SA1

NANYANG PRIMARY SCHOOL

PRIMARY 6 SCIENCE

SEMESTRAL ASSESSMENT 1
2005

[redacted]

Date : 6 MAY 2005

Duration : 1 h 45 min

Name : _____ **( )**

Class: Primary _____ **( )**

Marks Scored:

Booklet A:		**60**
Booklet B :		**40**
Total :		**100**

Parent's signature: .....

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

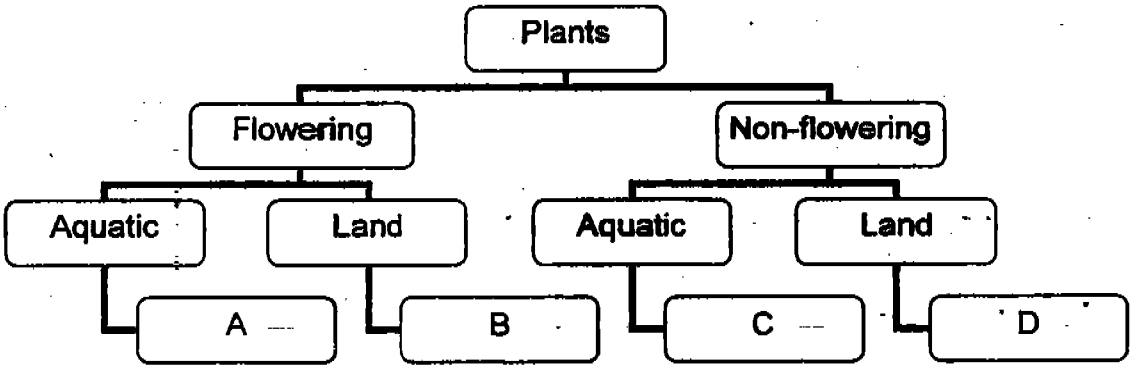
Booklet A consists of 18 printed pages.

Section A (20 x 2 marks = 40 marks)
For each question from 1 to 20, 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 following table describes four plants P, Q, R and S, based on two characteristics. A tick (√) shows that the plant has the characteristics as described.

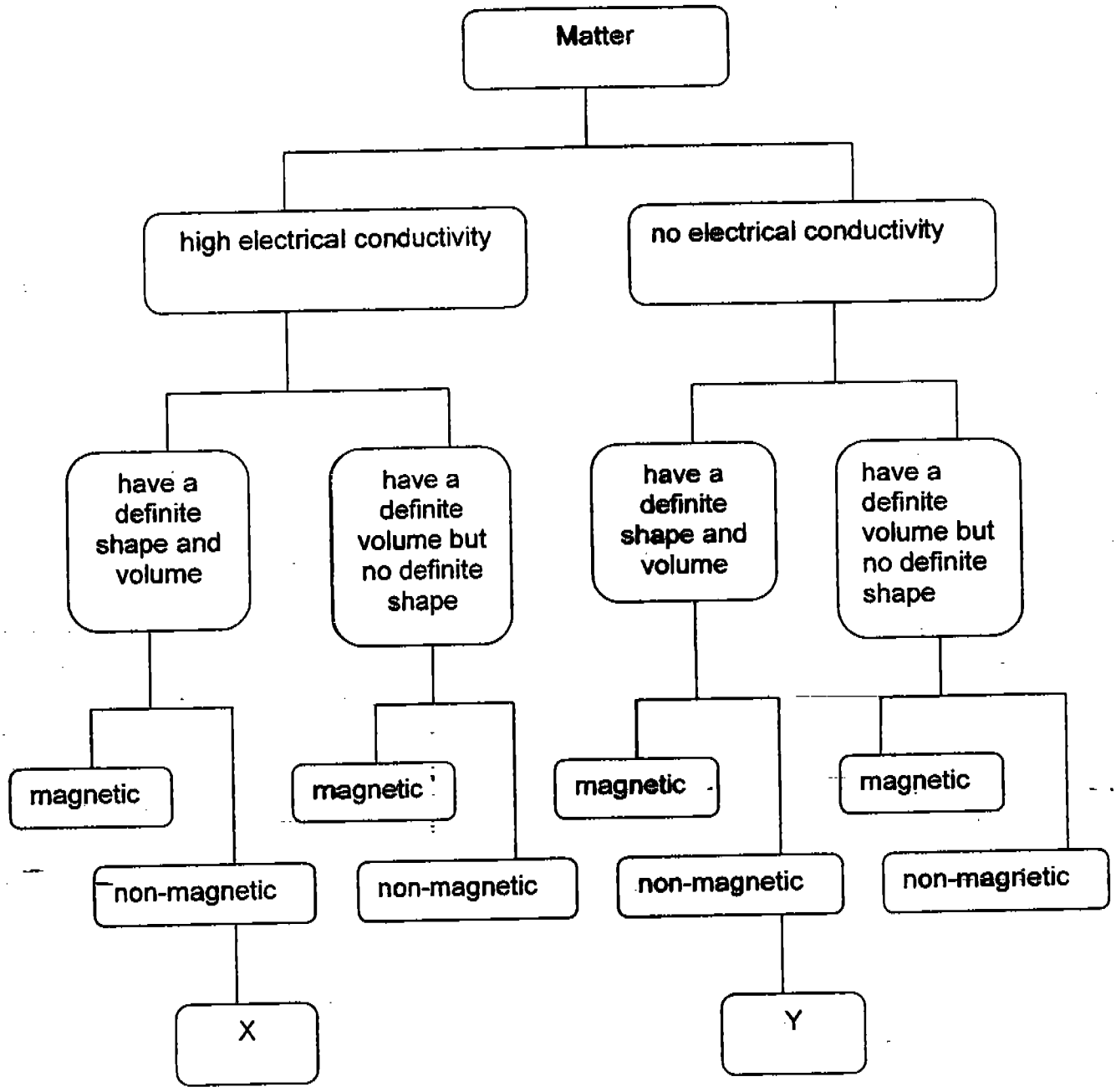
Plants / Characteristics	P	Q	R	S
Reproduce from seeds	√		√	
Grows in the pond		√	√	

Based on the information above, identify plants Q and S in the following classification table.



	Plant Q	Plant S
(1)	A	B
(2)	D	A
(3)	B	C
(4)	C	D

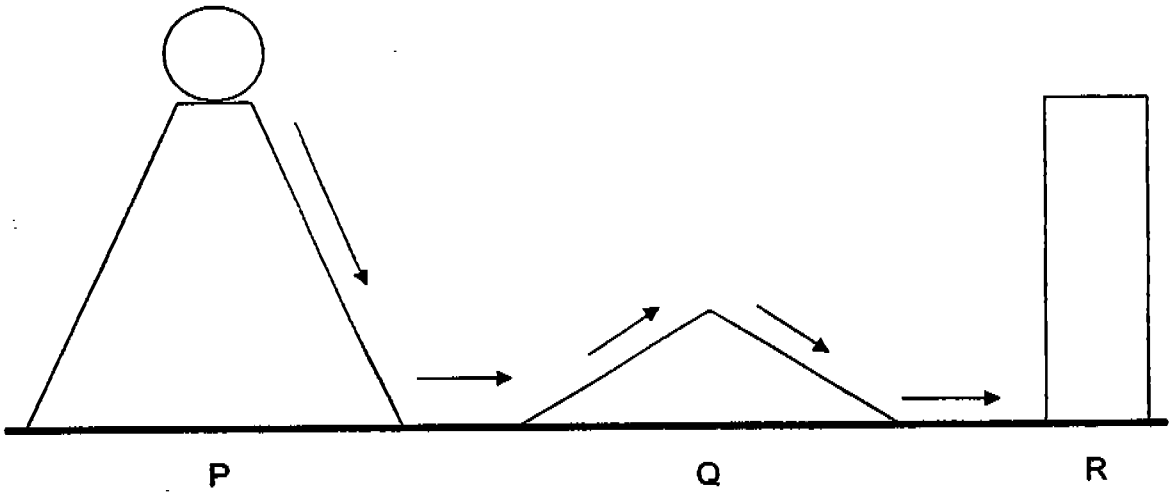
2. Study the classification chart below.



What do the letters X and Y represent respectively?

	X	Y
(1)	steel can	salt water
(2)	brass plate	steel can
(3)	brass plate	rubber hose
(4)	salt water	rubber hose

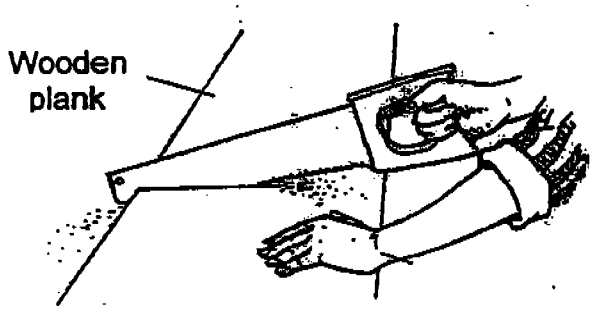
3. A tennis ball was released from the top of ramp P. It rolled downwards and along the floor. Then, it travelled up ramp Q and down before it was stopped by a wooden block R as shown in the diagram below.



Based on the diagram, which one of the following statements is true?

(1) Ramp P has a rougher surface than ramp Q.
(2) All the kinetic energy will be used up when the tennis ball hits ramp R.
(3) When the tennis ball is released from ramp P, it gains potential energy.
(4) Kinetic energy is converted to potential energy when the tennis ball travels up ramp Q.

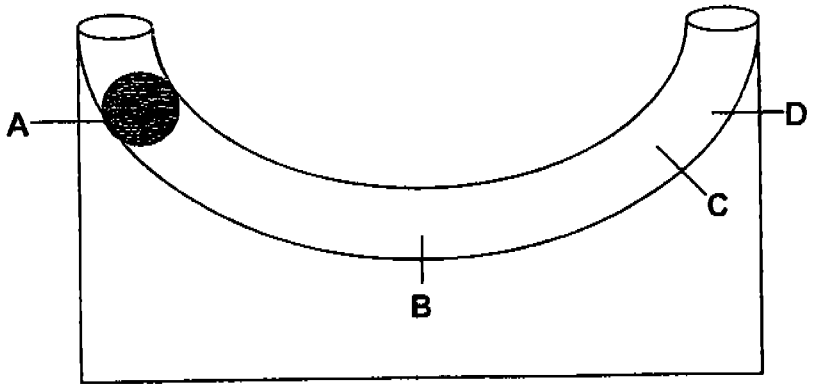
4. Uncle Tim was sawing a piece of wooden plank with an axe as shown below.



Which one of the following correctly describes the energy conversion that allows work to be done as shown in the diagram above?

(1) Kinetic energy ⟶ Heat energy + Sound energy + Chemical energy
(2) Sound energy ⟶ Heat energy + Sound energy + Kinetic energy
(3) Potential energy ⟶ Sound energy + Kinetic energy + Heat energy
(4) Heat energy ⟶ Potential energy + Kinetic energy + Sound energy

5. The diagram below shows an open curved tube. A ball is placed at position A and is released to allow it to roll down the curved tube.



