease killed all of organisms R. Which one of the following graphs shows the possible changes in the populations of the organisms?

(1)


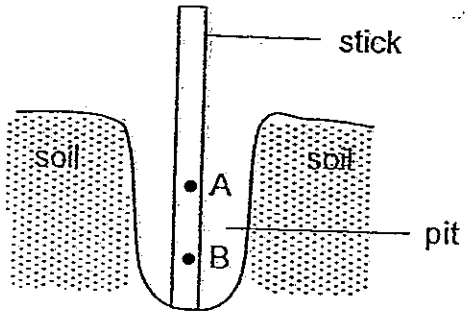
(2)


(3)


(4)


Answer questions 13 and 14 based on the information below.

Jenny dug four pits, P, Q, R and S, at different parts of a park. She placed a stick, marked with points A and B, into each pit, as shown in the diagram below.



Next, she poured some water into each pit and recorded the time taken for the water to drop from point A to point B. She repeated the procedures twice at each pit and recorded the average readings in the table below.

Pit	Average time taken for water level to drop from A to B (seconds)
P	14
Q	35
R	29
S	41

13. Which of the following variables should Jenny keep constant to conduct a fair test?

A Size of each pit
B Position of A and B on each stick
C Rate of water flowing from A to B
D Amount of water poured into the pit
E Rate at which water was poured into each pit

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

14. Jenny collected four soil samples, W, X, Y and Z, from each pit and recorded the average size of the particles in the four soil samples. She observed that soil sample Y has the largest average particle size, followed by W, X and then Z.

Based on the information above, which soil sample, W, X, Y or Z was most likely taken from Q?

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

15. Organism P lives in burrows near the seabed and feed on other animals in the sea. Organism P has some unique adaptations that help it to survive in its environment, as shown in the diagrams below. Both of its eyes are mounted on eyestalks which allow them to move independently. It also has a pair of appendages with hammer-like bulge which can spring outwards at great speed and great force.

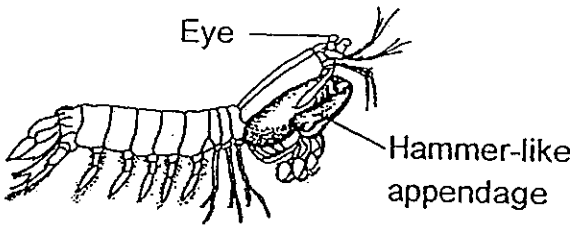


Diagram 1

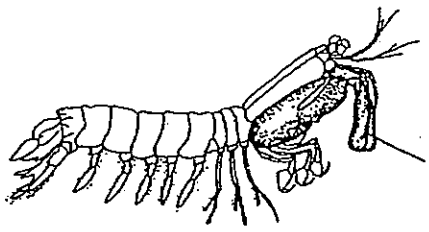


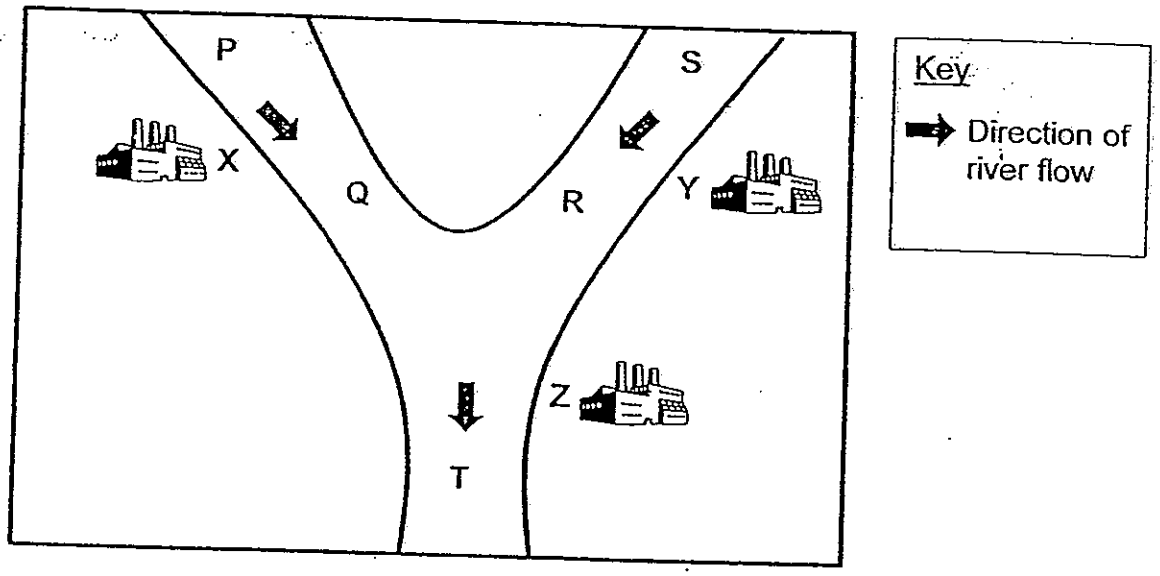
Diagram 2

Based on the information above, which of the following statements describe(s) how the adaptations of organism P enhance its survival?

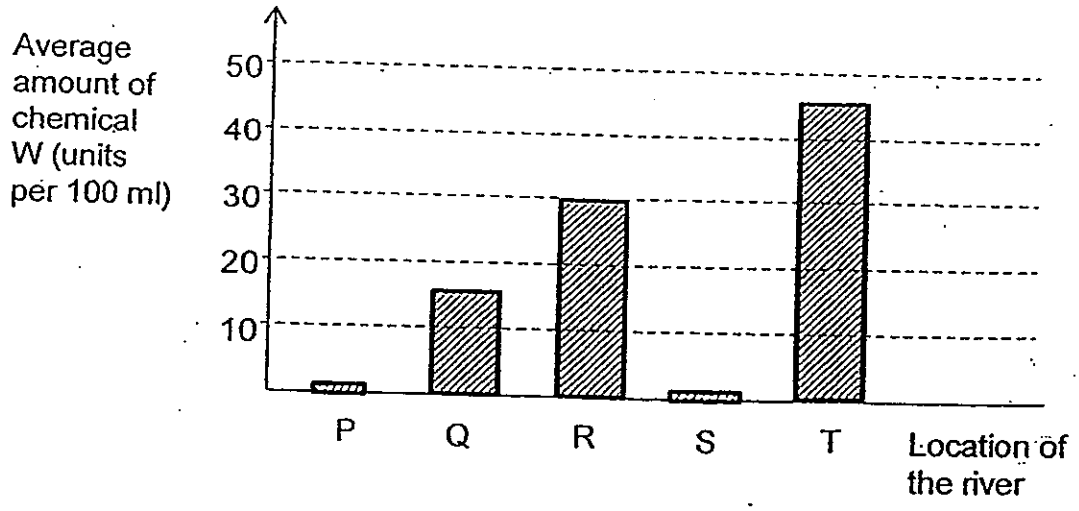
A The hammer-like appendages move at great force to smash hard-shelled prey.
B The eyes are able to move independently to obtain a wide visual field to detect prey.
C The hammer-like appendages move at great speed for it to swim away quickly from predators.
D The eyes are mounted on eyestalks to allow it to see its surroundings more clearly at night than in the day.

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

16. The diagram below shows a river flowing downstream towards the sea. Situated near the river are factories X, Y and Z.



It was suspected that these factories discharged chemical, W, into the river. Water samples were collected from five locations of the river, P, Q, R, S and T for analysis. The results were shown in the graph below.

