



**CATHOLIC HIGH SCHOOL
PRIMARY 6
PRELIMINARY EXAMINATION 2**

**SCIENCE
EM 1 / EM 2**

Name: _____ ()

Class : Primary 6 _____

Date : 25 June 2009

BOOKLET A

30 Questions
60 Marks

Total Time for Booklets A & B : 1 hour 45 minutes

Instructions to Candidates

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.

Section A: Multiple Choice Questions (30 x 2marks)

Read each question carefully. Choose the most suitable answer and shade the appropriate oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.

1. Ali and Muthu classified some organisms in two different ways as shown in the tables below.

Ali:

Group A	Group B
Mimosa plant	Moss
Angsana	Mushroom

Muthu:

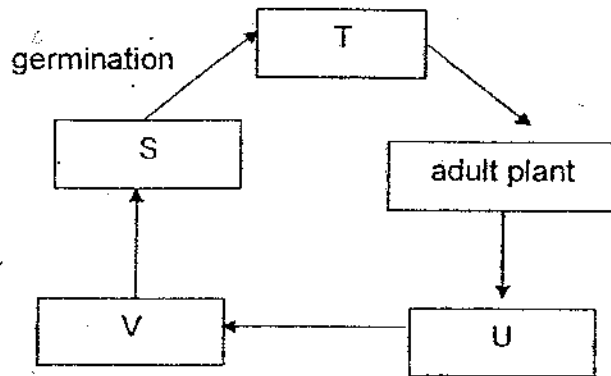
Group C	Group D
Moss	Mimosa plant
Mushroom	
Angsana	

What are suitable headings for their groupings?

	Group A	Group B	Group C	Group D
(1)	Flowering plants	Non-flowering plants	Can make food	Cannot make food
(2)	Can make food	Cannot make food	Reproduced by seeds	Reproduced by spores
(3)	Reproduced by seeds	Reproduced by spores	Dispersed by wind	Dispersed by animals
(4)	Dispersed by wind	Dispersed by animals	Reproduced by seeds	Reproduced by spores

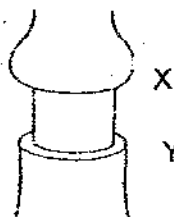
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2. The diagram below shows the order of stages and a process in the life cycle of a flowering plant.



Which one of the following correctly represents the stage where the flower is being developed?

- (1) S
 - (2) T
 - (3) U
 - (4) V
3. An outer ring of the stem between positions X and Y of a plant is removed. The diagram below shows the appearance of the stem after some time.

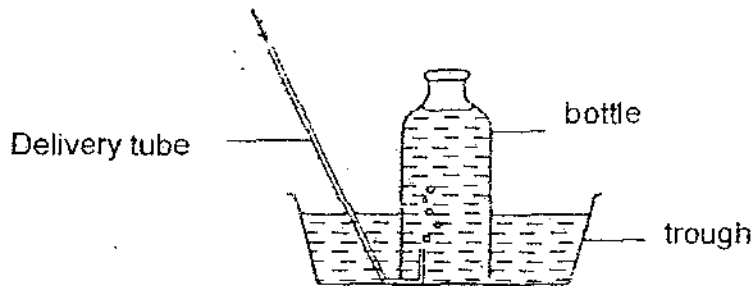


Which one of the following correctly describes the type of tube(s) removed at X and Y to cause the appearance of the stem as shown above?

- (1) The food carrying tube of the stem has been removed.
- (2) The water carrying tube of the stem has been removed.
- (3) Both the water and food carrying tubes have been removed.
- (4) Half of the food carrying and water carrying tubes have been removed.

4. Herman made a hypothesis that heavier people have bigger lung capacities. He then set up an experiment to test his hypothesis.

He set up the apparatus as shown below.



