HENRY PARK PRIMARY SCHOOL
2015 SEMESTRAL EXAMINATION 1
SCIENCE
PRIMARY 6

Duration of Paper: 1 h 45 min

100

Name: _____ ( )

Class: Pr 6 _____ Parent's Signature: _____

Booklet A (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.

1. The table below shows the characteristics of four animals, **A**, **B**, **C** and **D**.

(✓) means the animal has the characteristic and (✗) means it does not.

Which animal is most likely a **bird**?

	Animal	Has fins	Has hair on its body	Reproduce by laying eggs	Live in water
(1)	A	✗	✓	✗	✓
(2)	B	✓	✗	✓	✓
(3)	C	✗	✓	✗	✗
(4)	D	✗	✗	✓	✗

( )

2. Peter wanted to find out if overcrowding affects the germination of seeds. He conducted the experiment using 4 similar pots, A, B, C and D.

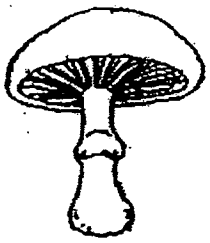
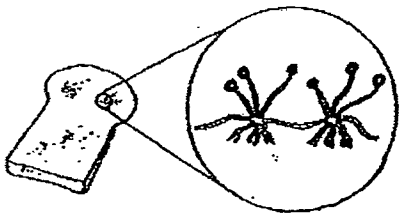
Variables	A	B	C	D
Duration of experiment	3 days	5 days	5 days	5 days
Location	In the room	In the room	In the field	In the room
Number of seeds	10	10	30	30
Amount of water given daily (ml)	10	20	10	20
Amount of soil (g)	500	300	500	300

Which two pots should Peter choose to ensure that his experiment is a fair test?

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

( )

3. The diagrams below show two organisms, X and Y.

Organism X	Organism Y (magnified)
	

Some pupils made the following statements on the organisms X and Y

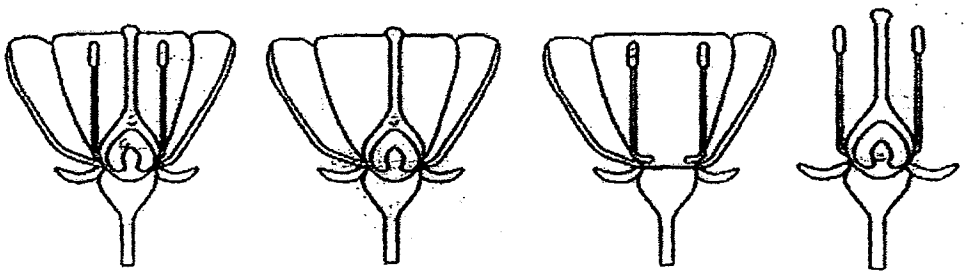
Student A: X and Y are plants.
Student B: X and Y make their own food.
Student C: X and Y feed on dead organisms

Which of the following student(s) gave the correct statement(s)?

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

( )

4. The diagram below shows flowers A, B, C and D. Pollen grains from flowers of the same type were dusted over each flower.



Which of the above flower(s) would most likely develop into a fruit?

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

( )

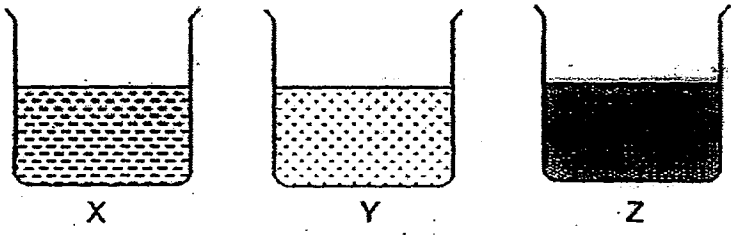
5. Which of the following shows correctly the **heat gain** or **heat loss** that takes place during each process?

	Freezing	Melting	Boiling
(1)	Heat loss	Heat gain	Heat gain
(2)	Heat gain	Heat loss	Heat loss
(3)	Heat gain	Heat loss	Heat gain
(4)	Heat loss	Heat gain	Heat loss

( )

6. Mary performs the following experiment on evaporation.

She fills three beakers with an equal volume of different liquids X, Y and Z as shown below. She places the three beakers in an open field, where it is sunny and windy.



After two hours, she records the volume of liquid remaining in each of the three beakers.

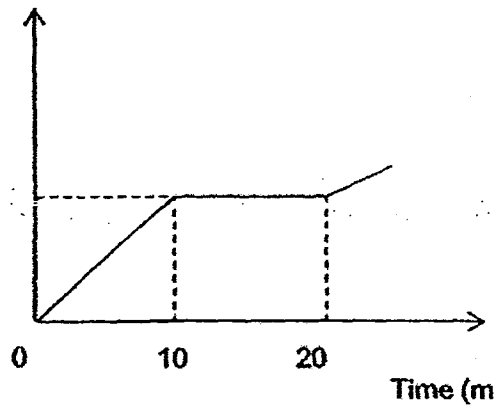
What is the independent variable of this experiment?

(1) Type of liquid
(2) Strength of wind
(3) Exposed surface area of water
(4) Temperature of surrounding air ( )

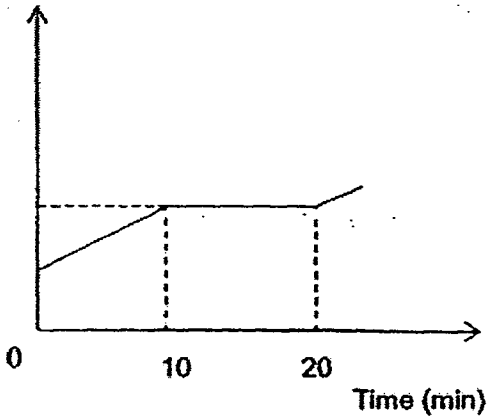
7. Claudia heated a pot of tap water in her kitchen for 10 minutes until it started boiling. She continued boiling it for 10 minutes before adding a packet of instant noodles into the water.

Which of the following graphs shows the changes in the temperature of water correctly?

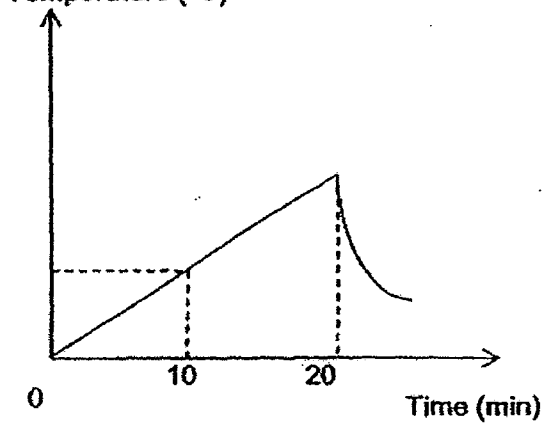
(1)



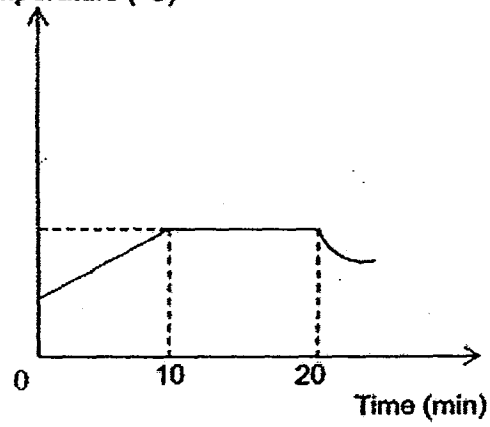
(2)