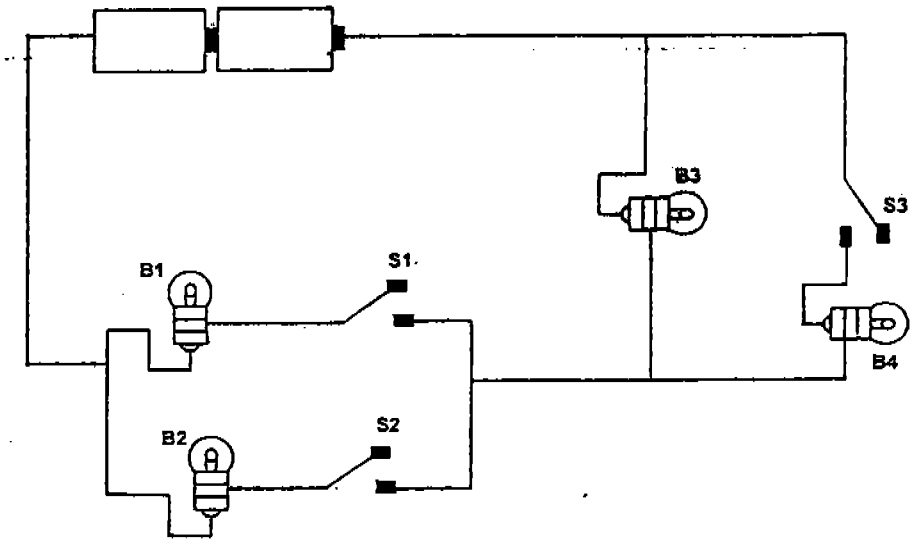
Which one of the following statements is true?

(1) The ball would fly out of the curved tube.
(2) The ball would roll to position B and come to a stop.
(3) The ball would roll to the highest position C then move back to position B and come to a stop.
(4) The ball would roll to the highest position D then move back to positions C, then B before coming to a stop.

6. Dynamos and loudspeakers make use of _____ force to work.

(1) gravitational
(2) magnetic
(3) frictional
(4) turning

7. Study the electrical circuit below carefully.



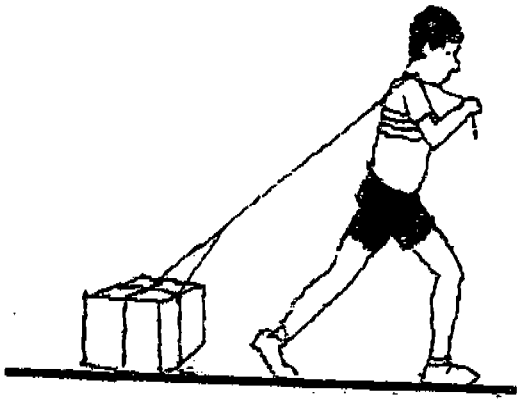
In the circuit above, four bulbs B1, B2, B3 and B4 are connected to three switches S1, S2 and S3. The table below shows which bulb/ bulbs will be lit when the given switches are closed.

Switches			Bulbs			
S1	S2	S3	B1	B2	B3	B4
closed	closed	open	LIT	LIT	LIT	?
open	open	closed	UNLIT	UNLIT	?	UNLIT
closed	open	closed	LIT	?	LIT	LIT
open	closed	open	?	LIT	LIT	UNLIT

Which one of the following best describes the symbol "?" when the given switches are closed?

	B1	B2	B3	B4
(1)	UNLIT	UNLIT	LIT	UNLIT
(2)	UNLIT	LIT	UNLIT	UNLIT
(3)	LIT	UNLIT	UNLIT	UNLIT
(4)	UNLIT	UNLIT	UNLIT	UNLIT

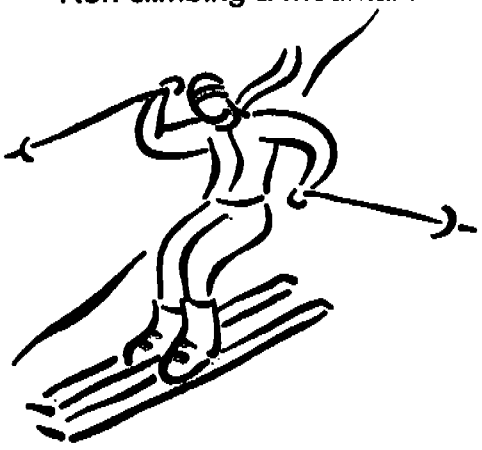
8. The four diagrams below show forces at work in our daily lives.



Tom dragging a parcel

Ron climbing a mountain

Leonard tightening a bottle of water



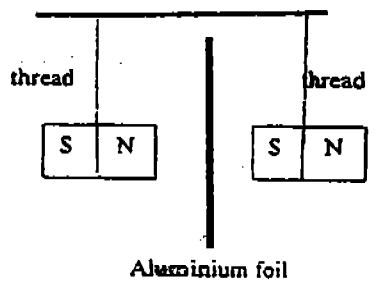
Peter snow-skiing down a mountain

How many of the above examples show the presence of frictional force?

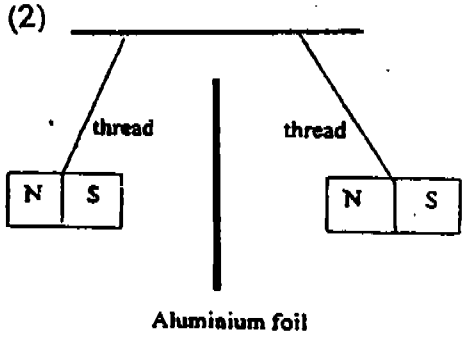
(1) one
(2) two
(3) three
(4) four

9. Two bar magnets suspended by threads are separated by a thin piece of aluminium foil. Which one of the following diagrams correctly shows what will happen when the magnets are brought close together?

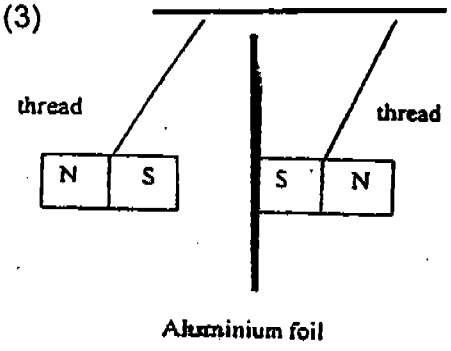
(1)



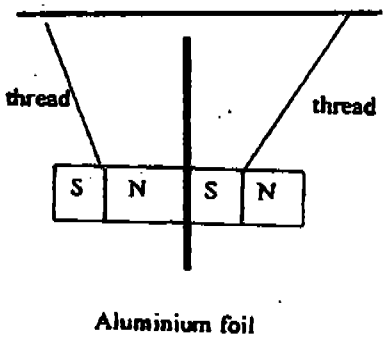
(2)



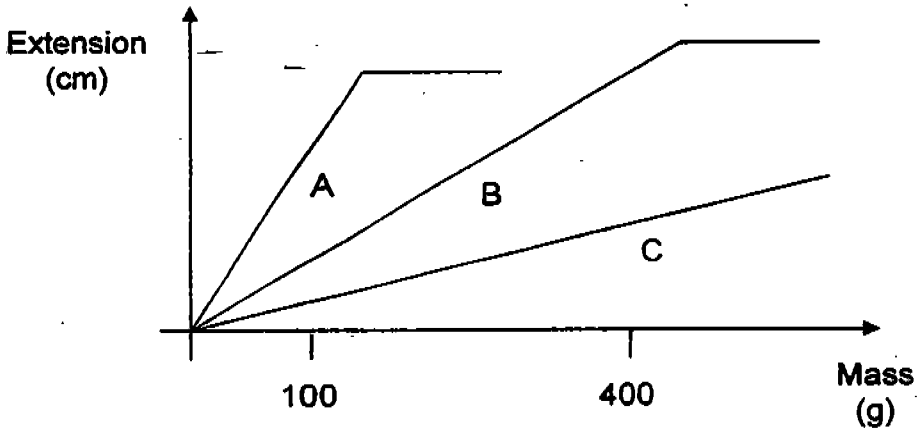
(3)



(4)



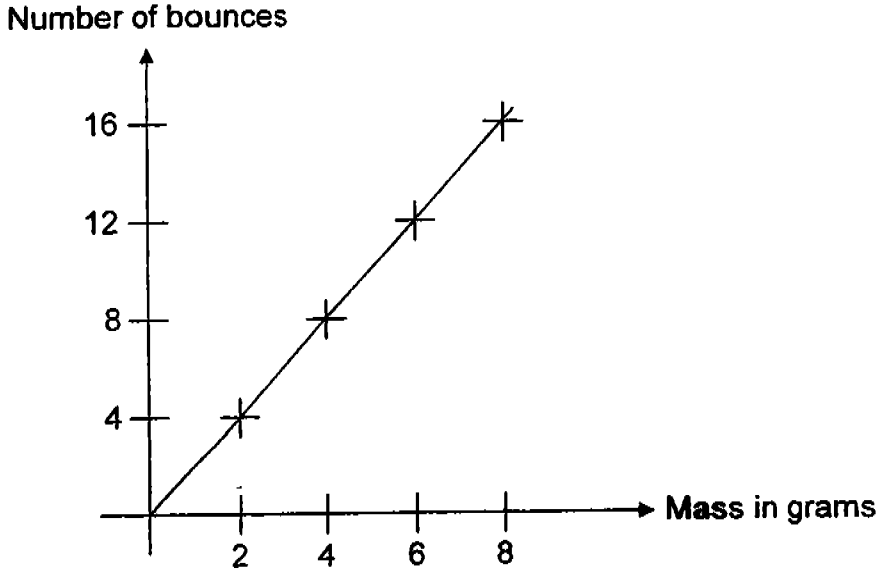
10. The graph below shows the extensions of three different types of springs A, B and C when different weights are hung to each.



Which of the springs could be used to weigh an object of mass 300g?

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

In an experiment, four rubber balls of different weights were released from the same height and the number of bounces was recorded. The graph below shows the result. Study the graph carefully and answer questions 11 and 12.



11. Which of the following statements correctly interpret the result obtained from the graph above?

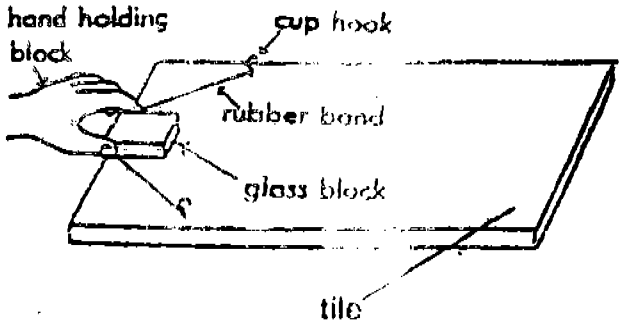
A The heavier the ball, the more bounces it makes.
B The heavier the ball, the greater the air resistance it experiences.
C The heavier the ball, the smaller the gravitational pull on the ball.
D The heavier the ball, the greater the gravitational potential energy it possesses.

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

12. What is the mass of the rubber ball if the number of bounces recorded is 100?

(1) 25g
(2) 50g
(3) 75g
(4) 100g

13. Rena carried out an experiment to find out the effects of anti-skid substance on the distance moved by an object across a surface. In her experiment, a glass block was made to move over four similar tiles coated with anti-skid substance V, W, X and Y. She repeated her experiment four times with four different anti-skid substances and tabulated her results below.



Anti-skid Substance	Average distance moved by the glass block (cm)
V	24
W	32
X	40
Y	15

Which anti-skid substance should Rena choose to apply on the tiles in her bathroom to prevent slipping?

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

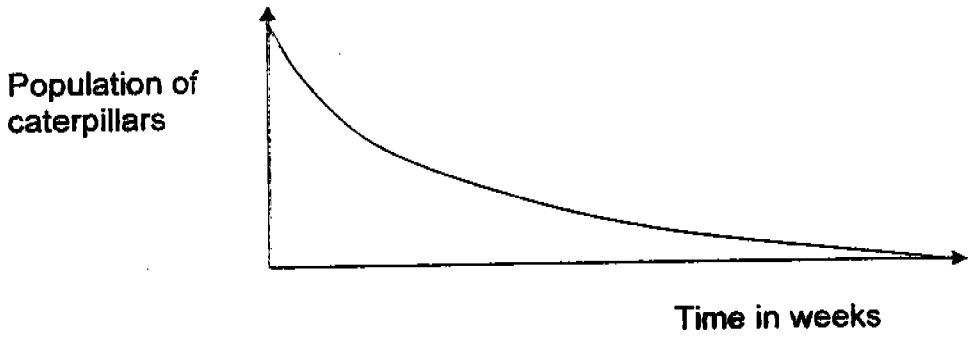
14. The events listed (not in order of sequence) took place when disease killed most of the lions in the jungle.