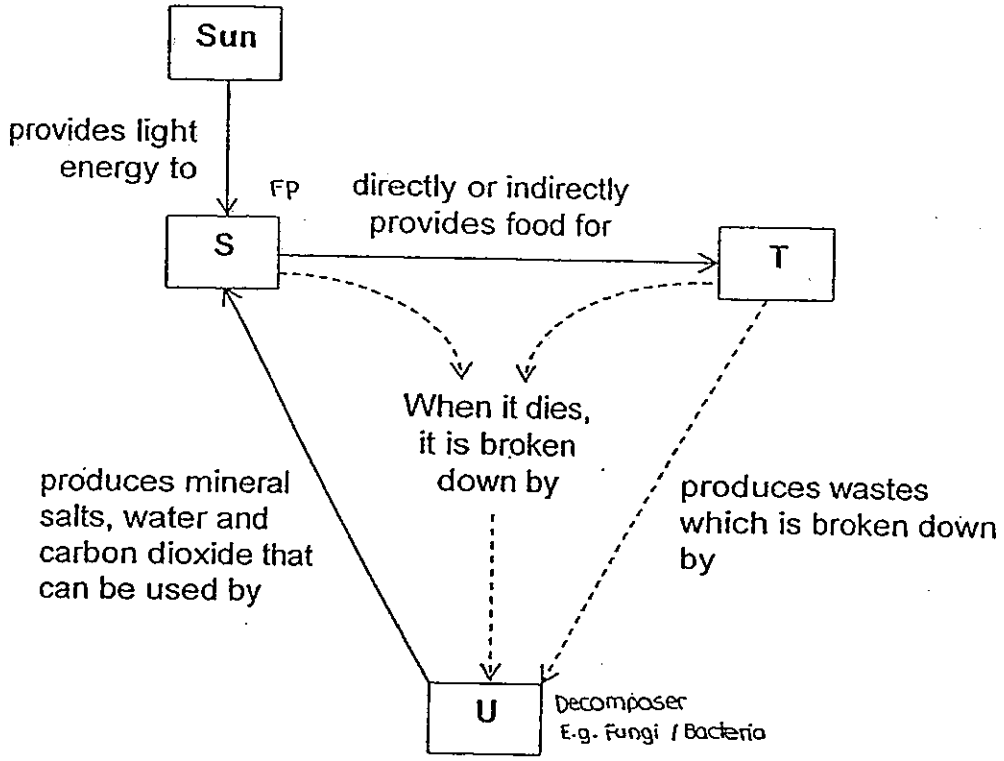


Based on the information above, which of the following statements is/are correct?

A Most amount of chemical W was found at T.
B Factory Z discharged most amount of chemical W into the river.
C Factory Y discharged more chemical W into the river than factory X.

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

17. The diagram below shows how the energy from the Sun is transferred to organism S, T and U.

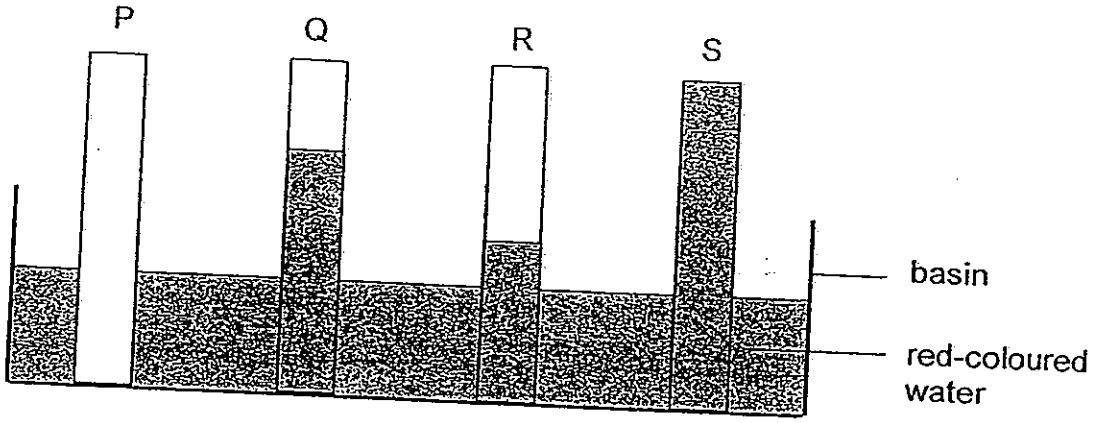


Based on the information given above, which of the following statements is/ are true?

A S is a food producer.
B U can be an earthworm.
C T is a prey and a predator.

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

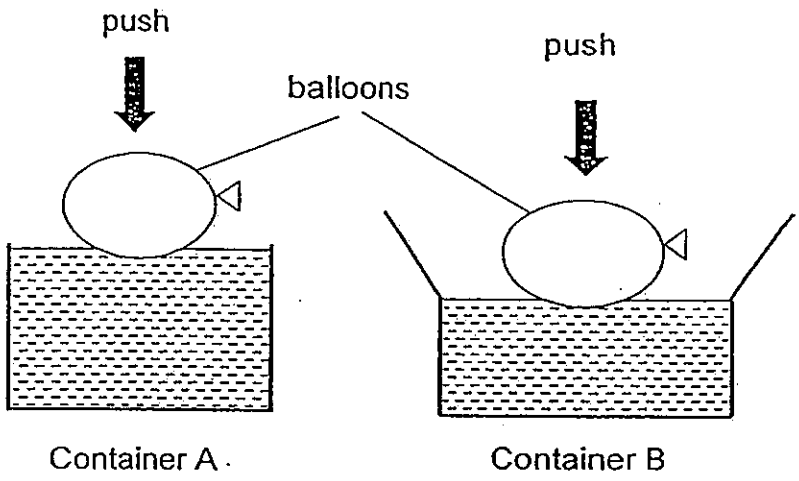
18. Jasmine conducted an experiment to compare the degree of absorbency of different types of materials. She placed 4 materials, P, Q, R and S, of identical size into a basin of red-coloured water for 10 minutes. Jasmine recorded her observations as shown in the diagram below.



Based on the information above, which one of the following correctly identifies the material for making each object?

	Raincoat	Towel	Cup
(1)	S	P	R
(2)	P	Q	S
(3)	R	Q	S
(4)	P	S	P

19. Marie filled two containers, A and B, with equal amounts of water. Using the same amount of force, she pushed an inflated balloon into each container, as shown in the diagrams below.



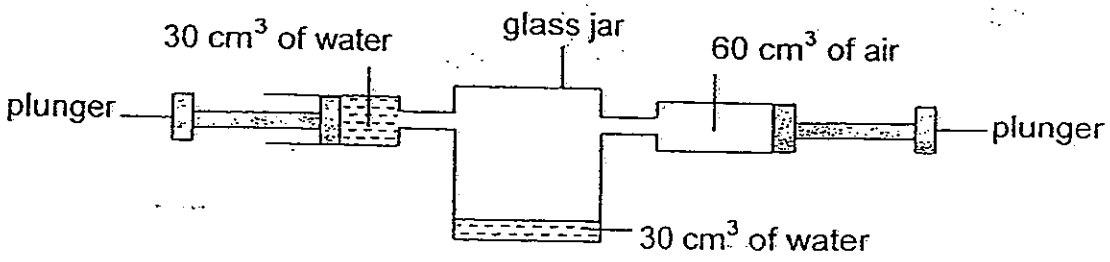
The water in container A overflowed while the water level in container B rose.

Which of the following statements can be inferred from the experiment?

A Air has mass.
B Air occupies space.
C Water has no definite shape.
D Water has no definite volume.

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

20. A glass jar with a capacity of 300 cm^3 was filled with 30 cm^3 of water. Two syringes were connected to the glass jar as shown in the diagram below.



When the plungers were pushed in completely, 30 cm^3 of water and 60 cm^3 of air were pumped into the jar.

Which one of the following shows the correct volume of the air in the jar?