(3)



(4)



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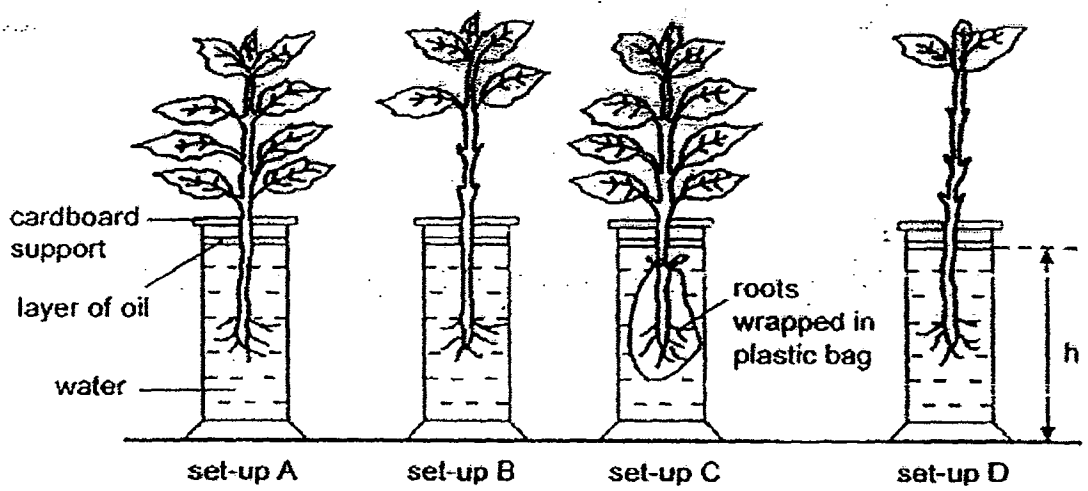
8. Thaddeus placed four plants in identical jars, each containing water at the same level as shown below.

He then placed the four set-ups A, B, C and D, next to the window for an hour.



At the end of the experiment, Thaddeus measured the height of the water left, ***h***, in each jar.

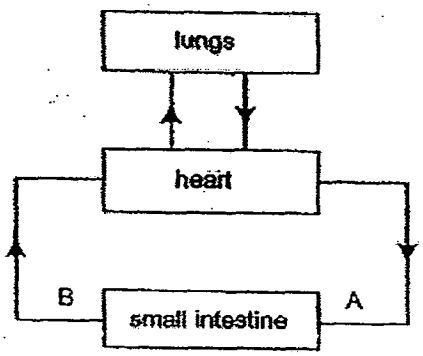
He found the height, ***h***, to be 200 mm, 195 mm, 190 mm and 180 mm. He, then, recorded the results of his experiment.

Which of the following shows the correct results of the experiment?

	Height, *h*, of the water left at the end of the experiment (mm)			
	Set-up A	Set-up B	Set-up C	Set-up D
(1)	200	195	190	180
(2)	190	180	195	200
(3)	180	190	200	195
(4)	195	200	180	190

( )

9. The diagram below shows how blood flows in certain parts of the body.

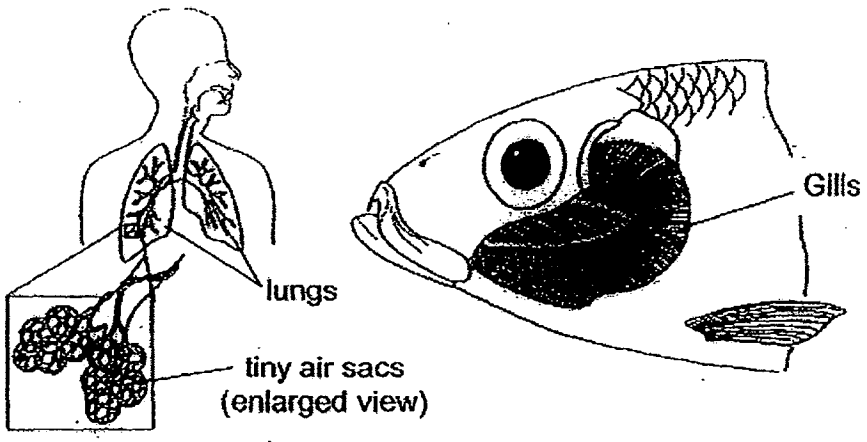


When compared with the blood in B, the blood in A has _____.

(1) less oxygen and less carbon dioxide
(2) less oxygen and more carbon dioxide
(3) more oxygen and less carbon dioxide
(4) more oxygen and more carbon dioxide

( )

10. The diagram below shows the lungs of a human and the gills of a fish.



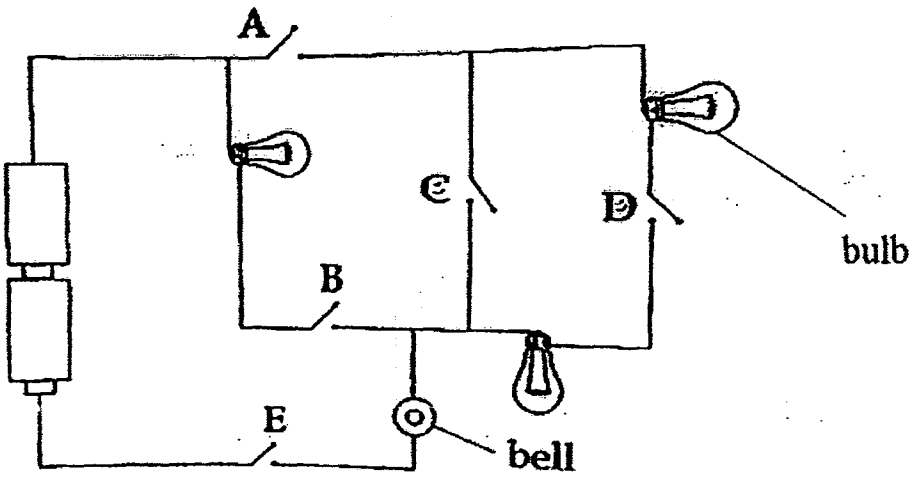
Which of the following statements are correct?

A:	The tiny air sacs and the gills help to absorb oxygen into the blood.
B:	When water passes over the gills, oxygen from the water is absorbed.
C:	The lungs have many tiny air sacs to increase surface area for a greater exchange of gases.

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

( )

11. Ahmad set up a circuit represented by the diagram shown below.

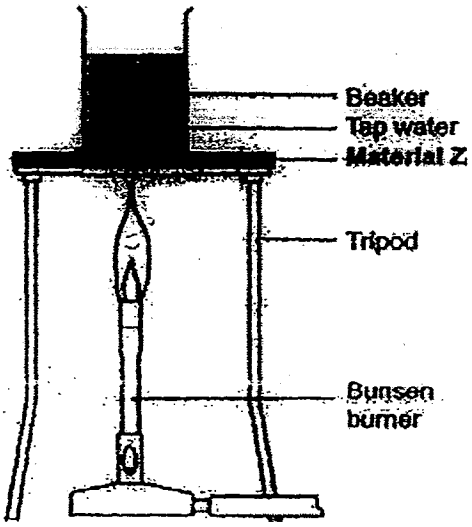


When Ahmad closed some switches, the bell started to ring. However, none of the bulbs lighted up.