A The zebra population increased rapidly.
B Overgrazing resulted in insufficient food for the zebras.
C The zebra population decreased.
D Too large a zebra population resulted in the loss of grass lands.

Which one of the following shows the correct sequence of events?

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

15. The graph below shows the change in the population of caterpillars in a given plot of land with time.



Which of the following may result in the change in population size of the caterpillars as shown in the above graph?

A Drought
B Crops infested with diseases
C Increase in population size of mynahs
D Increase the use of pesticide

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

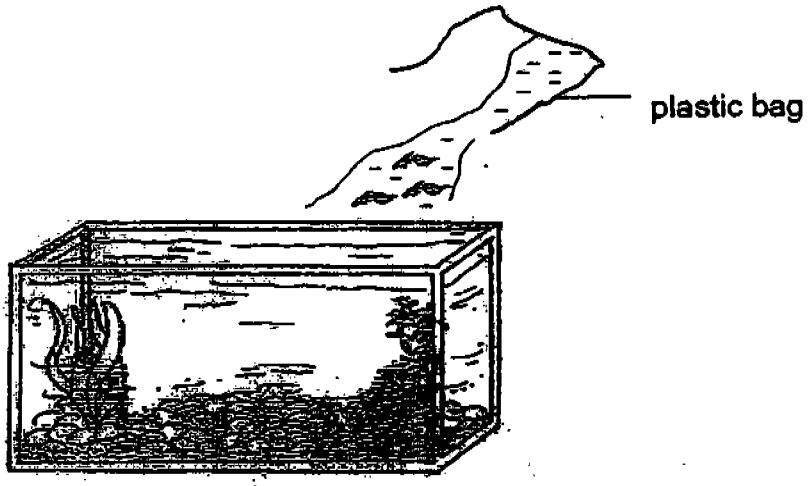
16. A group of Primary six pupils wanted to find out the effect of overcrowding on the growth of string bean plant. They planted some string bean seeds in six pots A, B, C, D, E and F.

Pot	Type of soil	Amount of water used daily (cm^3)	Number of seeds	Size of pots (cm^3)
A	garden	200	10	1000
B	sandy	200	20	2500
C	garden	400	20	1000
D	loamy	200	20	1000
E	sandy	200	10	1500
F	loamy	200	20	2500

Which two of the following set-ups should the pupils use so as to ensure a fair test would be carried out?

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

17. Jonathan caught three fish while camping at the East Coast Park Beach. The fish were in a transparent plastic bag. As soon as he arrived home that day, he immediately transferred them into his aquarium. After a few hours, he noticed that the three fish he had caught earlier were dead.

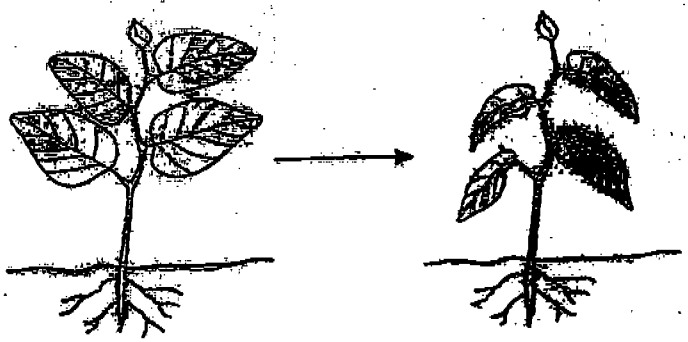


What was the most likely reason for this?

(1) There was insufficient food.
(2) There were few water plants in the aquarium.
(3) There was not enough water in the aquarium.
(4) There was a sudden change in the salinity of the water.

18. Sarah transplanted a seedling from one pot to another. A few hours later, she found that the seedling had changed in appearance.

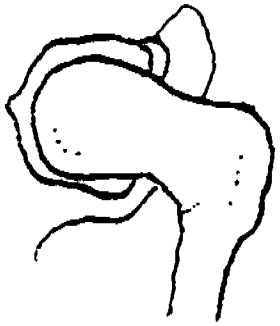
Seedling when transplanted Seedling a few hours later



What is the most likely reason for this change in appearance?

	Intensity of the sun's rays	Amount of moisture in the soil
(1)	high	high
(2)	high	low
(3)	low	high
(4)	low	low

19. Study the diagram below.



The above joint can be found in the _____.

A Elbow
B Wrist
C Hip
D Shoulder

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

20. Which one of the following transports food, oxygen and waste products in our body?

(1) Circulatory System
(2) Digestive System
(3) Respiratory System
(4) Muscular System

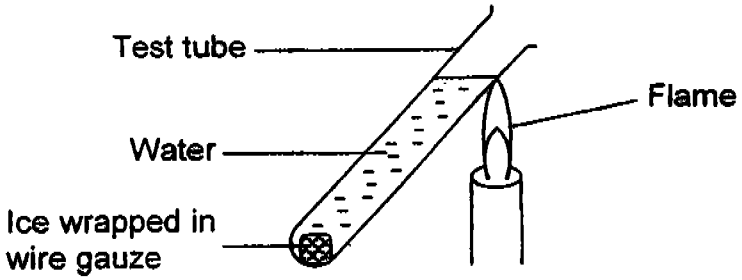
21. Which one of the following body parts is not made up of muscles?

(1) Heart
(2) Gullet
(3) Skull
(4) Stomach

22. What is the function of the large intestine in our digestive system?

(1) It digests the food.
(2) It passes the digested food to the blood.
(3) It reabsorbs water from the undigested food.
(4) It passes the undigested food out of the body.

23. Study the diagram below.

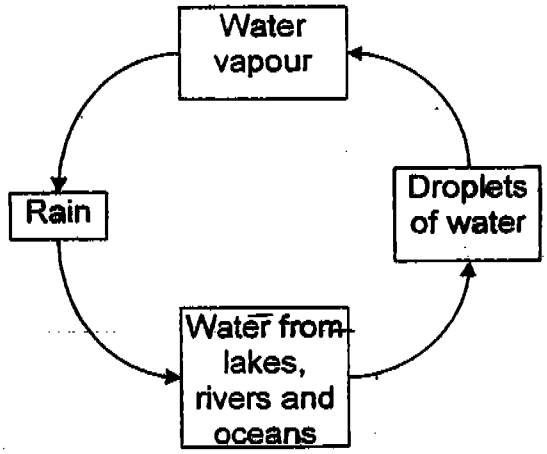


When the water at the surface starts to boil, the ice at the bottom still does not melt. This experiment shows that the _____ is a poor conductor of heat.

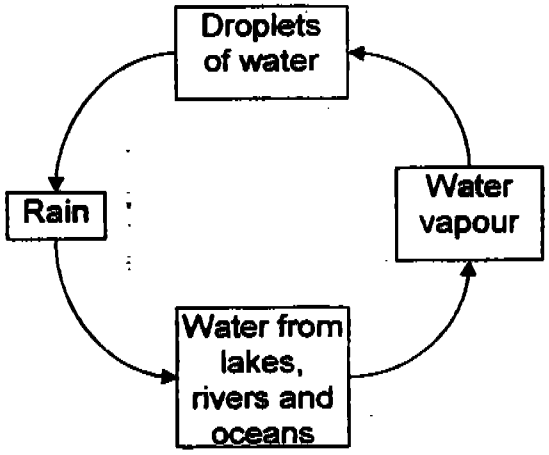
(1) ice
(2) test tube
(3) water
(4) wire gauze

24. Which one of the following shows a water cycle?

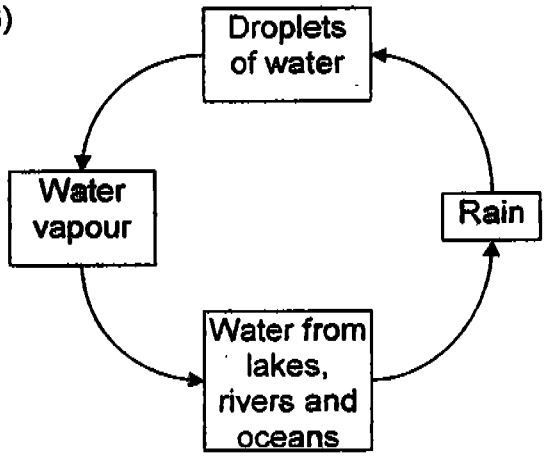
(1)



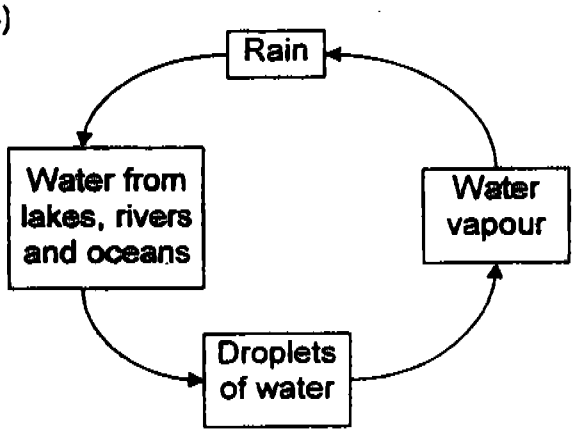
(2)



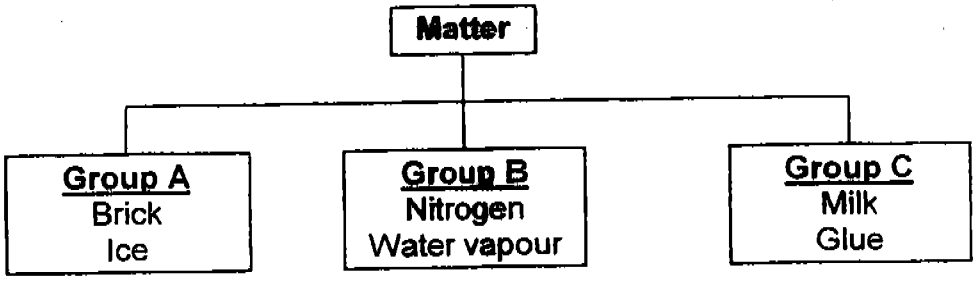
(3)



(4)



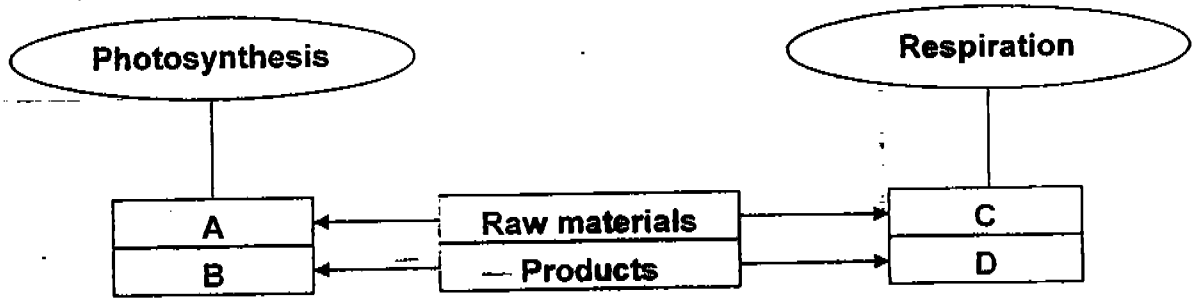
25. Study the classification table below.



Which one of the following lists of items is grouped correctly based on the classification table above?