(1) 240 cm^3
(2) 270 cm^3
(3) 300 cm^3
(4) 360 cm^3

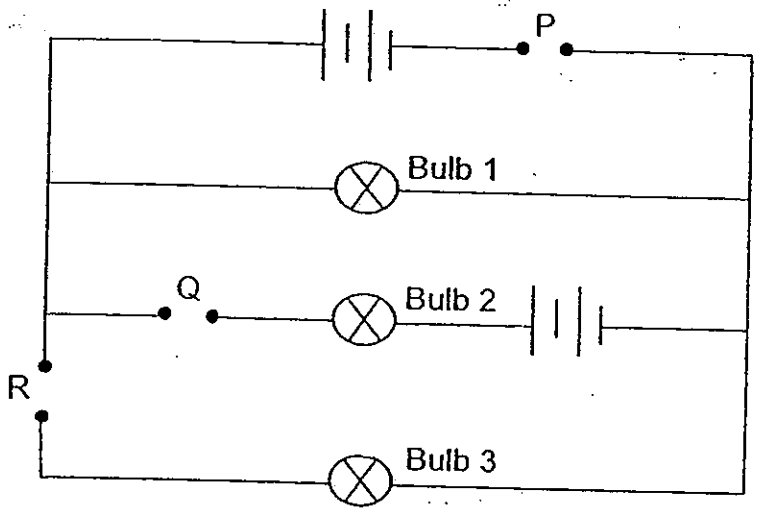
21. Cheryl poured equal amounts of water into three identical beakers A, B and C. She placed the three beakers at different locations in a room of temperature 30°C for 24 hours. She recorded her results in the table below.

Beakers	Volume of water left in the beaker after 24 hours (ml)
A	50
B	45
C	37

Which one of the following best matches A, B and C to the locations where the beakers were placed for 24 hours?

	In the cupboard	In front of a fan	In the refrigerator
(1)	A	B	C
(2)	B	C	A
(3)	B	A	C
(4)	A	C	B

22. Simon used the circuit below to test if objects A, B, C and D are conductors of electricity.



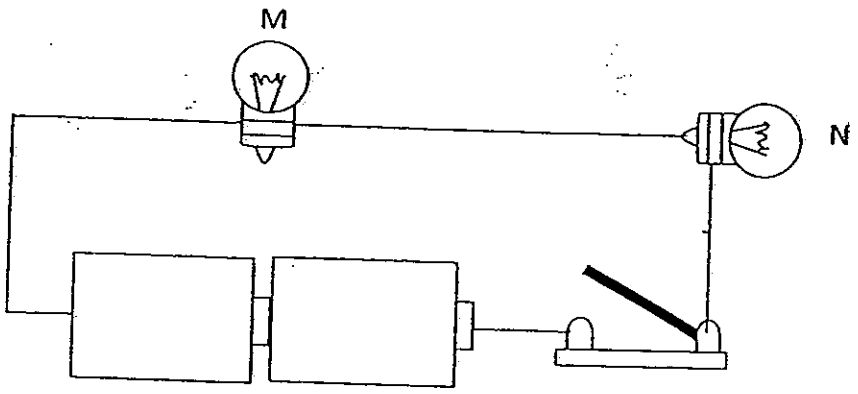
He connected different objects to the circuit at various positions, P, Q and R, and recorded his findings in the table below.

Objects at			Did the bulb light up?		
P	Q	R	Bulb 1	Bulb 2	Bulb 3
A	C	D	yes	no	yes
D	A	B	yes	yes	no
C	B	A	no	no	no

Which of the following materials is/are non-conductor(s) of electricity?

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

23. Study the electrical circuit below.

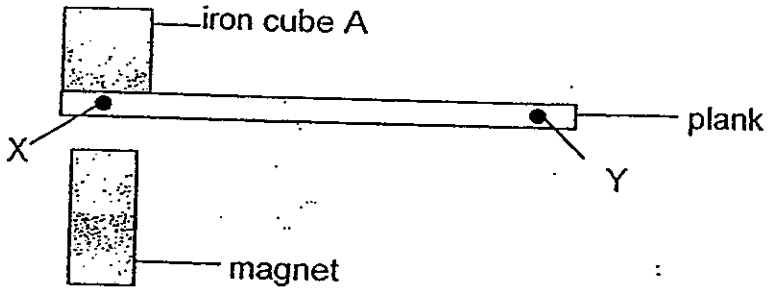


When bulb M is fused and the switch is closed, only bulb N lights up.
Which of the following is/are possible reason(s) for this observation?

A The batteries are flat.
B Bulbs M and N are connected in series.
C The wires are only connected to the metal casing of bulb M.

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

24. Winston placed a magnet directly under the plank as shown in the diagram below.



When he moved the magnet from point X to point Y of the plank, he observed that the iron cube A did not move.
Which of the following is/are possible reason(s) for his observation?

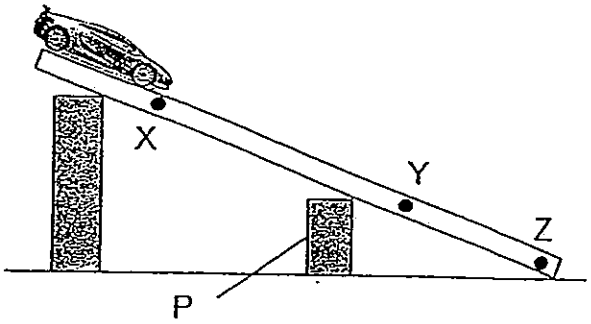
A Cube A is made of a non-magnetic material.
B The plank is made of a non-magnetic material.
C The magnet is not strong enough to attract iron cube A.

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

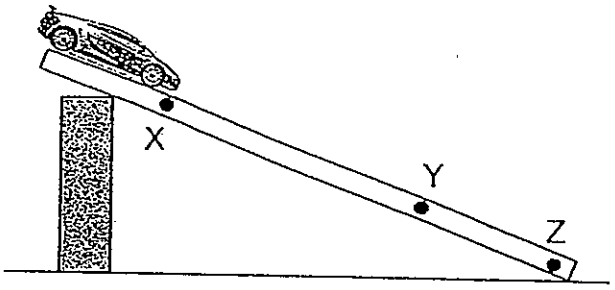
25. A toy car, made of nickel, was released at position X of the ramp with an object P placed under the ramp.

The same experiment was repeated with object P removed from the set-up.

The set-ups for both experiments are shown below.



Set-up 1



Set-up 2

The table below shows the time taken for the toy car to travel from X to Y and then from Y to Z for each set-up.

Set-up	Time taken for the toy car to travel (s)	
	from X to Y	from Y to Z
1	12	11
2	16	7

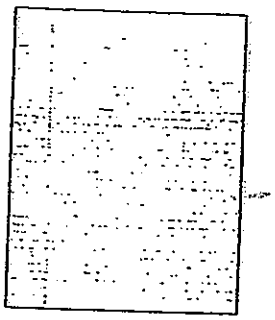
Based on the above information, which of the following can be inferred?

A P could be made of steel.
B The ramp could be made of a non-magnetic material.
C The amount of friction between the toy car and the ramp was greater in set-up 1 than set-up 2.

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

26. Tim carried out an investigation with two identical pieces of paper, X and Y. Paper X was crushed into a ball while paper Y was flat as shown below.

X



Y

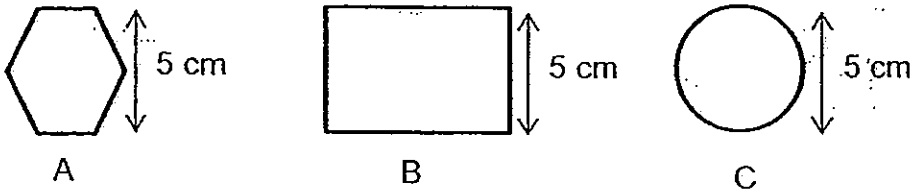
In an enclosed room, Tim dropped paper X and paper Y from the same height at the same time. He observed that X reached the ground earlier than Y.

Which of the following is/are the possible explanation(s) for his observations?