Which of the following switches did he close?

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

12. Leon conducted an experiment using the set-up as shown below.



He recorded the time taken for the water to boil when different materials, X, Y and Z, were placed below the beaker of water in the table below.

Material	Time taken for the water to start boiling (min)
X	7
Y	15
Z	10

Which one of the following most likely shows the heat conductivity of the materials?

	X	Y	Z
(1)	poor	very good	good
(2)	good	poor	very good
(3)	good	very good	poor
(4)	very good	poor	good

( )

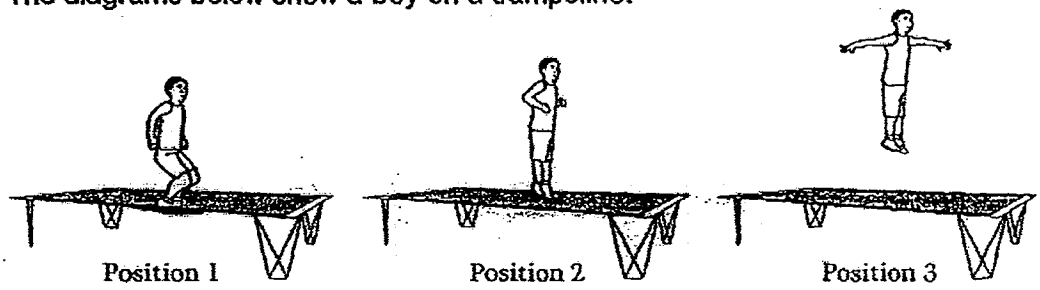
13. Eugene felt very cold in an air-conditioned room.

Which one of the following explanations is correct?

(1) His body lost heat to the surroundings.
(2) His body gained coldness from the surroundings.
(3) The surroundings lost heat to his body.
(4) The surroundings gained coldness from his body.

( )

14. The diagrams below show a boy on a trampoline.



He is at a standstill at the lowest point.

His feet are off the trampoline.

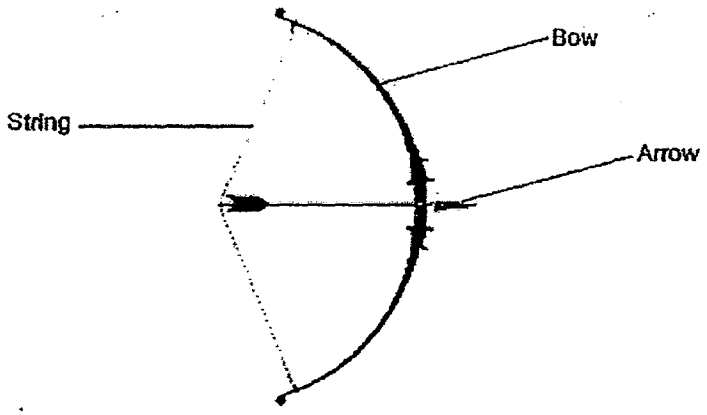
He is up in the air at the highest point.

Which of the following correctly shows the **energy conversion** from **position 1** to **position 2**?

(1)	The boy's kinetic energy is converted to elastic potential energy of the trampoline.
(2)	The boy's gravitational potential energy is converted to the elastic potential energy of the trampoline.
(3)	The gravitational potential energy of the trampoline is converted to the boy's kinetic energy.
(4)	The elastic potential energy of the trampoline is converted to the boy's kinetic energy.

( )

15. The diagram below shows a bow and an arrow.



Which of the following shows correctly where the forms of energy given below can be found when the arrow is pulled and then released?

	Elastic potential Energy	Kinetic Energy
(1)	Arrow	String
(2)	Arrow	Bow
(3)	String	Arrow
(4)	String	Bow

( )

16. Gerald wrote the following statement that represents the process of photosynthesis.

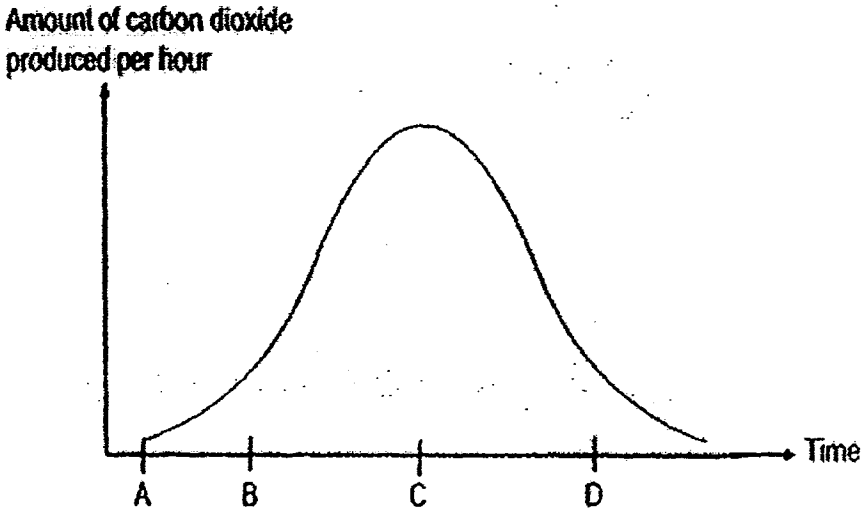
$$\text{X + water} \xrightarrow[\text{sunlight}]{\text{chlorophyll}} \text{Y + Z}$$

Which of the following correctly represents X, Y and Z?

	X	Y	Z
(1)	carbon dioxide	oxygen	starch
(2)	oxygen	starch	sugar
(3)	starch	oxygen	carbon dioxide
(4)	carbon dioxide	oxygen	sugar

( )

17. The graph below shows the amount of carbon dioxide released by a rose plant placed in a garden during a period of 24 hours.

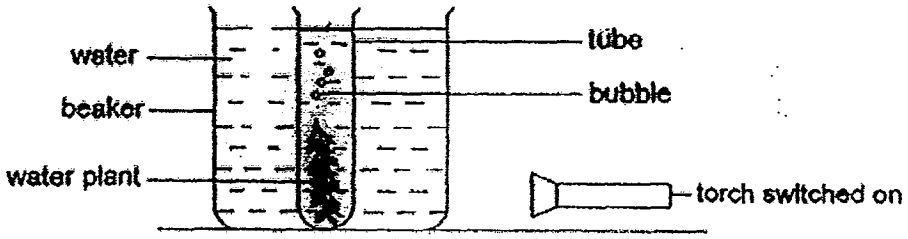


Which of the following are likely to represent the amount of carbon dioxide released at 12.00 pm and 10.00 pm?

	Amount of carbon dioxide produced at	
	12.00 pm	**10.00 pm**
(1)	A	D
(2)	A	C
(3)	B	A
(4)	C	A

( )

18. May Lin set up an experiment as shown below. After an hour, she observed oxygen bubbles in the test tube.



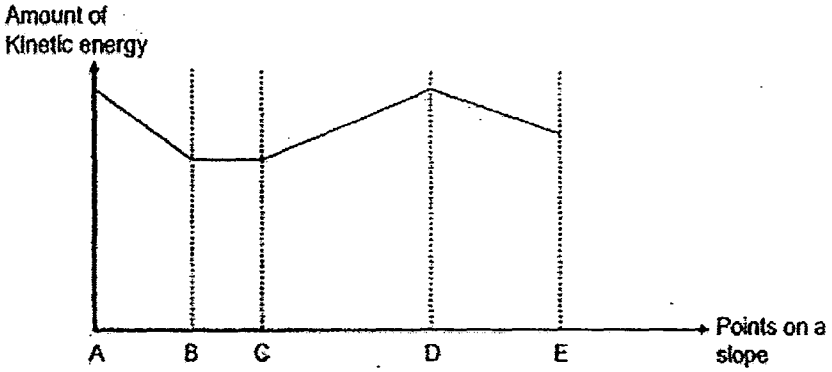
Which of the following variables can affect the number of oxygen bubbles produced per minute by the plant?