	Group A	Group B	Group C
(1)	Oil	Plasticine	Petrol
(2)	Wood	Steam	Dew
(3)	Plasticine	Oil	Wood
(4)	Butter	Dew	Petrol

26. Compare respiration and photosynthesis in the organization chart below.



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

	A	B	C	D
(1)	Carbon dioxide Water	Sugar Oxygen	Food Oxygen	Water Carbon dioxide
(2)	Water Oxygen	Carbon dioxide Sugar	Oxygen Water	Food Carbon dioxide
(3)	Carbon dioxide Water	Food Oxygen	Water Oxygen	Carbon dioxide Sugar
(4)	Carbon dioxide Water	Water Carbon dioxide	Oxygen Sugar	Sugar Oxygen

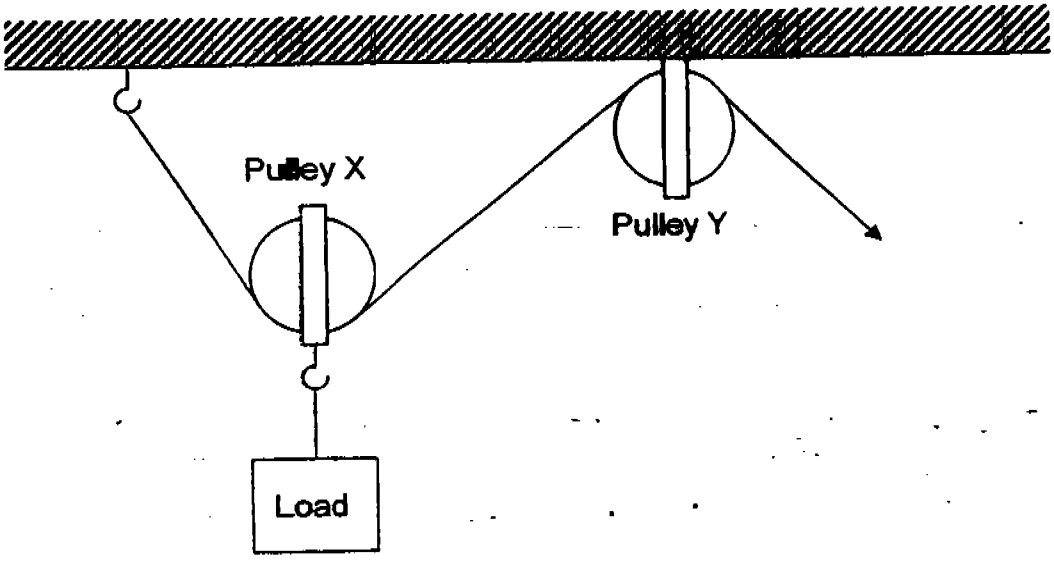
27. A student grouped some plants as shown below.

A	B	C	D
Potato Ginger	Carrot Sweet potato	Rice Peas	Cauliflower Broccoli

In the table, plants are grouped according to _____.

(1) how they reproduce
(2) their usefulness to mankind
(3) how their fruits are dispersed
(4) their edible plant parts

28. The diagram shows a pulley system.

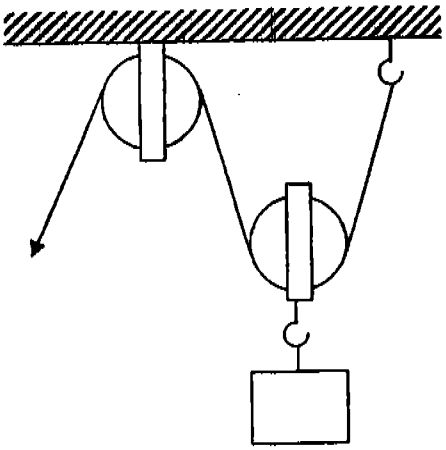


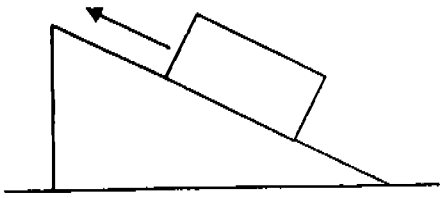
Which of the following statements are true?

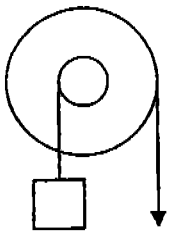
A Pulley Y does not move but pulley X does.
B A smaller effort is needed to move the load.
C The pulley system changes the direction of the force.
D The distance moved by the effort is same as that of the load.

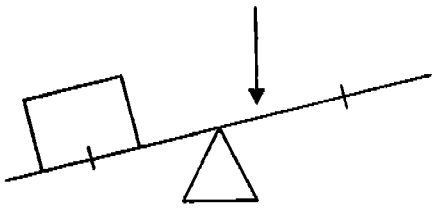
(1) A and B only
(2) C and D only
(3) A, B and C only
(4) A, B, C and D

29. Which one of the following machines would require a force less than 500g to lift up a 500g load?

A 

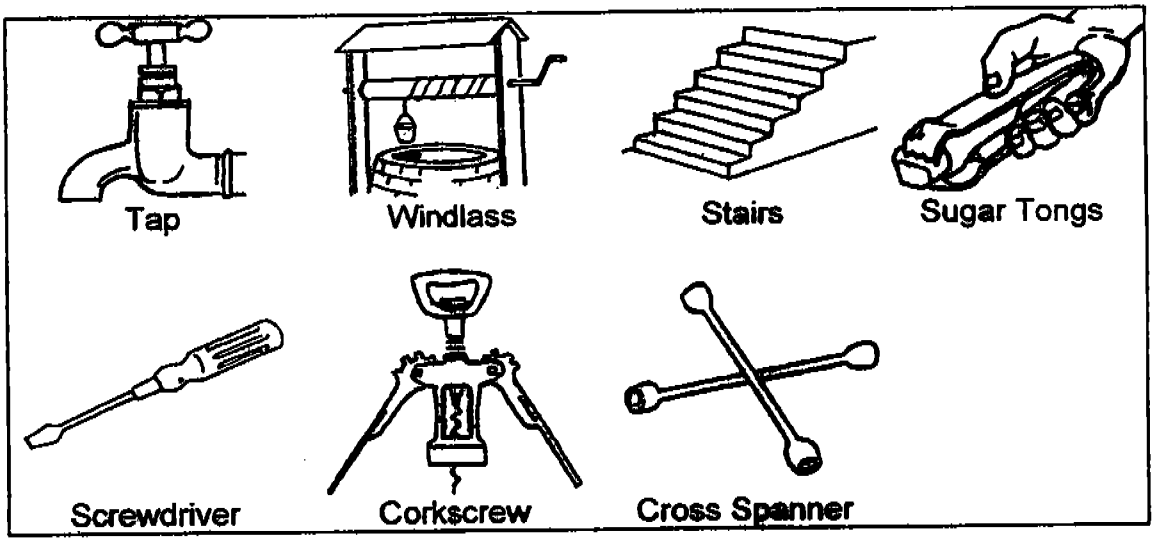
B 

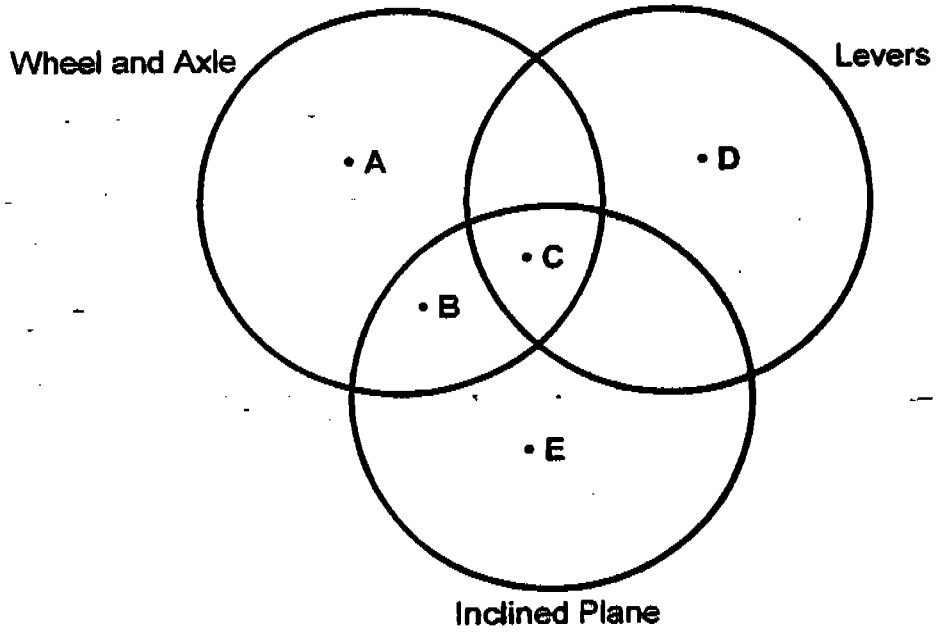
C 

D 

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

30. In the diagram below, which of the following simple machines are represented correctly by the letters A, B, C, D and E in the Venn diagram?





	A	B	C	D	E
(1)	Tap	Windlass	Stairs	Corkscrew	Screwdriver
(2)	Windlass	Screwdriver	Corkscrew	Sugar Tongs	Stairs
(3)	Sugar Tongs	Stairs	Screwdriver	Cross Spanner	Tap
(4)	Cross Spanner	Corkscrew	Tap	Screwdriver	Sugar tongs

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PRIMARY 6 SCIENCE

SEMESTRAL ASSESSMENT 1
2005

BOOKLET B

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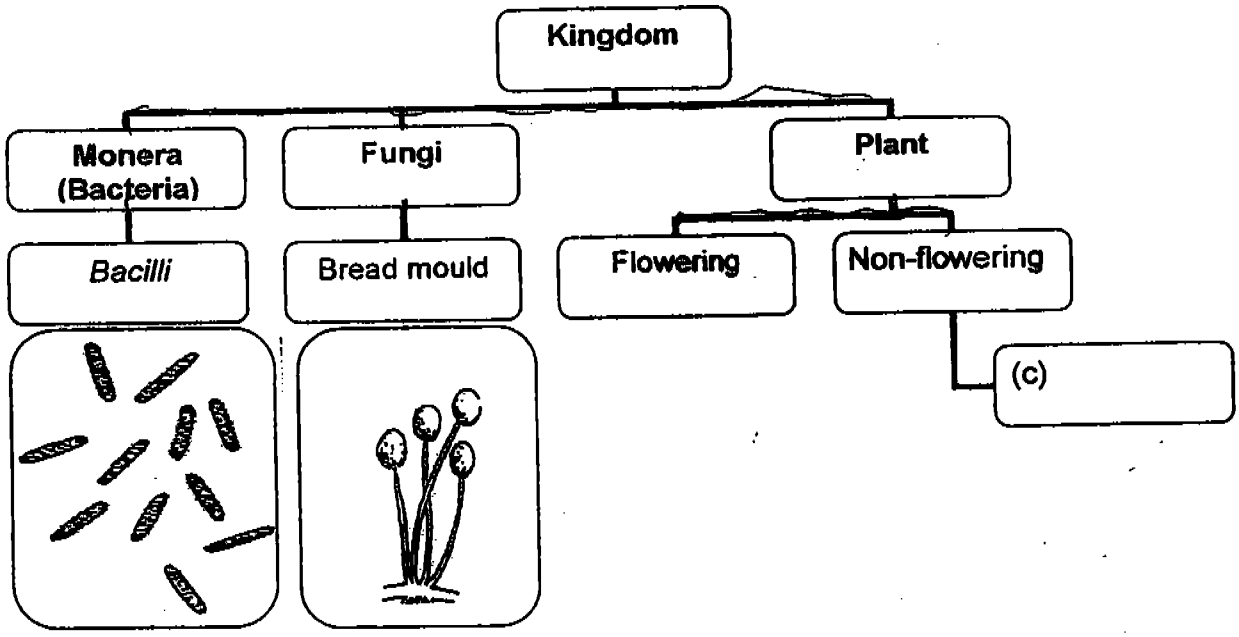
Booklet B consists of 16 printed pages including this cover page.