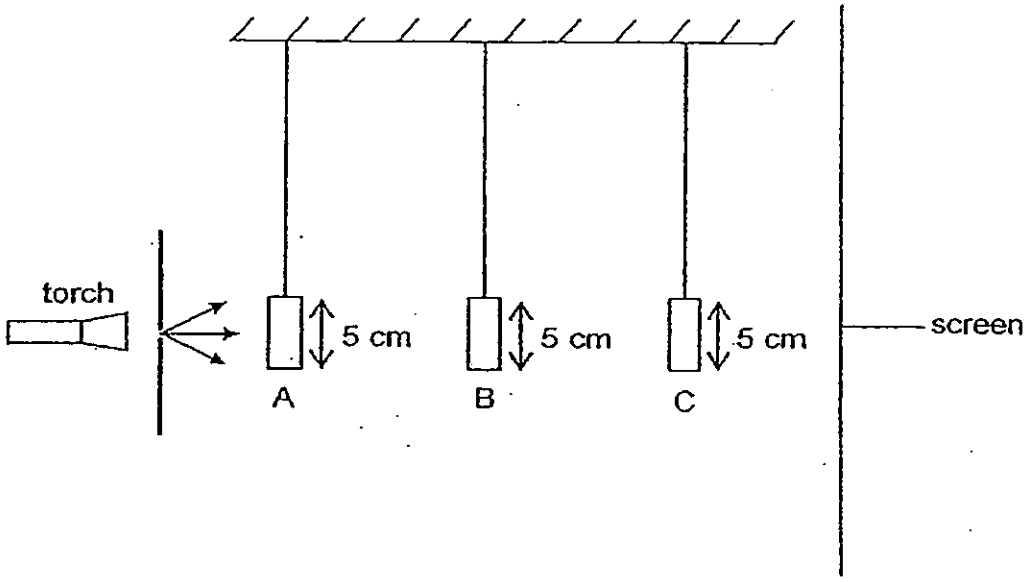
A More gravitational force acted on X than Y.
B Y experienced greater air resistance than X.
C X possessed more gravitational potential energy than Y.

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

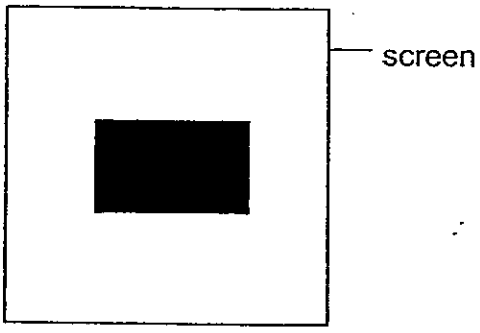
27. Mary cut out three shapes, A, B and C which are made of different materials as shown below.



She conducted an experiment by shining light on the three shapes using the set-up below.



The diagram below shows what was seen on the screen when she switched on the torch.



Which one of the following correctly matches shapes A, B and C to the properties?

	Transparent	Translucent	Opaque
(1)	C	A	B
(2)	B	C	A
(3)	C	-	A , B
(4)	A	C	B

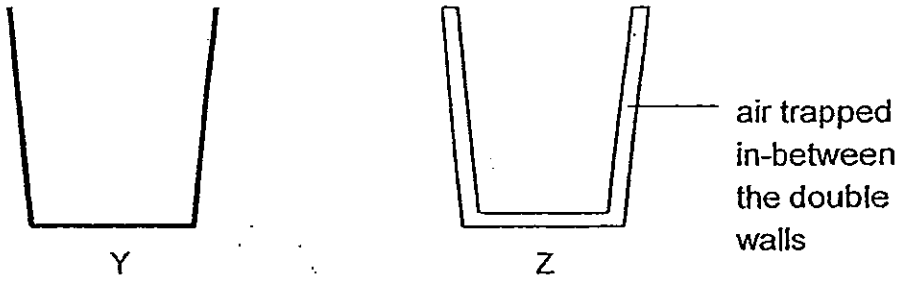
28. Mandy conducted an experiment by cooling four metal rods made of different materials, P, Q, R and S in the fridge for a fixed period of time. He recorded the lengths of each rod before and after cooling in the table below.

Metal	Length before cooling (mm)	Length after cooling (mm)
P	200	195
Q	200	197
R	200	190
S	200	193

Based on the results of her experiment, which one of the following shows the correct order of the materials, starting from the greatest rate of contraction to the smallest rate of contraction?

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

29. The diagrams below show a single-wall cup Y and a double-wall cup Z.

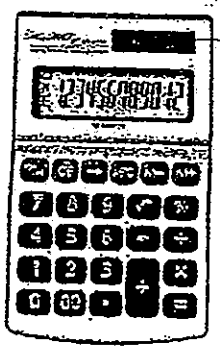


Which of the following statements compared cups Y and Z correctly?

A Z will keep hot water hot for a longer period of time than Y.
B Y will keep cold water cold for a longer period of time than Z.
C Y will allow cold water to reach the surrounding temperature in a shorter period of time than Z.

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

30. The solar cells on calculators enable the calculator to function even when its battery runs out.



Which one of the following best describes the energy conversion that takes place in the solar cell?

(1) Potential energy ⟶ Light energy

(2) Heat energy ⟶ Electrical energy

(3) Light energy ⟶ Electrical energy

(4) Light energy ⟶ Kinetic energy

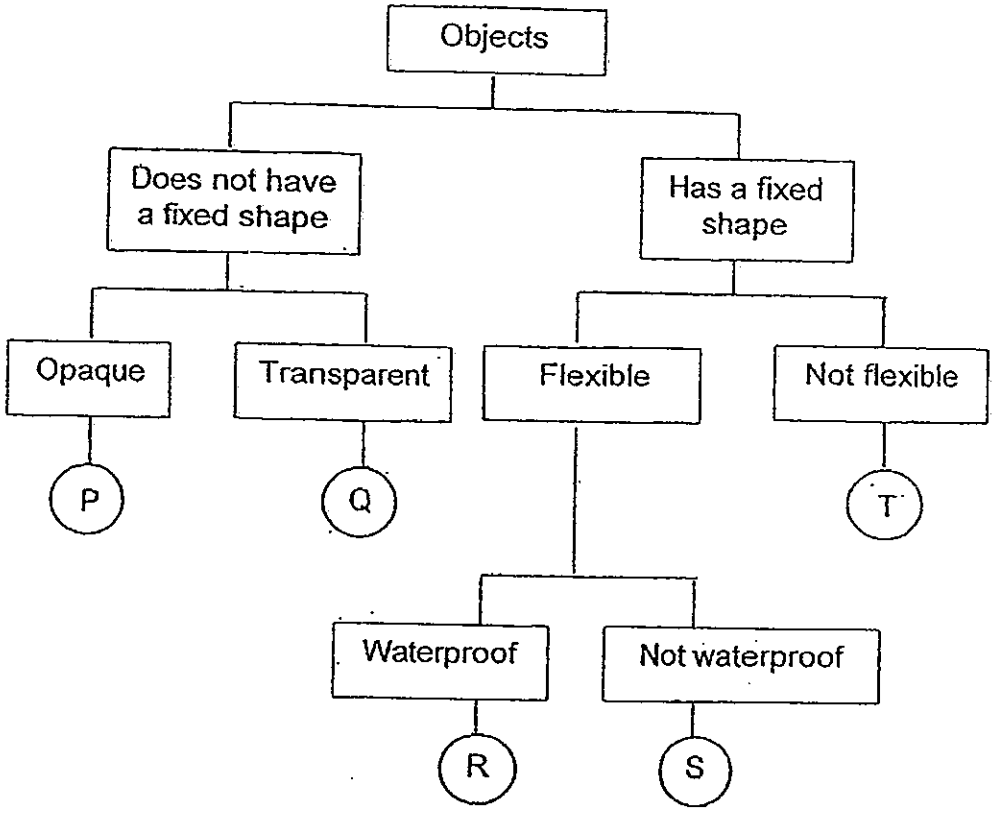
Name : _____ Index No : _____ Class : P6 ____

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 the brackets [ ] at the end of each question or part question.

31. The chart below shows how objects are being classified.



Answer the following questions based on the above information.