A: the intensity of light
B: the number of leaves the plant has
C: the amount of carbon dioxide in the test tube

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

( )

19. The graph below shows the amount of kinetic energy a boy has when he is running up and down a slope.



Which part of the graph shows the amount of kinetic energy the boy has when he was going down a slope?

(1) AB
(2) BC
(3) CD
(4) DE

( )

20. Which of the following statements about forces are correct?

A: Frictional force acts at a distance.

B: A force can slow down a moving object.

C: A force is a push or pull.

D: A force can cause an object to change its shape.

(1) A and B only

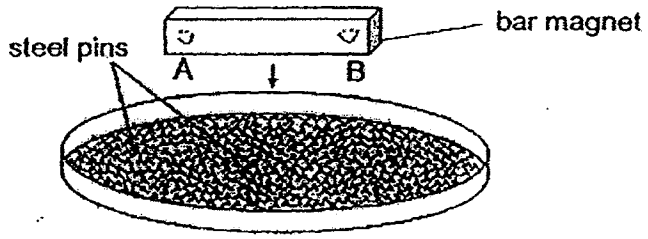
(2) C and D only

(3) A, B and C only

(4) B, C and D only

( )

21. The diagram below shows a bar magnet which is lowered onto a tray of steel pins.

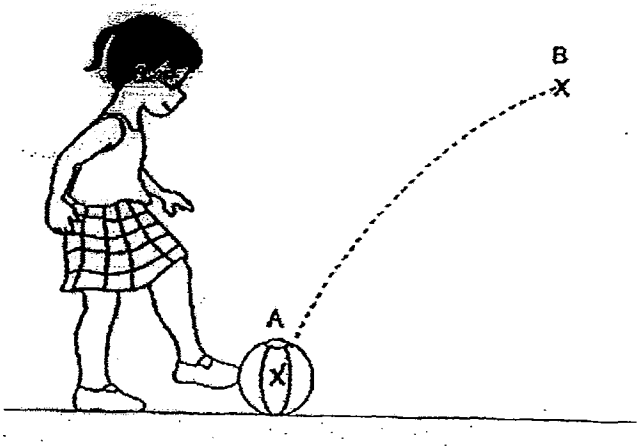


Which of the following shows the most likely number of steel pins attracted to the magnet at positions A and B?

	Number of steel pins attracted at	
	A	B
(1)	8	12
(2)	12	8
(3)	12	12
(4)	12	24

( )

22. Aileen kicked a ball from A to B as shown below.



Which one of the following statements is correct?

(1) The kinetic energy of the ball increased from A to B.

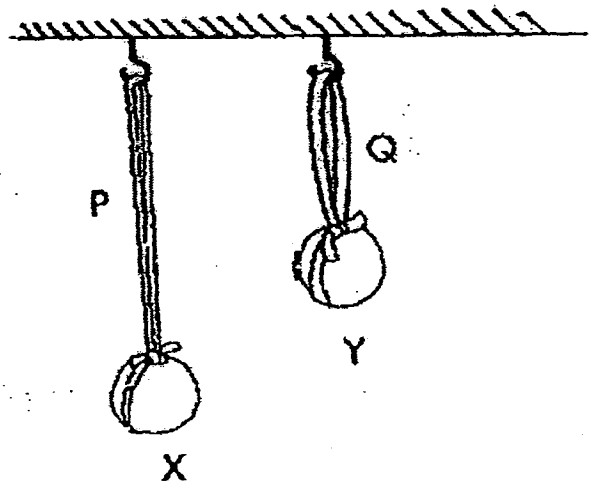
(2) The gravitational force acting on the ball increases from A to B.

(3) The mass of the ball remained unchanged as it moved from A to B.

(4) The gravitational potential energy of the ball decreased from A to B.

( )

23. An experiment was carried out with two balls, X and Y, and two rubber bands, P and Q. The two balls have the same volume.
The aim of the experiment is to find out the mass of the balls.

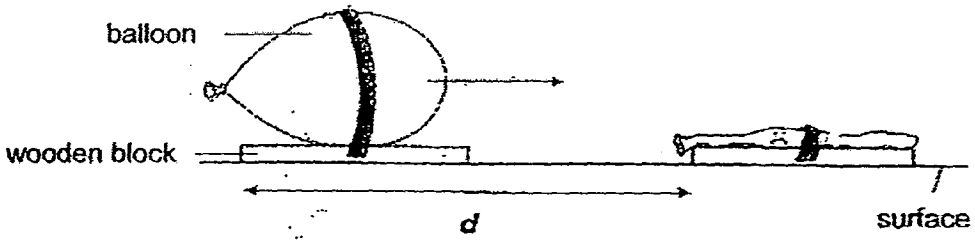


Four pupils wrote down their conclusions and reasons based on what they observed in the experiment. Who was correct?

	Pupil	Conclusion	Reason
(1)	Amy	X has a greater mass than Y.	P is stretched more.
(2)	Betty	Y has a greater mass than X.	Q is thicker and not so elastic.
(3)	David	X and Y have the same mass.	The balls are of the same size.
(4)	Sally	It is not a fair experiment.	The rubber bands are of different thickness.

( )

24. Amir made a toy with a wooden block and a balloon. He pumped 800 cm^3 of air into the balloon and then released it. He then measured the distance, *d*, moved by the toy.



The experiment was repeated with different amounts of air in the balloon.

Amir was trying to find out if the toy moved _____.

(1) further when the surface was smoother

(2) faster when he blew more air into the balloon

(3) further when he used blocks of different mass

(4) faster when he used different types of balloons

( )

25. In an experiment, Anthony hung a weight on a spring and measured the new length of the spring. Then, he recorded the result.

He repeated the experiment with different weights.

The table below shows his experimental results.

Mass of each weight (g)	Length of spring (cm)
40	25
80	30
120	35
160	40

However, he had forgotten to record the original length of the spring before he hung each weight.

Using the information in the table, what is the original length of the spring before each weight is hung on it?

(1) 15 cm

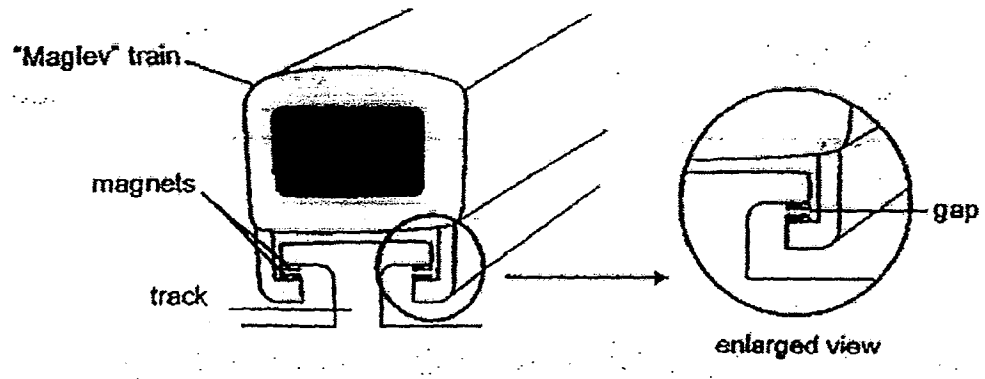
(2) 18 cm

(3) 20 cm

(4) 25 cm

( )

26. A "Maglev" train is a special train that floats a few centimetres above the track while it is moving. This is made possible by the use of very strong magnets that repel one another.