Section B (10 marks)
Write your answers to questions 31 to 46 in the spaces provided.
Marks will be deducted for misspelt key words.

31. Study the classification chart below carefully.



(a) Based on the diagrams above, describe the physical appearance of the *Bacilli* and the Bread mould as shown. (1 mark)

(i) Physical appearance of *Bacilli:*

_____

_____

(ii) Physical appearance of Bread mould:

_____

_____

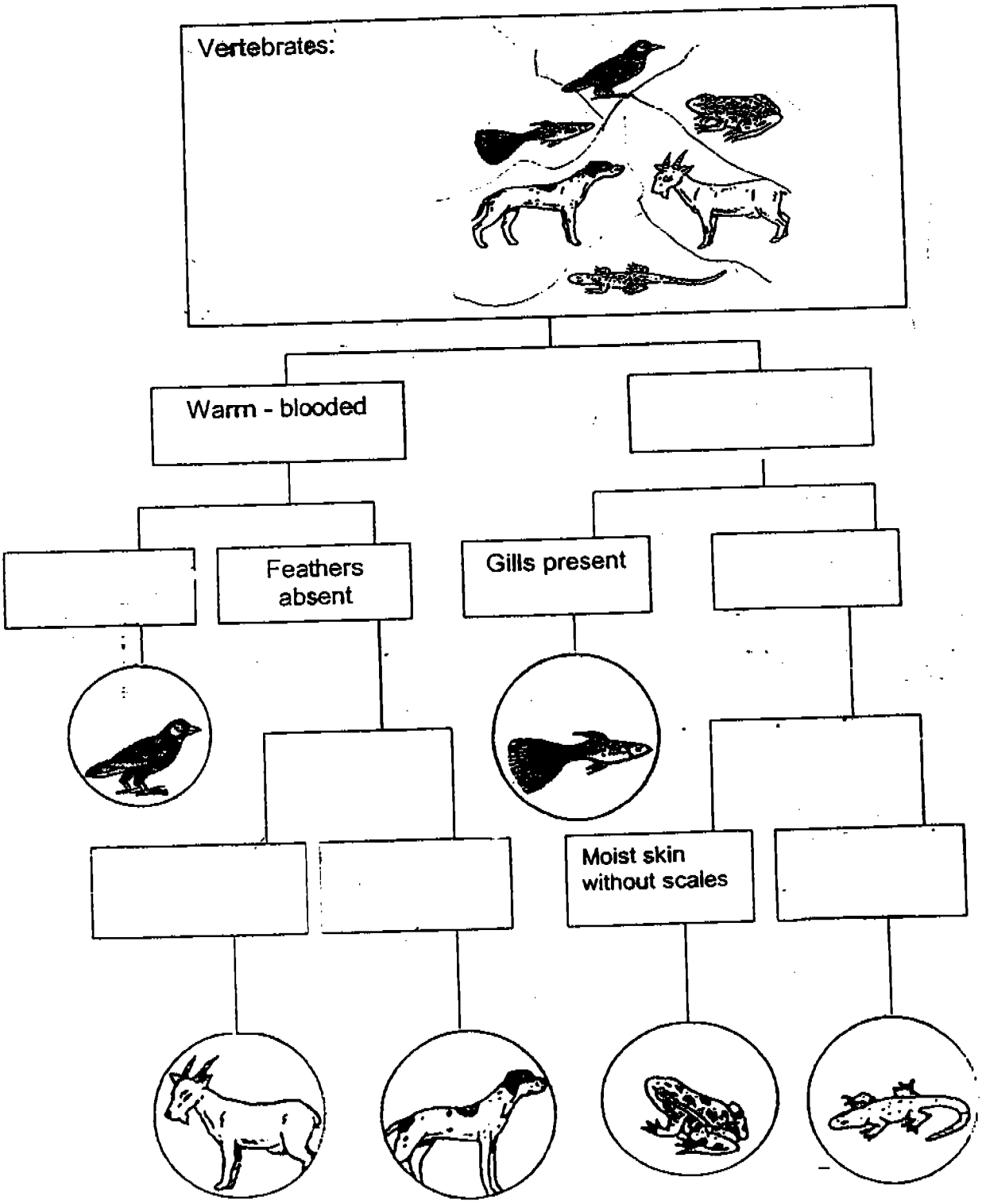
(b) Bacteria are described as one-celled organisms with a cell wall, plasma membrane and cytoplasm. However, they are not grouped under the Plant Kingdom. Suggest a possible reason why they have been placed in a separate kingdom. (1 mark)

_____

_____

(c) Complete the classification chart above, by filling in the appropriate answer in the box labelled (c). (1 mark)

32. Tom received an incomplete information sheet from a zookeeper. The information shows six different animals with backbones as classified in a chart based on their characteristics. Complete the classification chart below. (3 marks)

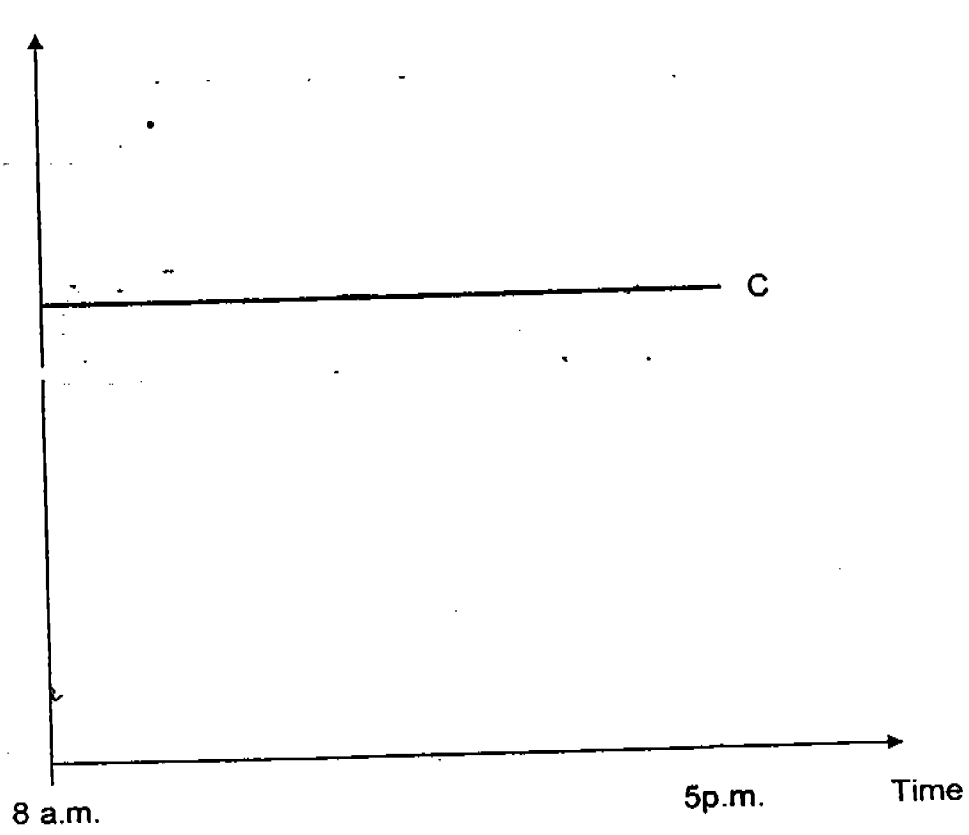


33. Anthony wanted to find out how the amount of oxygen in all three jars of similar size would change with time. He put different number of maize plants and grasshoppers in three sealed jars labelled A, B and C as shown in the table below.

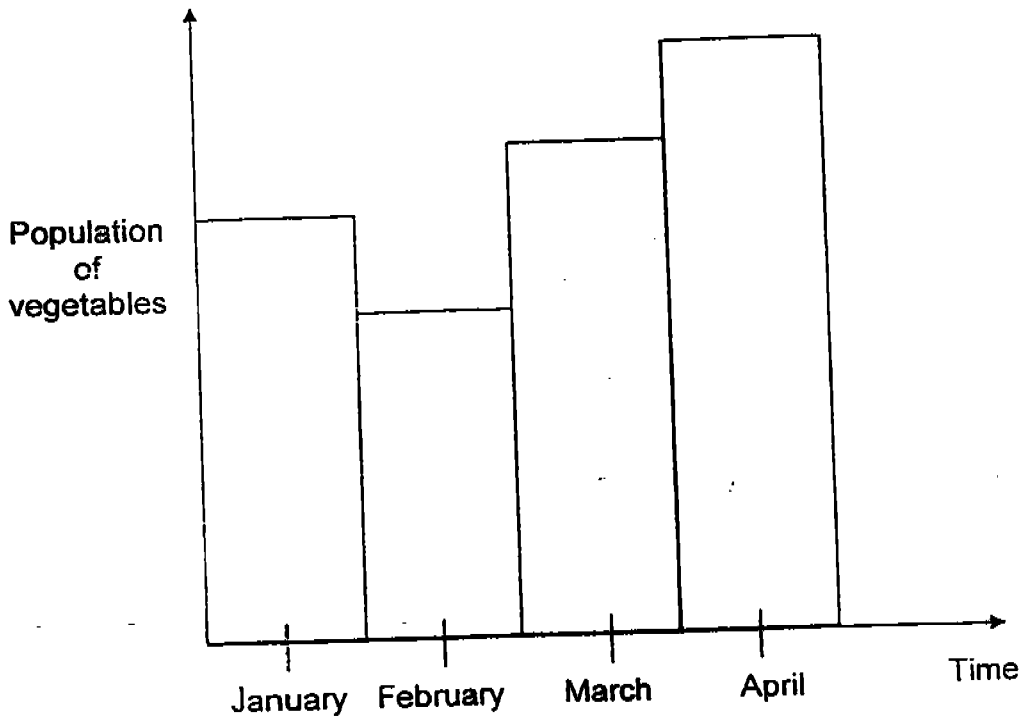
Jars	Number of Maize plants	Number of grasshoppers
A	5	0
B	0	2
C	5	3

He placed the three jars in a field from 8 a.m. to 5 p.m. He then used an apparatus to measure the amount of oxygen in each of the jars at the end of the experiment.

In the space below, draw two other line graphs and label them "A" and "B" to show the relationship between the amount of oxygen in the two jars and the duration of the experiment. (2 marks)



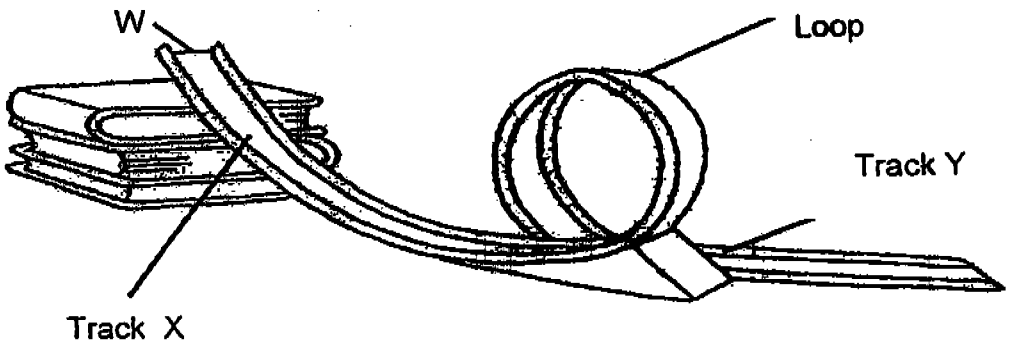
34. A population count was carried out at the end of each month to study the effect of weedkillers on the population of the vegetables grown in a farm over a period of time. The results were recorded in the graph as shown below.