(a) State the difference(s) between P and T. [1]

_____

_____

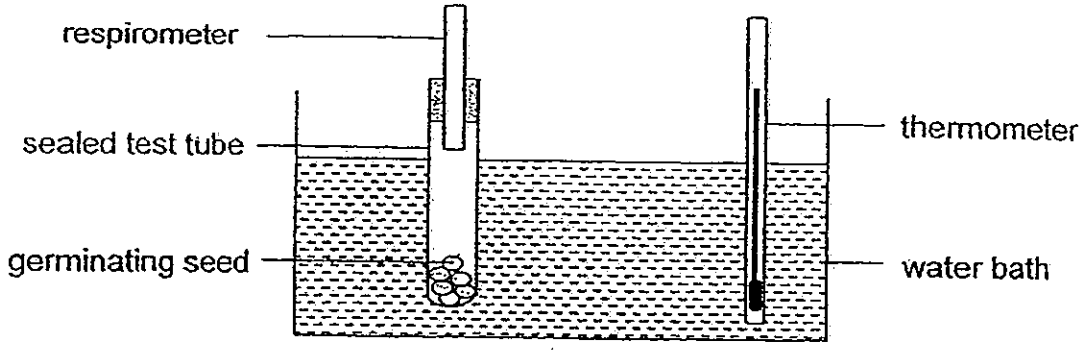
(b) Identify the group, P, Q, R, S or T, where the following items can be placed. [2]

(i) Rubber boots _____

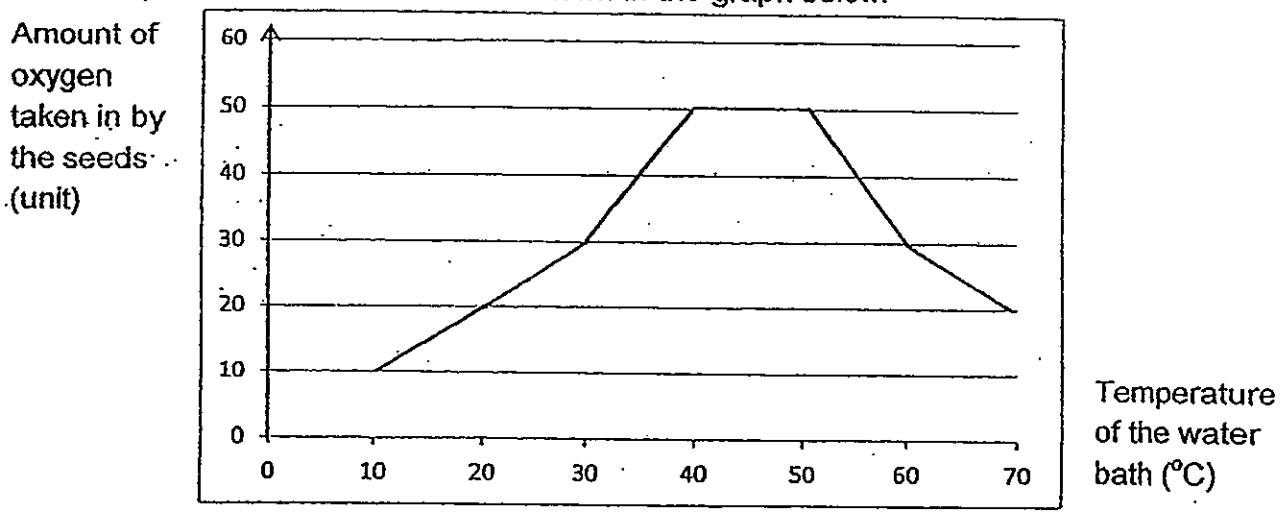
(ii) Tap water _____

Score 3

32. Rajesh wanted to find out how temperature affects the rate of respiration in germinating seeds using the set-up shown below. He placed germinating seeds in a sealed test tube attached to an instrument called the respirometer. He then placed the test tube in a water bath of a certain temperature. The respirometer measures the amount of oxygen taken in by the seeds.



He repeated the experiment using identical set-ups with water baths of different temperatures. His results were shown in the graph below.



(a) Why did Rajesh seal the test tube? [1]

_____

_____

(b) State the relationship between the amount of oxygen taken in by the germinating seeds and the temperature of the water bath from 10°C to 70°C. [2]

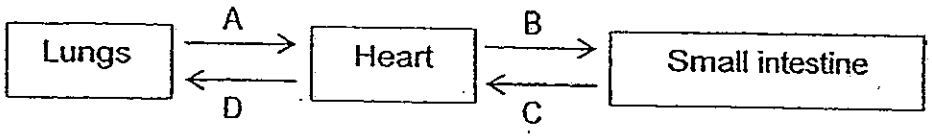
_____

_____

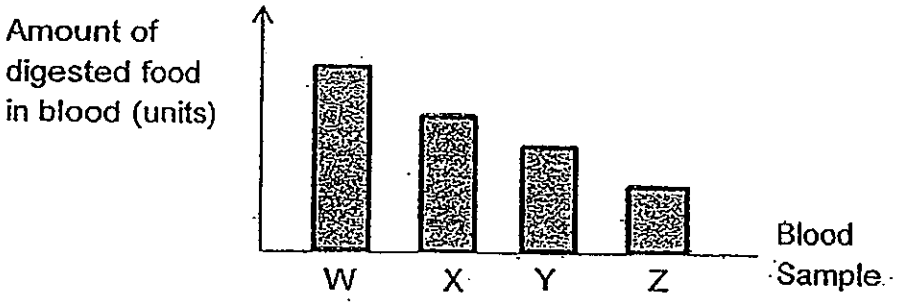
_____

3

33. The diagram below shows how blood flows from the one organ to another through blood vessels A, B, C and D in a human body.



Blood samples, W, X, Y and Z, were collected from the blood vessels shown above. The graph below shows the amount of digested food present in each blood sample.



Which blood vessel, A, B, C or D, was the blood sample W mostly likely taken from? Explain your answer clearly. [2]

_____

_____

_____

Score	
	2

34. Jane used a microscope to observe a cheek cell and a leaf cell. She recorded her observations in the table below.

Part of a cell	Types of cell	
	Cheek cell	Leaf cell
Nucleus	Present	Present
Cell wall	Present	Present
Cytoplasm	Present	Absent
Chloroplast	Absent	Present
Cell membrane	Present	Absent

Her classmate, John, checked her observations and spotted errors in the table above. He circled one of the errors as shown above.

(a) In the table above, circle 2 other errors that John spotted. [1]

John gave her another cell, Z, from a tree to observe. She observed that all the parts of the cell listed in the above table are were present in cell Z except chloroplast.

(b) Which part of a tree could Cell Z be taken from? Explain your answer. [1]

_____

_____

Score / 2

35. John carried out a study on the organisms in two habitats, A and B, and recorded the results in the tables below.

Habitat A

Type of organism	Population (%)
P	5
Q	25
R	30
S	40

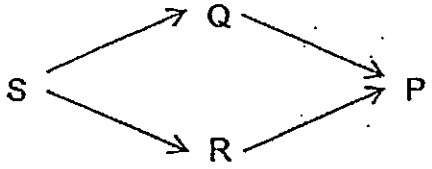
Habitat B

Type of organism	Population (%)
P	10
Q	25
R	25
S	35
Others	5

(a) Based only on the information above, put a tick (√) in the correct boxes for each statement. [2]

	Statement	True	False	Not possible to tell
i	Habitats A and B have an equal number of organisms Q.			
ii	There are more types of organisms in habitat B than in habitat A.			
iii	Organism P is the smallest population in both habitats A and B.			
iv	The largest number of organisms in both habitats A and B is organism S.			

(b) Food relationships among the organisms in habitat A are shown in the food web below.



When John introduced organism T into habitat A, he observed that there was a sharp decrease in population P, followed by a change in populations Q and R over a period of time. Explain his observations. [2]

_____

_____

Score	4

36. The Health Advisory provides advice for the public on the preventive measures that can be taken to reduce the health impact of haze based on PSI, as shown in the table below.

PSI (Pollution Standards Index) is Singapore's main indicator of air quality.

PSI	Description of air quality	Preventive measures for children
0 to 100	Good / moderate	Normal activities
101 to 200	Unhealthy	Minimise prolonged or strenuous outdoor physical exertion
201-300	Very unhealthy	Minimise all outdoor exposure

The PSI readings on 23 June 2013 for various regions of Singapore were recorded in the table below.

Time	PSI				
	North	South	East	West	Central
9 am	115	121	112	112	108
12 pm	96	98	91	94	88
3 pm	88	94	81	94	82

Answer the following questions based on the above information.