Maglev trains can travel faster than normal trains which use steel to run on steel tracks.

The Maglev train can travel much faster than a normal train because _____.

(1) friction between the train and the track is reduced

(2) friction between the train and the track is increased

(3) the mass of a Maglev train is greater than a normal train

(4) the mass of a Maglev train is smaller than a normal train

( )

27. The table below shows the type of forces and their effects.

	Type of force	Effect of force
A	Frictional force	Gives you weight
B	Magnetic force	Turns a compass needle
C	Gravitational force	Makes it difficult to climb up the stairs
D	Elastic spring force	Lifts you into the air when you jump on a spring board

Which of the forces are correctly matched with their effects?

(1) A and B only

(2) A and C only

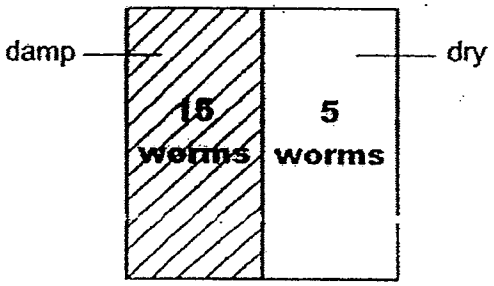
(3) C and D only

(4) B, C and D only

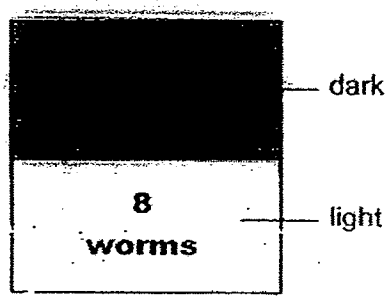
( )

28. Ronald carried out an experiment to study the preferred environment of some worms. Twenty worms were put in the middle of Tray A. After 15 minutes, the number of worms in each section of Tray A was counted.

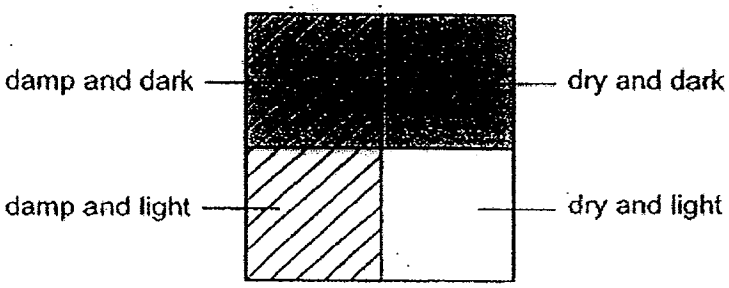
The experiment was repeated with Tray B and Tray C using the same number of similar worms.



Tray A



Tray B



Tray C

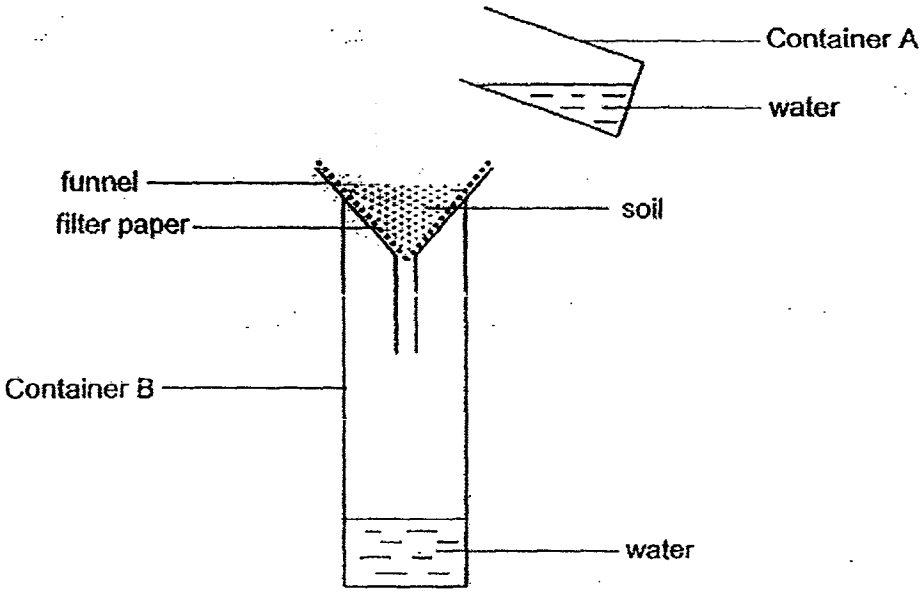
Which one of the following shows the likely number of worms in each section of Tray C?

	Tray C			
	damp and dark	damp and light	dry and dark	dry and light
(1)	6	11	1	2
(2)	9	6	4	1
(3)	9	6	1	4
(4)	10	6	1	3

( )

29. Aaron wanted to find out which type of soil – clayey, sandy or garden soil, allows the most water to pass through.

The diagram below shows his set-up.



Which of the following variable(s) should be kept the same for a fair test?

A: Mass of soil

B: Thickness of filter paper

C: Amount of water in container A

D: Amount of water collected in container B

(1) D only

(2) A and B only

(3) A, B and C only

(4) B, C and D only

( )

30. Which of the following are examples of interactions between **living** and **non-living** factors in an environment?

A: A cat breathing in air.

B: A frog laying eggs in water.

C: A bird feeding on worms.

D: An earthworm making a tunnel in muddy soil.

(1) A and B only

(2) A and C only

(3) A, B and D only

(4) B, C and D only

( )

End of Booklet A

HENRY PARK PRIMARY SCHOOL
2015 SEMESTRAL EXAMINATION 1
SCIENCE
PRIMARY 6

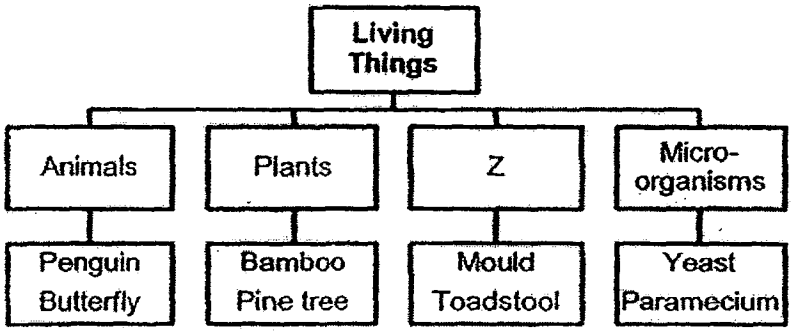
Name:_____( )

Class: Pr 6 _____

40

Booklet B (40 marks)
Write your answers to questions 31 to 44 in the spaces given.