(a) Describe the changes in the population of the vegetables during the four-month period. (1 mark)

(b) During which period was the weedkillers introduced on the vegetable farm? (1 mark)

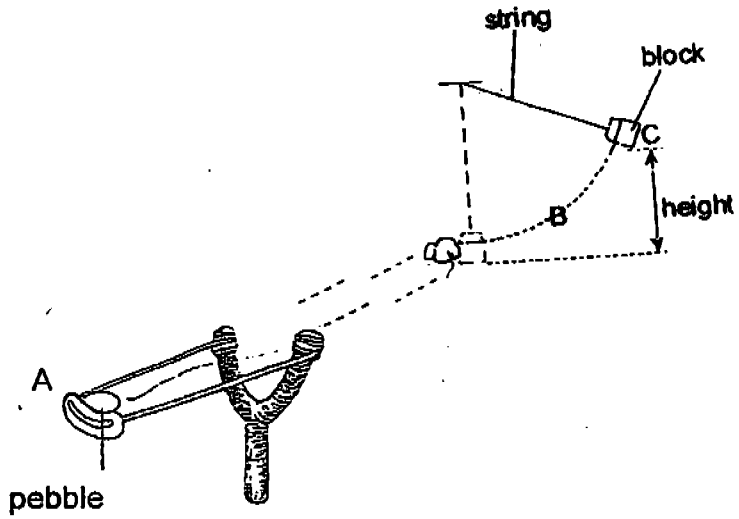
35. Steve connected a looping piece of track and two other pieces of track as shown below. He placed the longer end of the track, Track X, against a stack of books to make a ramp. Then, he released a marble from the top of the ramp W.



(a) Steve noticed that the marble rolled onto the loop but dropped vertically down onto track Y just before it could reach the top of the loop. Explain why this happened. (1 mark)

(b) Describe what Steve could do to change the set-up if he wanted the same marble to roll around the loop before rolling onto track Y. (1 mark)

36. Omar conducted an experiment as shown in the diagram below.



He pulled the elastic band backwards together with a pebble to position A. Upon release, the pebble moved forward and hit the block suspended by a string. The block swung upwards to position C through B before falling back.

He pulled the elastic band backwards together with a pebble to position A. Upon release, the pebble moved forward and hit the block suspended by a string. The block swung upwards to position C through B before falling back.

(a) State the main energy conversion from position A to position B.
(1 mark)

[ ]

in elastic band at position A

↓ is converted to

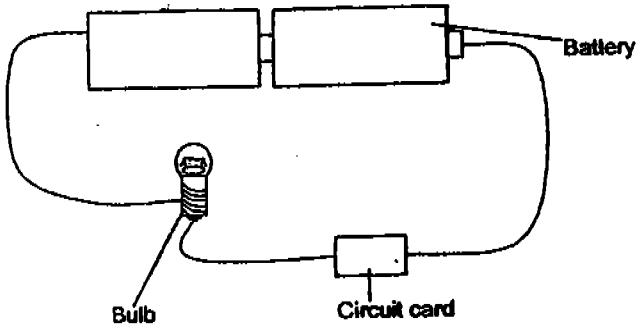
[ ] + [ ]

in the block at position B

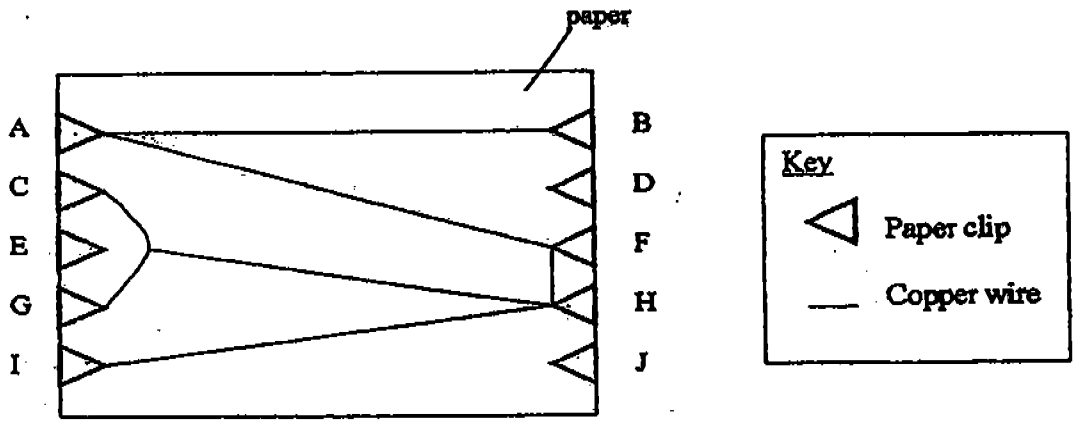
(b) What could Omar do to increase the speed of the pebble without replacing the elastic band?
(1 mark)

_____

37. June used a circuit tester to test a circuit card as shown below.



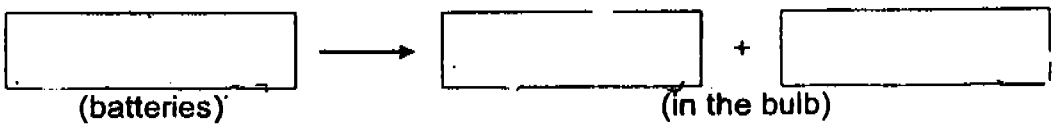
The paper clips on the circuit card were connected as follows:



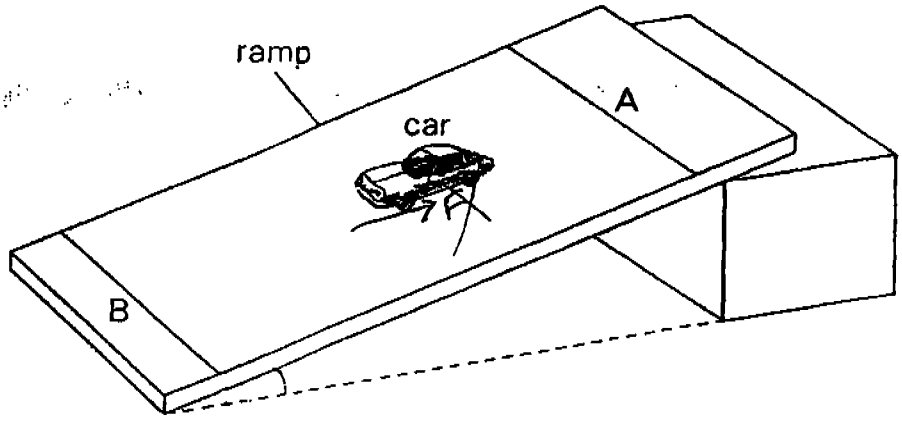
(a) Based on the circuit card above, complete the results that June would obtain in the table below. (1 mark)

Pairs of clips tested	Did the bulb light up?
A and H	
B and I	
D and E	
F and G	

(b) State the main energy changes when the bulb light up in the circuit. (1 mark)



38. Corine carried out an experiment with the apparatus as shown below.



She recorded the time taken for a toy car to travel from A to B. The experiment was repeated and the results were shown in the table below.

	First experiment	Second experiment
Length of ramp (cm)	100	150
Distance A and B (cm)	80	80
Angle of inclination of ramp(°)	40	40
Surface of the ramp	plastic	wood
Mass of toy car (g)	30	30
Time recorded (s)	5.2	7.0

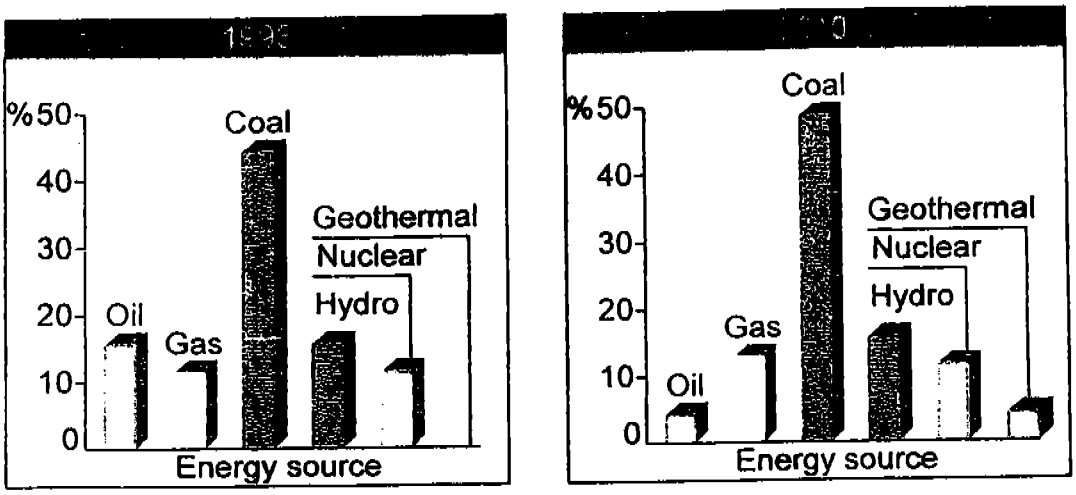
(a) Mark the angle of inclination of the ramp (that is, the angle between the ramp and the ramp) with the letter "Q" in the diagram above. (1 mark)

floor

(b) State the relationship between the surface of the ramp and the time taken for the car to move between A and B. (1 mark)

(c) In the diagram above, draw an arrow labelled "F" to show the direction of the frictional force acting on any of the wheels of the toy car when it was moving down the ramp. (1 mark)

39. The two charts below show the percentage of the different energy sources used to generate electricity in the Southeast Asian region in 1993 (actual) and 2010 (projected).



(a) Compare the two charts in 1993 and 2010 and write down two differences between them. (1 mark)

(i) _____

_____

(ii) _____

_____

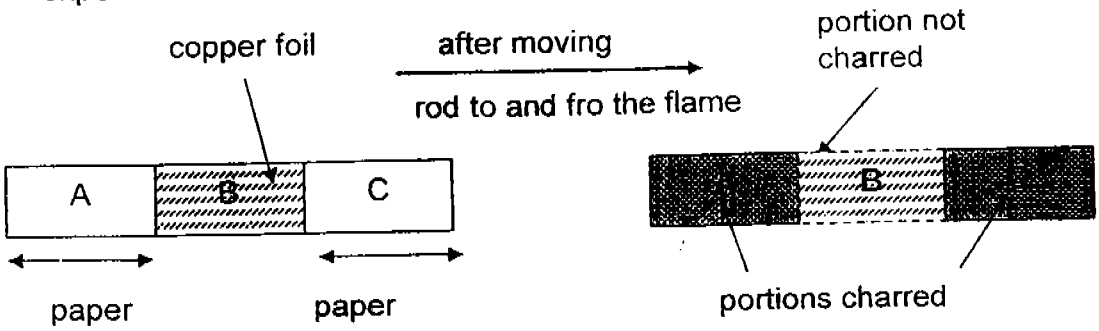
(b) A table shown below is used to tabulate and group the six different energy sources into two main groups. Complete the table by filling in the appropriate energy sources. (3 marks)

Energy Sources	
Renewable	Non-renewable

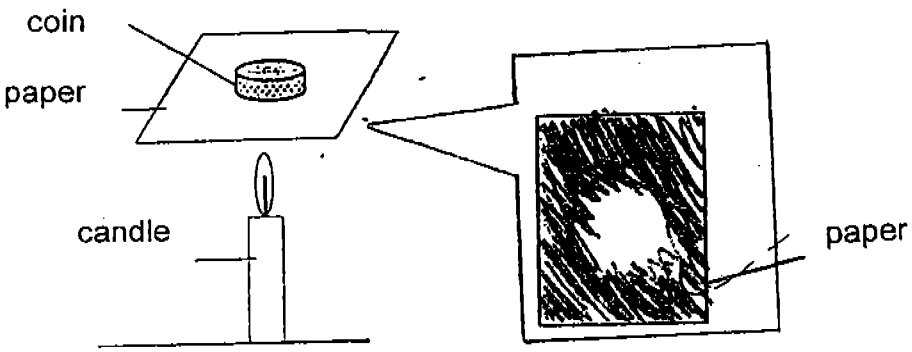
40. Tommy carried out two separate experiments as described below. In the first experiment, he carried out the following steps as described.