(a) Which region has the highest average PSI reading recorded on 23 June throughout the day? [1]

_____

(b) At which of the following time should prolonged outdoor activities be minimised for children on 23 June in all regions of Singapore? Put a tick (√) in the correct box(es). [1]

☐ 9 am

☐ 12 pm

☐ 3pm

Score	
	2

Continue from Question 36.

Shirley's mother bought three different brands of air purification machines, X, Y and Z, to improve the air quality in the three bedrooms in the house. The three bedrooms are identical in size and layout.

Shirley conducted an experiment to find out which machine is most effective in removing dust particles. She placed all the three machines in bedroom 1. She switched on machine X for one hour and used a counting instrument to record the amount of dust particles in the air in the enclosed room at the end of 1 hour. She repeated the experiment with Y and then Z, one at a time. She kept all the windows and door in the bedroom closed throughout the 3 hours.

The table below shows the results of her experiment. The reading on the counting instrument at 9 am was 6000 unit per m^3.

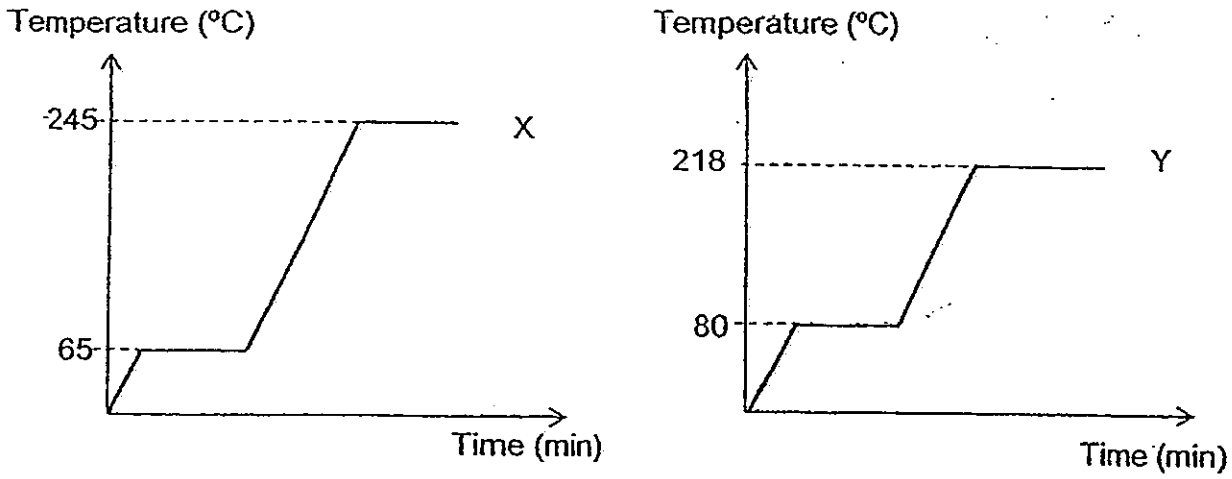
Machines	Period during which the machine was switched on	Reading on counting instrument at the end of one hour period (unit per m^3)
X	9 am to 10 am	4000
Y	10 am to 11 am	3000
Z	11 am to 12 pm	2000

(c) Shirley's mother told Shirley that her experiment was not a fair one. Explain why her experiment was not a fair one. [1]

(d) What could Shirley do to make her experiment a fair one? [1]

Score	
	2

37. Two solid substances X and Y were heated over a period of time. The graphs below show the change in temperature of substances X and Y.



(a) Identify the states of substances X and Y when the temperature is at 70°C. [1]

(i) Substance X : _____

(ii) Substance Y : _____

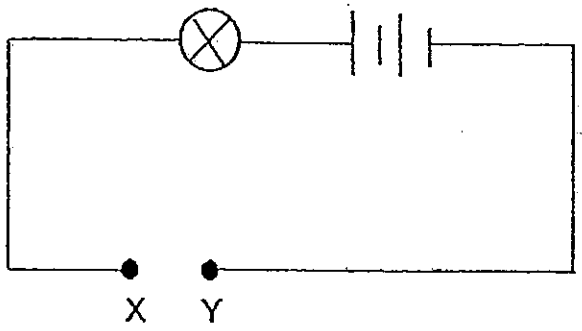
(b) Based on the above information, what would happen to the temperature of substance X if it was removed from the heat source at 100 °C and placed on a table in the room for one day? Explain your answer. [2]

_____

_____

Score	3

38. Wendy's teacher gave her four wires, P, Q, R and S, which are made of the same material but of different lengths and thickness. She set up the circuit below and connected each wire to point X and Y, one at a time and observed the brightness of the bulb.



She recorded her observations in the table below.

Wire	Length of wire (cm)	Thickness of wire (mm)	Brightness of bulb
P	10	1	bright
Q	10	2	Very bright
R	50	1	Dim
S	50	2	bright

(a) What conclusions can Wendy draw from her results? [2]

_____

_____

_____

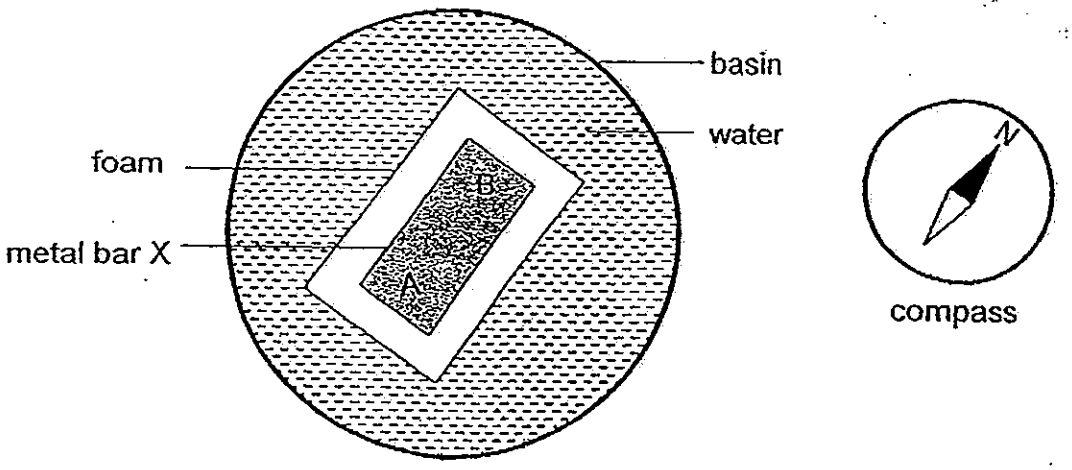
(b) Her teacher suggested that she should use a light sensor for her experiment.
How does using a light sensor help to improve her experiment? [1]

_____

_____

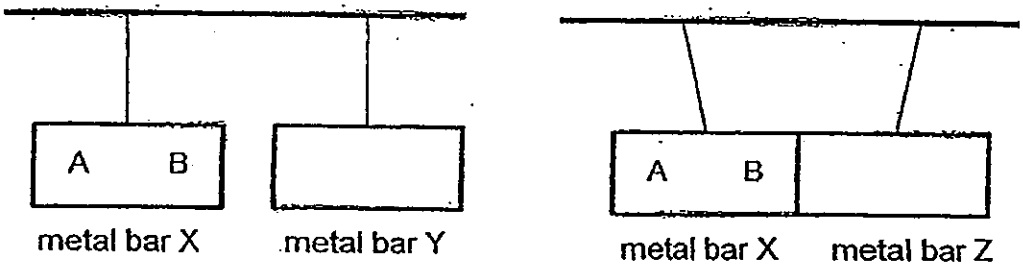
Score	
	3

39. Patricia placed a metal bar X, labelled AB, on a piece of plastic foam in a basin of water. She observed that the free floating metal bar X came to rest with part B pointing to the North as shown in the diagram below.



Top view of set-up

Next, Patricia hung metal bar X at the same distance from metal bars, Y and Z, in two separate set-ups, respectively. She recorded her observations as shown below.