31. Some living things were grouped in the classification chart below.



a) Give a suitable heading for Group Z. *(1m)*

_____

_____

b) Explain why ferns cannot be placed in Group Z. *(1m)*

_____

_____

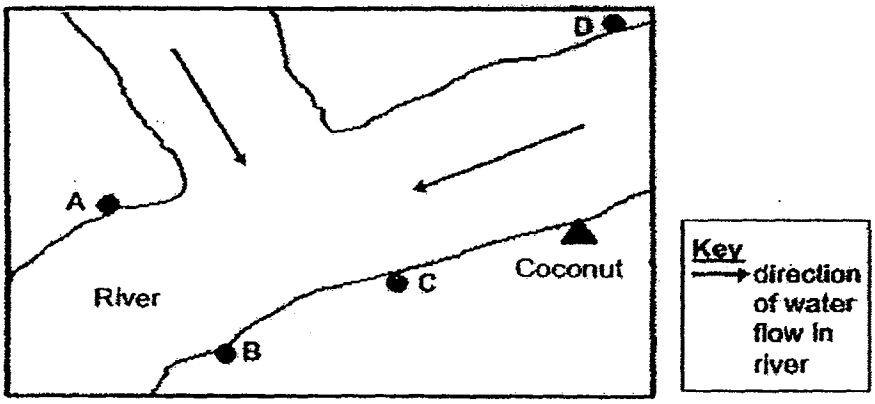
_____

32. The following table shows the comparison between sexual reproduction in humans and in flowering plants.

Complete the table below by writing the correct word in each blank *(2m)*

	Humans	Flowering plants
Where male reproductive cell is produced	(a) _____	(b) _____
What happens after fertilisation	A foetus will then develop in the womb.	The (c)_ _____ inside the ovary will develop into (d)_____

33. The diagram below shows the different parts, A, B, C and D, of a river. Coconut plants were found growing along some parts of the river.



a) Name the part of the river where the young of coconut plant is least likely to be found. *(1m)*

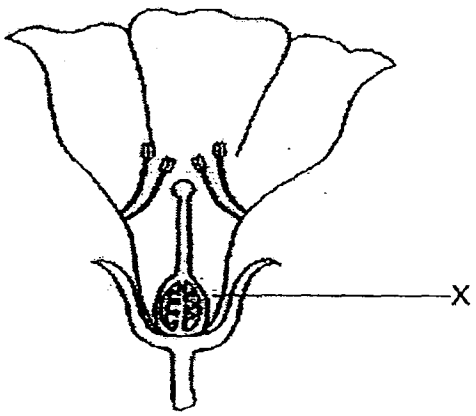
_____

b) State two likely characteristics of the coconut that help in its dispersal. *(2m)*

(i) _____

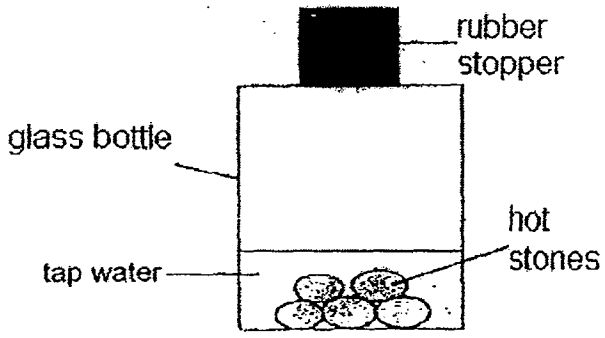
(ii) _____

34. The diagram below shows part of a flower.



'X' shows where nectar is found in the flower. *(2m)*
Explain how this helps the flower to be pollinated by insects.

35. Cory heated some stones to 150°C and placed them in the glass bottle as shown in the set-up below.



After several minutes, she observed that water droplets formed on the inner surface of the glass bottle.

Explain how the water droplets were formed. *(2m)*

36. Figure **A** shows an object which is elastic. It measures 1 metre from the ground.

Figure **B** shows the compressed height of the object when a weight is put on top of it.

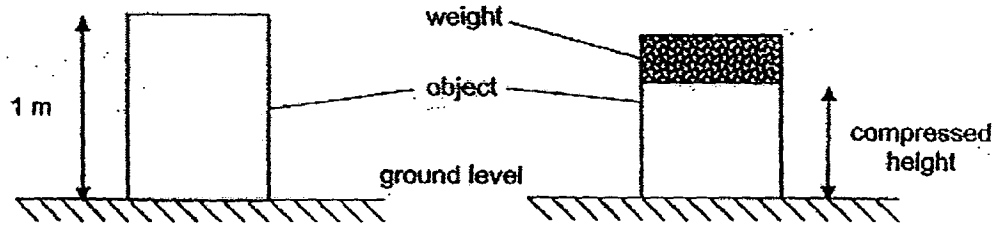


Figure **A** Figure **B**

When the weight is removed, the object returns to its original height.

Different weights are added and their respective compressed heights are recorded in a table shown below.

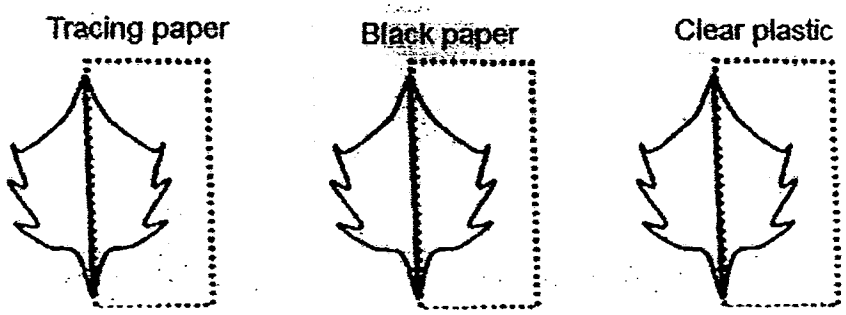
Weights added (kg)	Compressed height of the object (m)
1	0.9
2	0.8
3	0.7
4	0.6
5	0.5
6	0.5
7	0.5

(a) Based on the information given in the table, what is the relationship between the weights added and the compressed heights of the object? *(2m)*

(b) As weights are added to it, what form of energy does the object gain? *(1m)*

37. Ben set up an experiment using three plants, A, B and C. From each plant, he chose a leaf and covered half the leaf with a different type of paper as shown below.

All three plants had been de-starched for 48 hours. Then they were placed under the sun for four hours.



Leaf from plant A **Leaf from plant B** **Leaf from plant C**

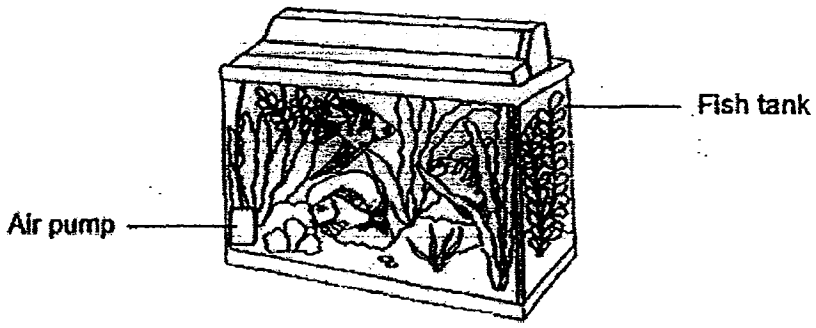
a) A starch test was carried out on the covered part of the leaves of each plant A, B and C. Ben recorded his results in a table as shown below.