Step 1: Wrap a piece of paper tightly around the full length of a wooden rod.
Step 2: Wrap some copper foil around the middle portion of the rod.
Step 3: Move the rod to and fro across a flame for a few minutes.

After the copper foil had been removed from the rod, he observed that both sections A and C were charred while Section B remained unaffected. He then sketched two diagrams to show the results of the experiment below.



In another experiment, he placed a copper coin on a piece of paper and held the paper over the candle flame for a few minutes as shown in the diagram below.



(a) Shade in the diagram above his observations after he removed the paper from the flame. (1 mark)

(b) Suggest what Tommy would observe if he were to repeat the second experiment using a plastic cap instead of a copper coin. (1 mark)

(c) Explain your answer in (b). (1 mark)

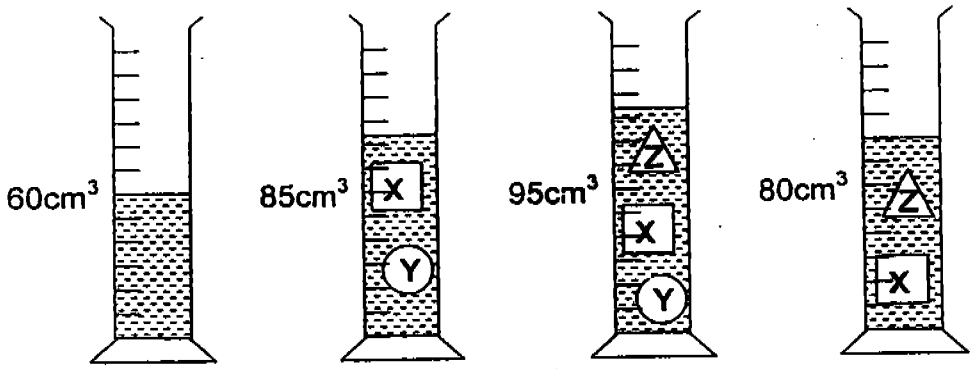
41. A teacher put a metal spoon into a cup of hot freshly brewed coffee as shown in the diagram below.

Based on the set-up, she asked her students to write down the item(s) that gained heat and lost heat. (2 marks)

Gained Heat: _____

Lost Heat: _____

42. The volumes of three objects X, Y and Z were measured using a measuring cylinder containing 60 cm^3 of water. (2 marks)



State two properties of the objects that may result in the above observation.

(i) _____

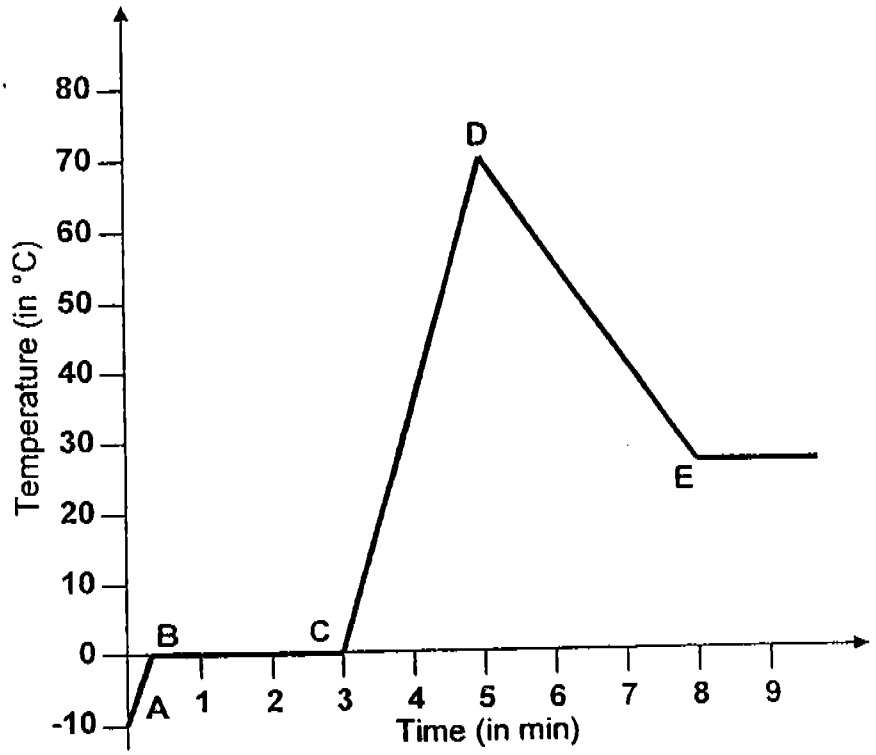
_____

(ii) _____

_____

43. Sheila took some ice cubes out from a freezer. Then, she started heating the ice cubes in a beaker. After a while, she stopped the heating and placed the beaker on a table in the kitchen.

The graph below shows her results.



Study the graph above carefully and answer parts (a) and (b). (2 marks)

(a) (i) Which part of the above graph shows the melting of the ice?

_____

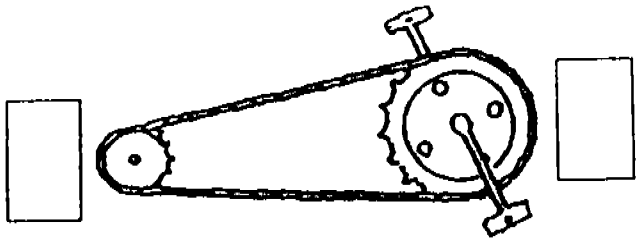
(ii) What was the temperature in the freezer?

_____

(b) Describe what was occurring along the line DE?

_____

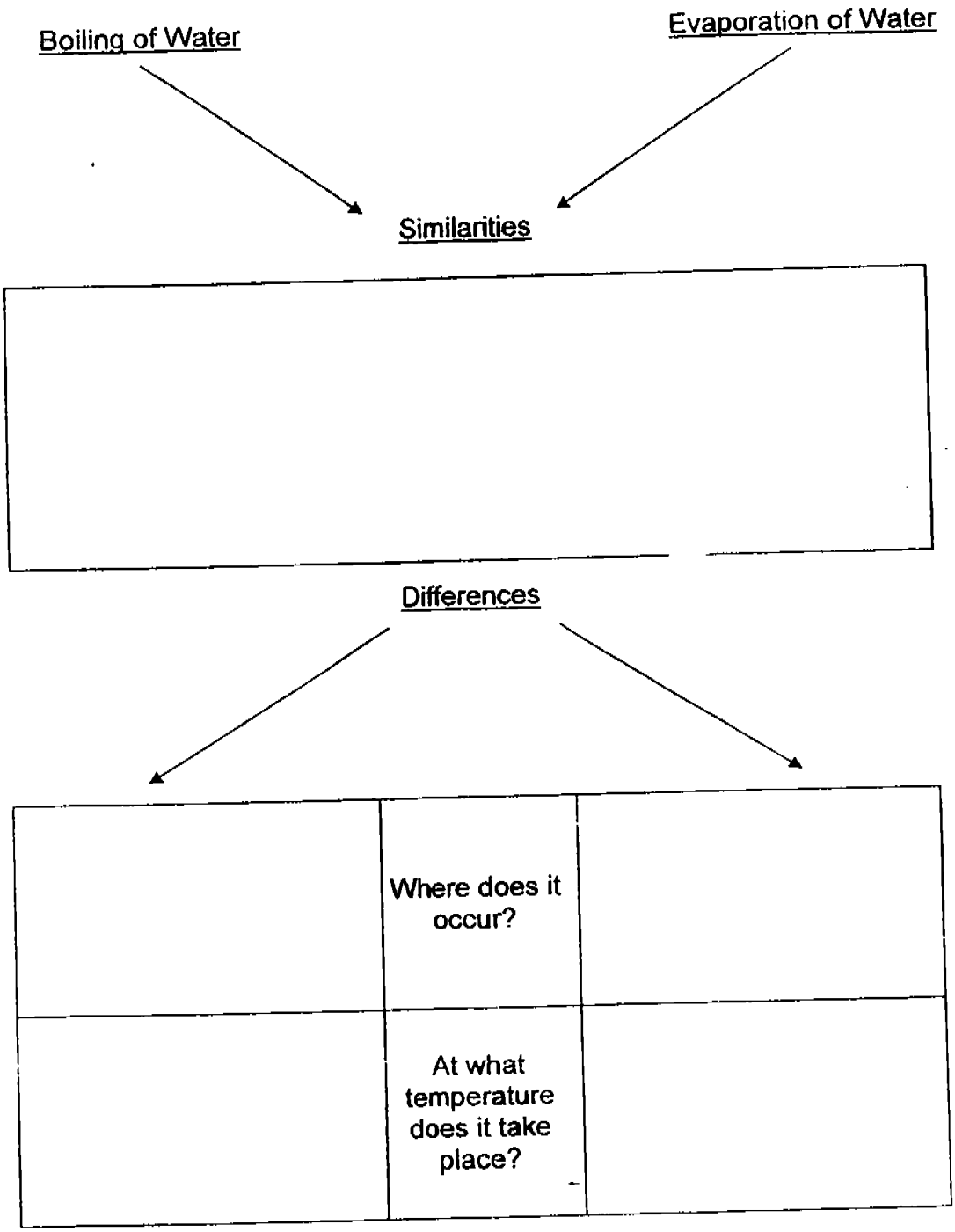
44. The diagram below shows how the gears and chain in a bicycle works together to drive it forward.



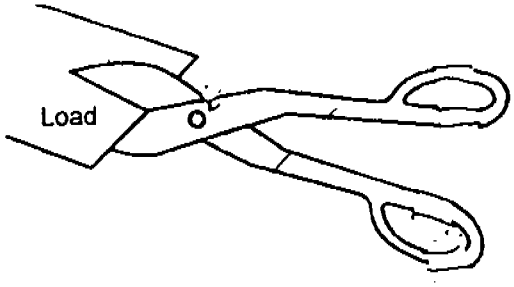
a) Draw arrows in the boxes provided above, the directions that the two gears should be turning. (1 mark)

b) Explain how the two gears work. (1 mark)

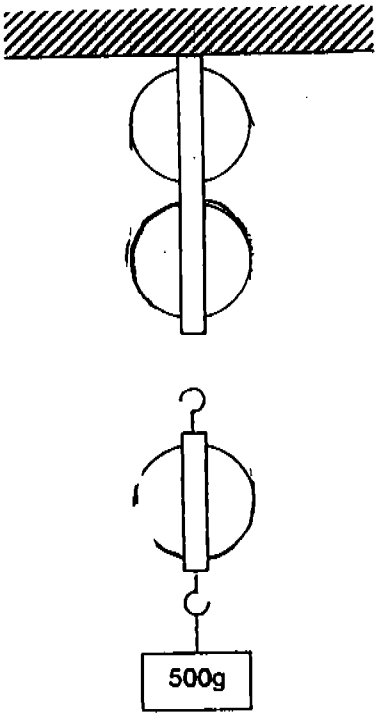
45. Study the graphic organiser below. Write down the similarities and differences of the two processes, boiling and evaporation of water, in the boxes provided. (4 marks)



46(a) The diagrams show a pair of scissors. Label the effort and fulcrum in the diagram below. (1 mark)



(b) Draw lines to complete the pulley system below. (1 mark)



----------END OF PAPER----------

Setters: Mrs Tan Yoke Cheng
Mdm. Brenda Kok

SA1

NANYANG PRIMARY SCHOOL
PRIMARY SIX SCIENCE
SEMESTRAL ASSESSMENT 1
2005

ANSWER KEY

Section A
(60 marks)