(a) Based on the observations above, what can she conclude about the properties of metal bars, Y and Z? [1]

(i) Metal bar Y : _____

(ii) Metal bar Z : _____

(b) Explain your answer in (a)(i). [1]

_____

_____

Score 2

40. Mary wanted to find out if sliding down the wet water slide at her swimming pool takes a shorter time than sliding down the slide at her playground. Both slides were made of the same material and were of the same height. The distance from the top to the bottom of both slides was also the same.

She recorded the time taken for her to slide down from the top to the bottom of each slide in the table below.

Types of slide	Time taken to reach the bottom of the slide (s)			
	1st reading	2nd reading	3rd reading	Average
Playground	7	6	5	6
Wet water slide	4	4	4	4

Explain the difference in the results obtained. [2]

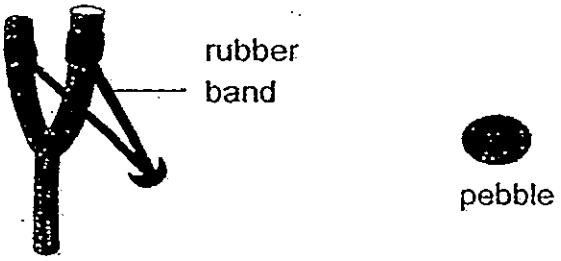
_____

_____

_____

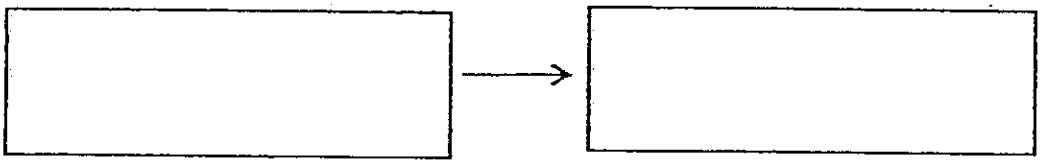
Score	
	2

41. Peter's ball was stuck on the branch of a tall tree. His friend suggested that Peter could use his newly-bought catapult and a pebble to bring his ball down.



catapult

(a) Fill in the boxes below to show the energy conversion that took place when Peter stretched and released the rubber band to hit the ball on the tree. [1]



Peter observed that his pebble could not travel far enough to reach the ball.

(b) Using the same catapult and standing at the same position, what could he do to make sure that the same pebble would reach the ball on the tree? Explain your answer. [2]

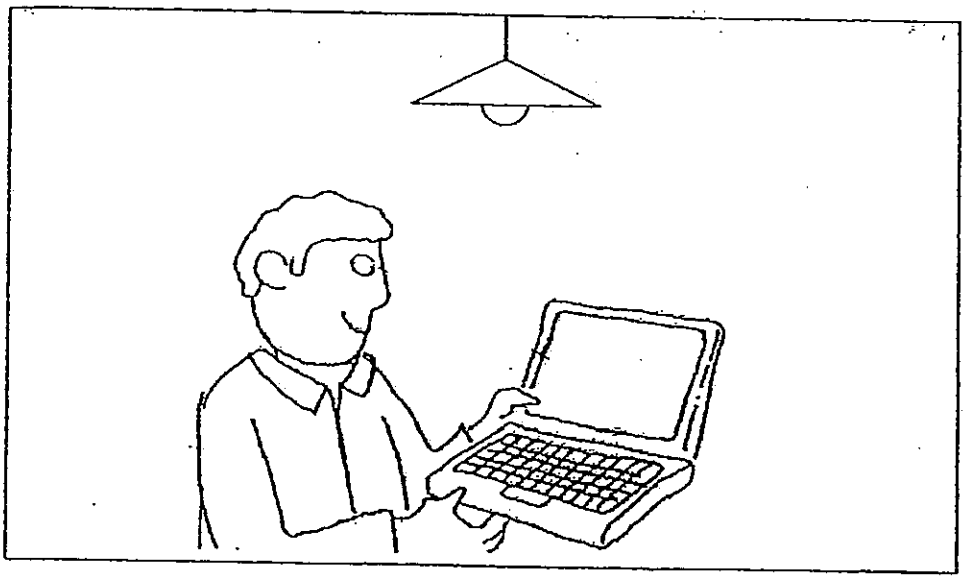
_____

_____

_____

Score	3

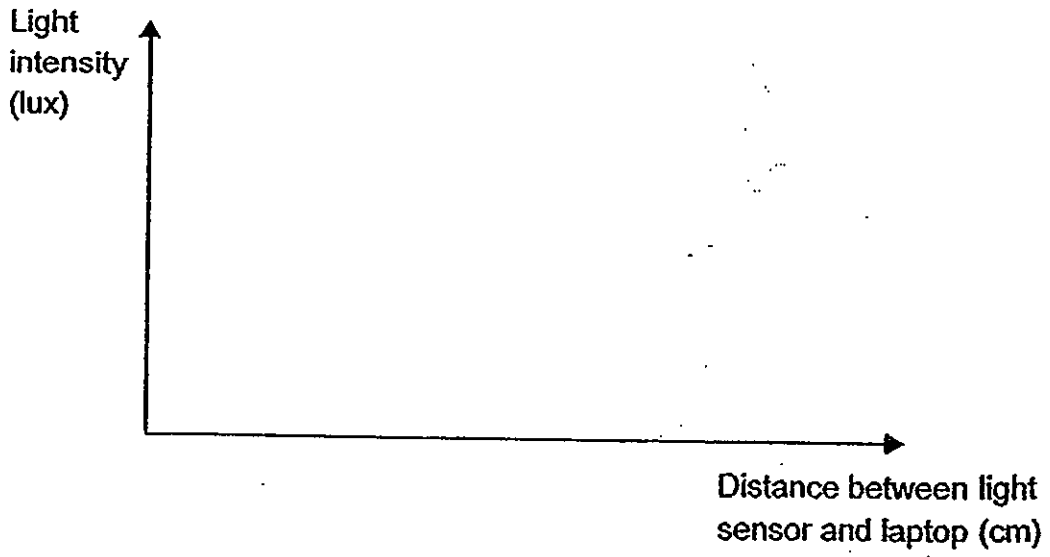
42. Mr Tan wanted to check his email on his laptop at night in his enclosed pitch dark room. He did not want to wake up his wife who was sleeping in the same room, so he did not switch on the lamp in the room.



(a) In the above diagram, draw the path of light ray to show how Mr Tan was able to read his email in the dark room. [1]

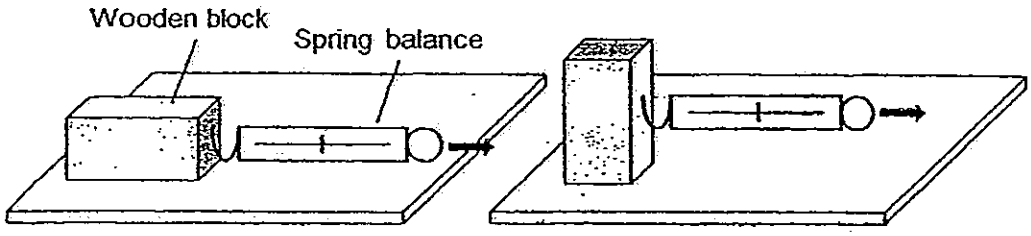
(b) Mr Tan's daughter, Kathy, carried out an experiment using a light sensor to find out how the distance between the laptop screen and the light sensor affects the light intensity recorded by the light sensor.

Draw a line graph below to show the results of her experiment. [1]



Score	2

43. Sarah carried out an investigation as shown below. She pulled the wooden block by placing its larger surface on the glass sheet. She measured the minimum force needed to keep the block moving along the glass surface. Then, she repeated the experiment with the smaller surface of the wooden block on the glass sheet.



Larger surface of the wooden block on the glass sheet

Smaller surface of the wooden block on the glass sheet

She recorded her results as shown below.