Leaf from plant	Observations of starch test
A	Dark blue
B	Yellowish-brown
C	Darker blue

Explain why iodine solution on leaf B remained yellowish brown. *(2m)*

b) State a possible conclusion for his experiment. *(1m)*

38. Jim bought a fish tank to rear some fishes. He kept it in his balcony where it is exposed to sunlight.

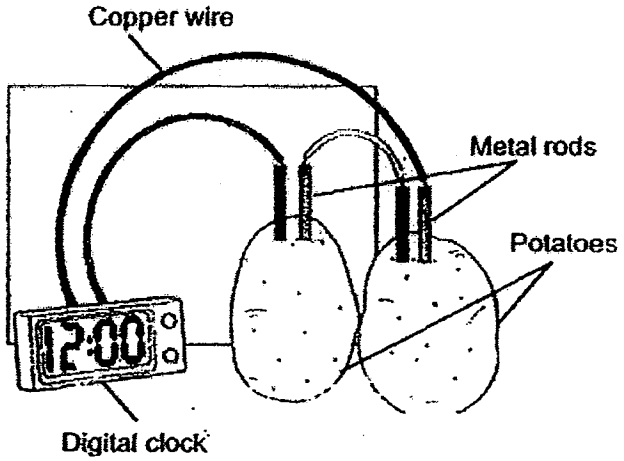


After Jim returned from a family vacation, he saw that his fishes had died but his water plants were still alive.
Give a reason for this observation. *(2m)*

_____

_____

39. Samy set up the following experiment as shown below.



a) Given that the digital clock has no batteries stored inside, what is the energy conversion that will take place? *(2m)*

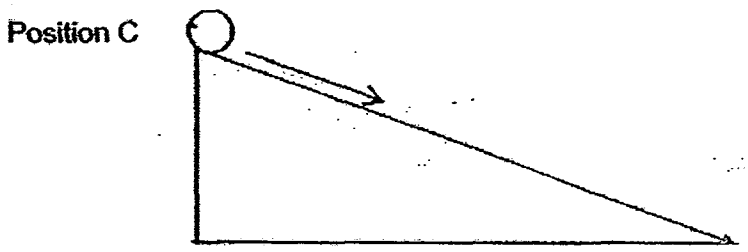
_____ (in Potatoes) → _____ (in Copper wires) → _____ (in Digital clock)

b) After 10 hours, the digital clock has stopped working. Explain why. *(1m)*

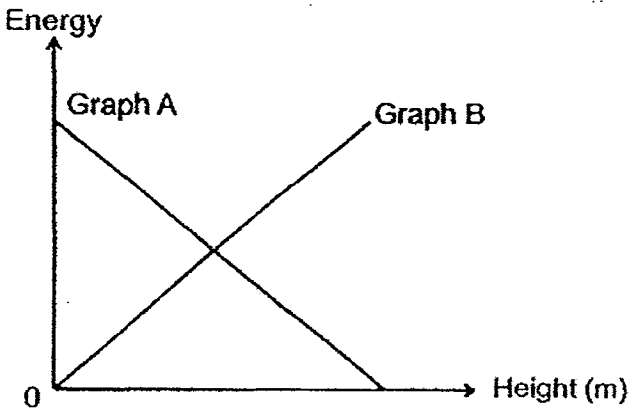
_____

_____

40. The diagram below shows a ball at the top of the ramp.



The graph below shows the gravitational potential energy and kinetic energy of the ball as it rolls down the ramp from position C.



(2m)

a) Which graph, A or B, correctly represents the type of energy the ball has?

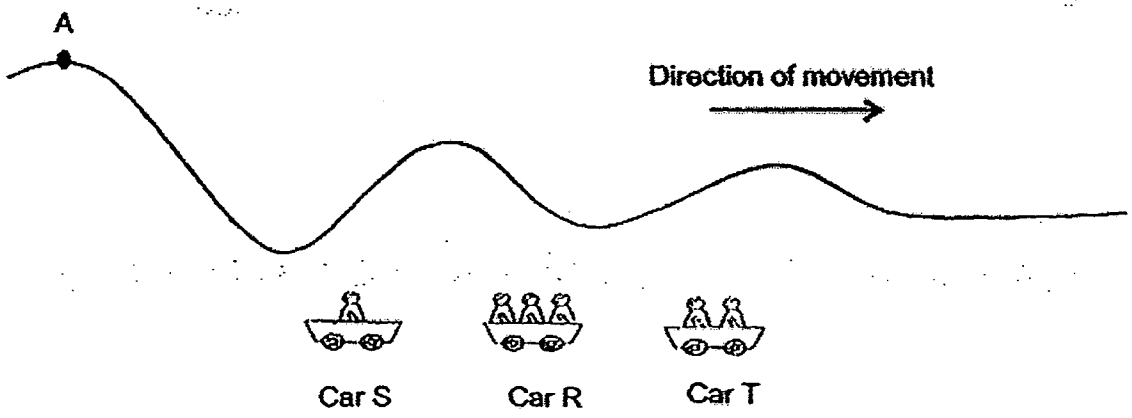
Gravitational potential energy: Graph _____

Kinetic energy: Graph _____

b) The diagram below shows a roller coaster track.

There are three different types of cars, R, S and T that move along the track.

The mass of each person in the three cars is the same.



Each car moved at the same speed from position A. *(2m)*

Which car is likely to have the greatest amount of kinetic energy?
Give a reason for your answer.

_____

_____

41. Diagram 1 below shows a heavy plastic tank half filled with oil and an iron disc.

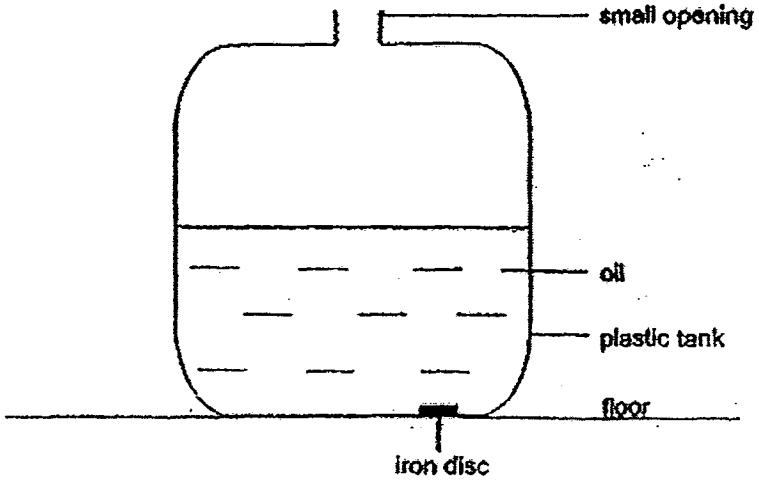
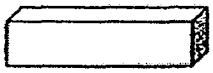


Diagram 2 below shows some of the items that can be useful to remove the iron disc.