Q1	4	Q7	4	Q13	4	Q19	3	Q25	2
Q2	3	Q8	4	Q14	1	Q20	1	Q26	1
Q3	4	Q9	4	Q15	4	Q21	3	Q27	4
Q4	3	Q10	3	Q16	4	Q22	3	Q28	3
Q5	3	Q11	2	Q17	4	Q23	3	Q29	3
Q6	2	Q12	2	Q18	2	Q24	2	Q30	2

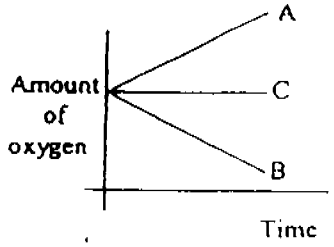
NANYANG PRIMARY SCHOOL
PRIMARY SIX SCIENCE
SEMESTRAL ASSESSMENT 1
2005

ANSWER KEY
SECTION B (40 Marks)

	Appropriate Answers	Partial Answers	0 Mark
31(ai)	*Bacilli*: rod-shaped, elongated in shape (1/2)		Oval shape, rectangular shape long and narrow (in shape)
31(aii)	Fungi(bread mould): a cap and a stalk (1/2)		
31(b).	*Bacilli* does not have **chlorophyll /chloroplasts** and cannot make food (1m)<u>or</u> *Bacilli* feeds on decaying organic matter instead of making food.(1m)		• Bacteria do not have leaves to make food. • Plants are made up of more than 1 cell but bacteria is only 1 cell.
31c	Fern, mosses, algae, pine (1m)		mimosa, hydrilla, elodea, underground stems/roots
32a *opposite	- cold-blooded -feathers present; gills absent *plant –eater /herbivore; animal/flesh-eater/ carnivore * horns / No Horns * No spots/spots on body * Has beard/has no beard * dry/ rough skin with scales (1/2 each)		goat - cannot bark dog - can bark goat - has small ears, small tail dog - has big ears, long tail (Very subjective) dog - omnivore
34a.	A decrease in the population during the month of **February**,(1/2) an increase from **end of February to March** and a further increase in **April**.(1/2)		The population of vegetables <u>remain constant</u> in January.
34b.	-End February / March (1m) -During end of February to/and March (1m) -From March to April (1m)	Between February and March (1/2)	
35a.	- The marble dropped because it did not have **enough energy (1/2)** to **overcome gravitational force/the force(s)** pulling the marble downwards (1/2) <u>or</u>	Steve did not push the marble hard enough (1/2) or	

33. Check the amount of oxygen at which the pupils start to draw the 3 line graphs (1m)

Wrong label (minus ½)

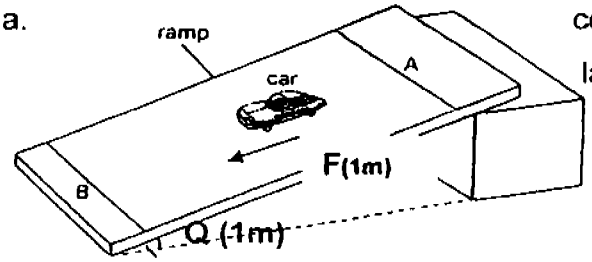


(1m)

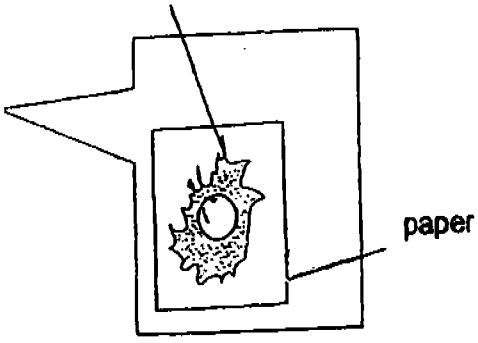
	Appropriate Answers	Partial Answers	0 Mark
35a	- The marble is going against gravitational force when it goes up the loop. As the kinetic energy of the marble is not great enough to overcome the gravitational force, the marble dropped vertically down onto track Y. Weight/The force pulling the marble downwards was larger than the force(s) pushing the marble upwards.(1m)	Some of the GPE has been converted to KE and other forms of energy(1/2)	As the marble reaches the top of the loop, the gravitational force caused it to drop vertically down
35b.	Join more tracks or extend Track X so that it becomes longer and lean it at the same angle against the book(1/2). Then release the marble from a higher starting position.)(1/2) or Push the books closer to the loop so that the ramp becomes steeper(1/2) and the marble can be released from a higher height.(1/2) or Increase the number of books so that the ramp becomes steeper(1/2) and the marble can be released from a higher height.(1/2) or Make the loop smaller		Give the marble a hard push.(no change to the set-up)
36a.	Elastic Potential Energy; (1/2) Kinetic Energy + Gravitational Potential Energy (1/2)		Exclude "Energy"
36b.	Stretch the elastic band further. / longer /more (1m)	He could ***use more strength*** when pulling the elastic band back.(1/2) (indirect answer)	- He could pull the elastic band backwards. (0) - Change to a smaller size stone. (the pebble) - Omar stepped backwards.

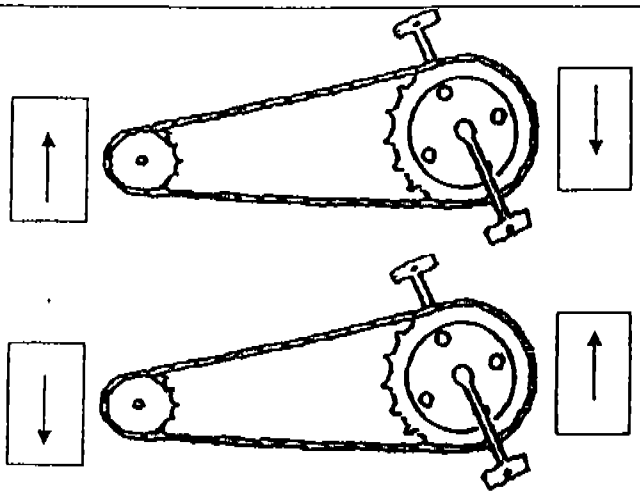
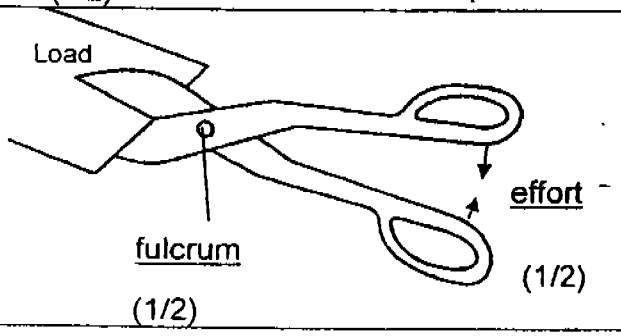
	Appropriate Answers	Partial Answers	0 Mark
37a.	<table><tr><th>Pairs of clips tested</th><th>Did the bulb light up?</th></tr><tr><td>A and H</td><td>Yes</td></tr><tr><td>B and I</td><td>Yes</td></tr><tr><td>D and E</td><td>No</td></tr><tr><td>F and G</td><td>Yes</td></tr><tr><td colspan="2">no partial answers</td></tr></table>		
37b.	Chemical Potential Energy ; Heat Energy + Light Energy (no partial answers)		electrical energy is in the circuit
38b.	The **smoother (rougher)** the surface of the ramp, the **shorter(longer)** the time taken for the car to move between A and B. (1m) **or** The smoother the surface of the ramp, the faster the car takes to move from A to B. **or** The more the frictional force on the surface of the ramp, the longer the time taken.		
39ai.	The **use of oil** is lesser in 2010 compared to 1993.(1/2)		No comparison bet 1993 and 2010
39aii.	The **use of other energy** sources (gas, coal and geothermal) has increased in 2010 compared to 1993. or the total usage of energy sources is more in 2010 than in 1993.		No comparison bet 1993 and 2010
39b.	**Renewable:** Hydro, Geothermal **Non-renewable:** Oil, gas, coal, nuclear (1/2 each)		

38a.

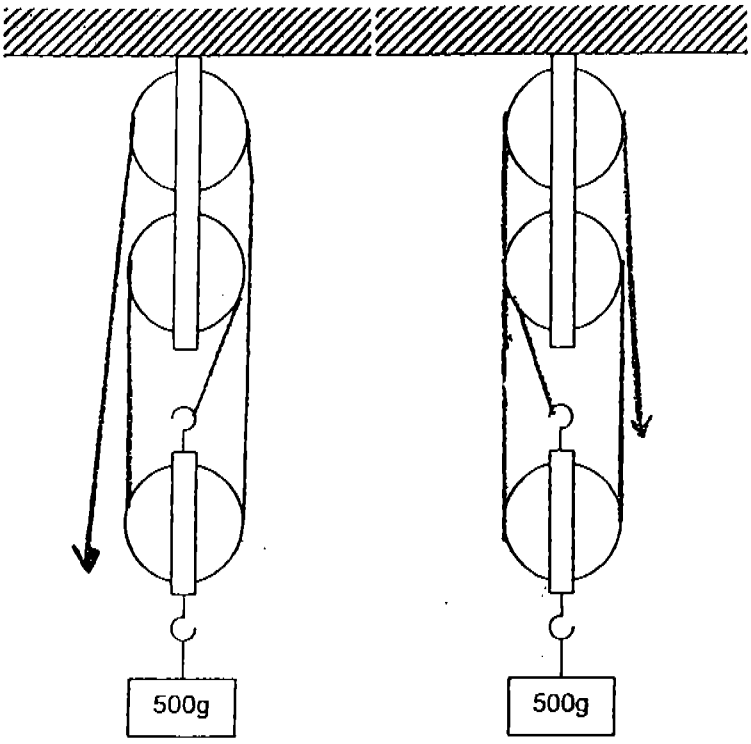


correct direction but no label (1/2)

	Appropriate Answers	Partial Answers	0 Mark
40a.	See diagram below. Award mark if entire paper except the circular patch is coloured.  		
40b.	The surface under the plastic cap would burn/ become charred. Or the paper will get charred.	the paper turned black.	The plastic cap will melt.
40c.	The plastic cap is a poor conductor of heat (1/2) and is **unable to conduct heat from the paper** (1/2).		The plastic cap is not a conductor of heat. Or The plastic cap does not conduct heat.
41.	gained heat: **metal spoon/ cup / surrounding air** lost heat; **coffee (1/2 each)**		
42i.	The object has a definite volume. (1m)	wrong spelling (definate)	mis-interpret volume as weight.
42ii.	The object occupies space / take up space (1m)		
43ai.	BC (1/2)		
43aii.	-10 °C (1/2)		no units
43b.	-cooling of water to room temperature (1m) - water from the melted ice is cooling down to room temperature. - The liquid is losing heat to the surrounding air till it reaches room temperature. - The temperature starts to drop to room temperature.	cooling of water (½ m) The liquid is losing heat to the surrounding air. (1/2)	

	Appropriate Answers	Partial Answers	0 Mark
44a.	 (1m)	both arrows must be correct	
44b.	When a force is applied, the big gear turns, and energy is transferred along the chain to the smaller gear which causes it to turn too.(1m) **or** When a force is applied, the big gear will turn the chain. As the chain is linked to the small gear so it will turn.(1m)	force must be mentioned.	
45.	**Similarities:** a) Liquid / water is changed to gas / water vapour. (1m) b) Both require heat. (1m) **Differences:** a) It occurs throughout the water (1/2) --- Occurs only at surface of water (1/2) b) Takes place only at 100 °C / boiling point (1/2) --- Takes place at various / all temperatures (1/2)		
46a.	 (1/2) (1/2)		

46b.



or

(1m)