Surface area of the wooden block resting on the glass sheet	Minimum force needed to keep the block moving (N)			
	1st try	2nd try	3rd try	Average
Smaller	4.3	4.5	4.4	4.4
Larger	4.5	4.5	4.2	4.4

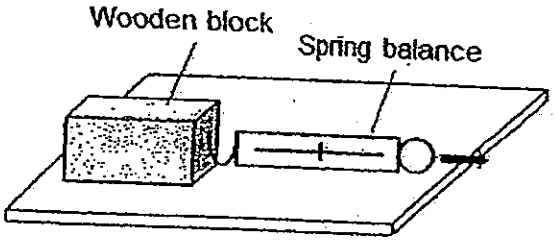
(a) What can Sarah conclude from the experiment? [1]

_____

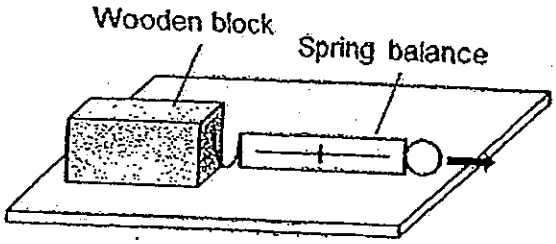
_____

Score	/ 1

Sarah wanted to choose a suitable type of floor tiles for the living room in her new flat. She repeated the earlier experiment using the same set-up, only replacing the glass sheet with floor tiles A and B as shown below.



Floor tile A



Floor tile B

She recorded her results as shown below.

Floor Tile	Minimum force needed to keep the block moving (N)			
	1st try	2nd try	3rd try	Average
A	5.3	5.5	5.4	5.4
B	8.5	8.5	8.2	8.4

(b) Which type of floor tiles, A or B, should Sarah use for the living room so that it is easier for her to mop the floor? Explain your choice. [2]

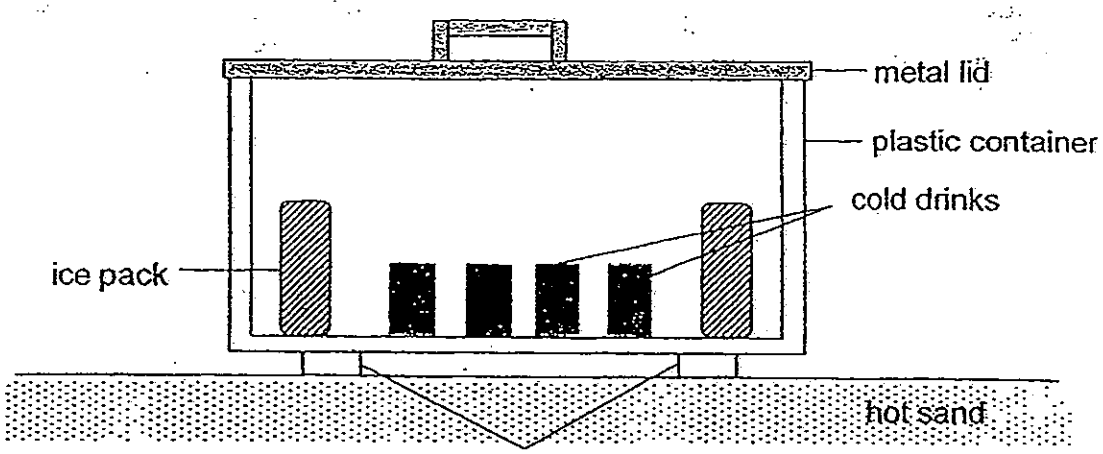
_____

_____

_____

Score	
	2

44. Irene designed and constructed a storage box to keep cans of cold drinks cold for a long period of time at the beach on sunny days. The box has plastic stands as shown in the diagram below.



(a) How does adding the plastic stands help to keep the drinks cold for a longer period of time? [2]

(b) After the storage box was left at the beach for five minutes, Irene observed more water droplets formed on the outer surface of the metal lid than on the outer surface of the plastic container. Explain her observation. [2]

Score	
	4

- END OF PAPER -

Exam Paper 2013 Answer Sheet

School: RAFFLES GIRLS' PRIMARY SCHOOL
Subject: PRIMARY 6 SCIENCE
Term: PRELIM

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

31. (a) P has fixed shape but T does not have a fixed shape.
(b) i. R
ii. Q

32. (a) It is to ensure that the germination seeds will only be affected by the oxygen taken in the test tube.
(b) From 10°C to 40°C, the amount of oxygen taken in increases with temperatures. However, from 40°C to 50°C, the amount of oxygen taken in remains constant. From 50°C to 70°C, the amount of oxygen taken in decreases.

33. C. The blood in C has just left the small intestine where digested food enters the blood stream at C. Hence C would have the most digested food as shown in W.

34. (a) Cytoplasm – Circle Absent
Cell membrane – Circle Absent
(b) The roots. The root cell does not have chloroplast which is needed to trap light for photosynthesis because chlorophyll from the chloroplast is not needed for photosynthesis.

35. (a) i. Not possible to tell
ii. True
iii. False
iv. True
(b) T is the predator of P therefore P decreases and when P decreases, Q and R will increase over a period of time as P which is their predator is decreasing.

36. (a) South region
(b) 9 am
(c) The amount of dust particles at the beginning of each period was different.
(d) Place one air purification in each of the three bedrooms.

37. (a) i. Liquid

ii. Solid

(b) Substance X will lose heat to the surrounding air.

38. (a) The shorter the length of the wire and the thicker the thickness of the wire, the brighter the brightness of the bulb.

(b) Using a light sensor improves the accuracy of the results.

39. (a) i. Non-magnetic material

ii. Magnetic material

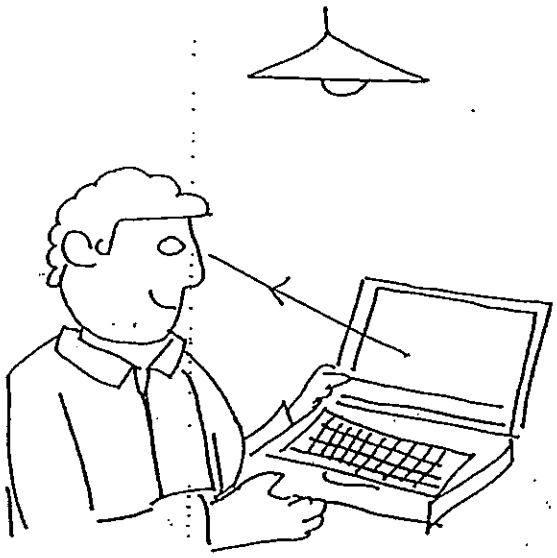
(b) X is a magnet but Y was not attracted to it.

40. Water is a lubricant so friction between Mary and the slide decreased when she was on the wet water slide and as friction decreased she slide down faster on the wet water slide than the playground slide.

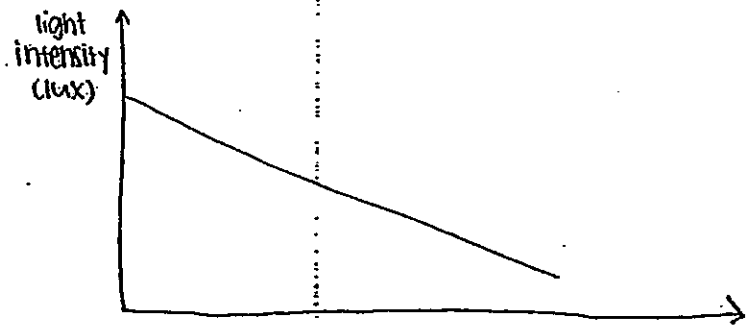
41. (a) Elastic potential energy → kinetic energy

(b) He could stretch the rubber band further. When the rubber band was stretched further, there was more elastic potential energy converted to more kinetic energy so the pebble would travel more further.

42. (a)



(b)



43. (a) The surface area of the wooden block resting on the glass sheet does not affect the minimum force needed to move the block.

(b) A. Less force is needed to keep the block moving when floor tile A is used because there is less friction between floor tile A and the block, therefore when floor tile A is used, it is easier for Sarah to mop the floor because less effort is used.

44. (a) The plastic stands reduce the surface area of the container in contact with the hot sand, thus slowing down heat gain by the drinks from the hot sand.

(b) Water vapour in the air lost heat more quickly to the metal lid than to the plastic lid, hence water vapour condensed to waster droplets during the 10 minutes.