A string

a fish hook



a bar magnet

a) Which one of the items shown in diagram 2 could be used to remove the iron disc without wetting it or moving the heavy plastic tank? *(1m)*

_____

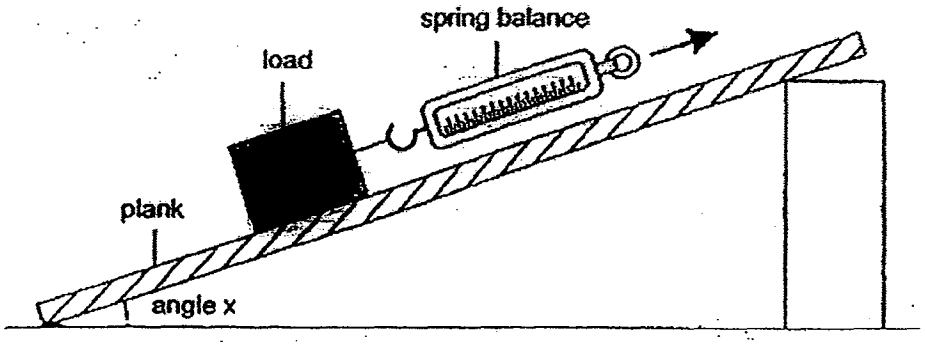
b) Using your answer in (a), describe how the iron disc can be removed. *(2m)*

_____

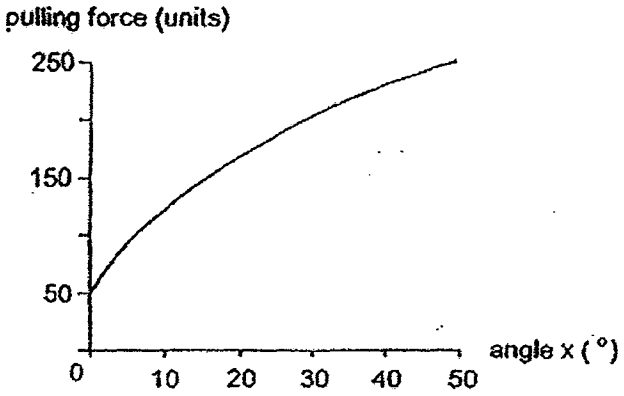
_____

_____

42. Jonathan carried out an experiment using the set-up as shown in the diagram below. He pulled the load up a plank using a spring balance. He repeated the experiment with different values of angle x.



He plotted a graph below to show the results of his experiment.



a) State the independent and dependent variables of Johnathan's experiment. *(2m)*

Independent variable : _____

Dependent variable : _____

b) Explain why a force of 50 units is still needed to pull the load along the plank when it is placed horizontally on the ground. *(2m)*

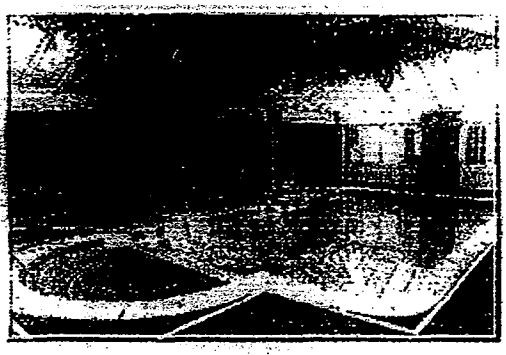
_____

_____

_____

43. The diagrams below show two types of swimming pool.

Outdoor pool (without shelter)



Indoor pool (with shelter)

a) The floor area around the outdoor pool is likely to be **drier** on a sunny day. *(2m)*
Explain why.

_____

_____

b) Children at the indoor pool tend to slip easily when walking around the pool.

Explain how adding fans around the indoor pool reduces the number of children slipping. *(1m)*

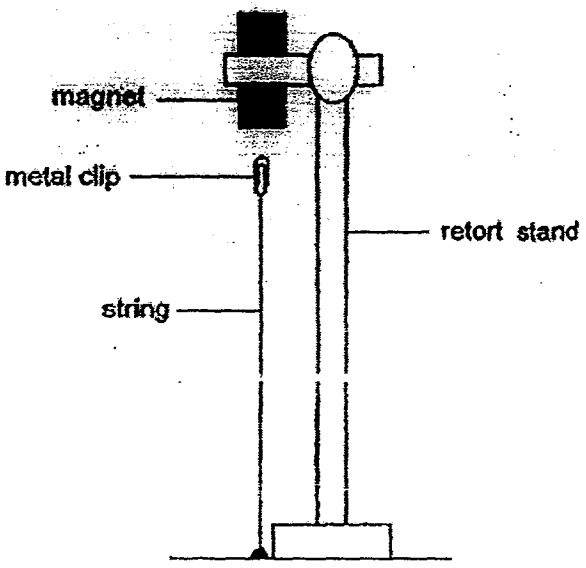
_____

_____

c) State **one** factor that can slow down the rate of evaporation of water. *(1m)*

_____

44. Zavier carried out the following experiment. He clamped a magnet as shown. A metal clip, tied to the bench by a string of length 25 cm, was found to remain in the air.



a) Give a reason why the metal clip did not drop. *(1m)*

Zavier hit the magnet a few times with an iron hammer. Then he carried out the experiment again. This time, he observed that the metal clip dropped unless he used a longer string of length 27 cm.

b) Give a reason why he had to use a longer string of 27 cm. *(1m)*

c) Based on the above information, what can Zavier conclude about the effect of hitting a magnet with an iron hammer? *(1m)*

End of Booklet B

Setters: Mr Tan Joo Nam, Ms Grace Chan and Ms Ruchika

P6 Science SA1 Suggested Answers for Corrections
Booklet A

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

Booklet B

Qn	Part	Answer	CORRECTIONS
31	(a)	Fungi	
	(b)	Ferns are plants, not fungi.	
32	(a)	testes	
	(b)	anther	
	(c)	ovule	
	(d)	seed	
33	(a)	D	
	(b)(i) (ii)	Any **two** from: It has a fibrous husk & able to float on water	
34		When insects move into the flower for nectar, pollens will stick to their body. Then insects will transfer the pollens to the stigma (of another flower).	
35		Water gained heat from the stones and evaporated and lost heat to the cooler inner surface of the glass and condensed	Water gained heat from the stones and evaporated and lost heat to the cooler inner surface of the glass condensed
36	(a)	As the weights added increase, the compressed height of the object decrease but after a certain point, the height remains unchanged.	As the weights added increased, the compressed height of the object decreased but after a certain point, the height remains unchanged
	(b)	Elastic potential energy	Elastic potential energy
37	(a)	There is no starch present as the black paper did not allow light to pass through for leaf to carry out photosynthesis.	

	(b)	The greater the amount of light the greater the rate of photosynthesis	
38		The plant are able to make their own food but fish died due to lack of food.	
39	(a)	Chemical (potential) energy —— Electrical energy —— Light energy	
	(b)	The chemical (potential) energy has been converted to other forms of energy	The chemical potential energy has been converted to other forms of energy
40	(a)	B A	B A
	(b)	Car R. It has the greatest mass.	
41	(a)	Bar magnet	
	(b)	Put the magnet on the side of the tank and let magnet attract the iron disc and pull it out of the small opening.	
42	(a)	Independent variable: Angle X	
		Dependent variable: Amount of force needed to pull up the block	
	(b)	There is frictional force between the load and the plank.	
43	(a)	Evaporation of water is faster as the surrounding temperature is higher	
	(b)	Fans produce wind which increases evaporation of water	
	(c)	Any one from: • no wind • low surrounding temperature • smaller exposed surface area of water • high humidity level	
44	(a)	The magnet attracted the metal clip	
	(b)	The magnetic force is weaker so magnet must be placed closer to metal clip.	
	(c)	Hitting a magnet causes it to lose (some of) its magnetism	