Method 1

Record the weights of three different people

Get each of them to take turns to blow several times into the delivery tube

Record the water level in the cylinder after each person

Method 2

Ensure the weights of three different people are the same

Get each one of them to take 1 breath and blow into the delivery tube

Record the water level in the cylinder after each person

Method 3

Record the weights of three different people

Get each one of them to take 1 breath and blow into the delivery tube

Record the water level in the cylinder after each person

Method 4

Record the chest size of each person

Get each one of them to take 1 breath and blow into the delivery tube

Record the water level in the cylinder after each person

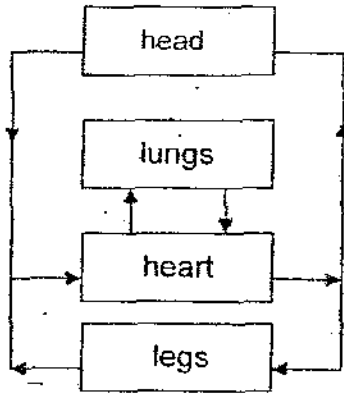
Which one of the following methods will help him to test his hypothesis?

- (1) Method 1
- (2) Method 2
- (3) Method 3
- (4) Method 4

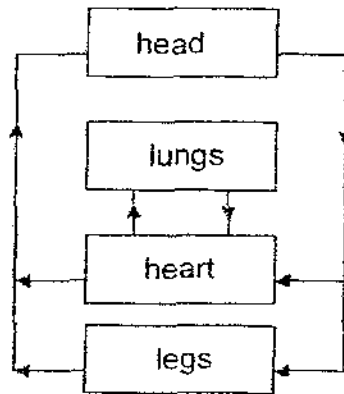
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5. Which one of the diagrams below correctly shows how blood flows in certain parts of the body?

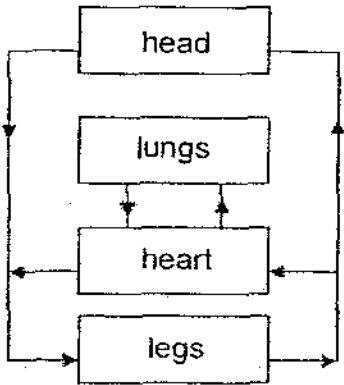
(1)



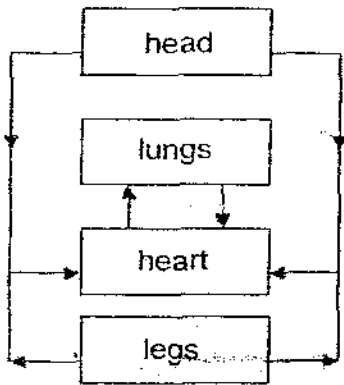
(2)



(3)



(4)



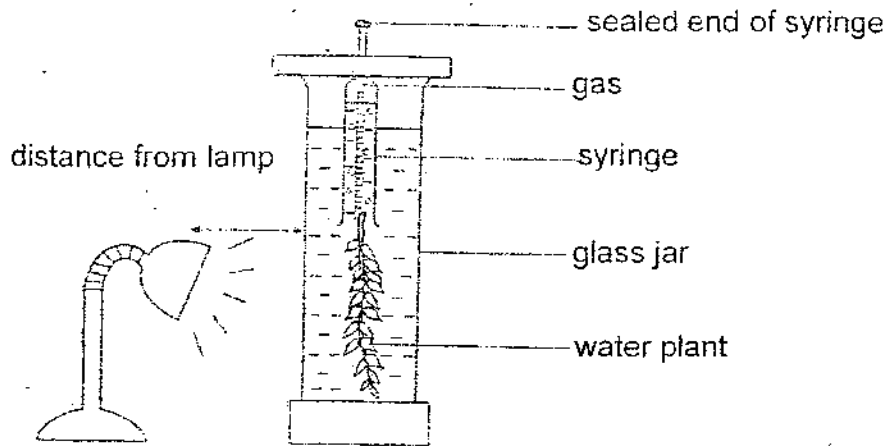
6. Study the table below.

Number of animals		
5 male ducks	5 female ducks	4 ducklings

How many population(s) of animals is/are there?

- (1) 1
- (2) 3
- (3) 5
- (4) 14

7. John sets up an experiment as shown in the following diagram.



He placed a table lamp at a distance of 20cm from the glass jar. After half an hour, he observed that the syringe had collected 5 cm³ of gas. He repeated the experiment by placing the lamp at different distances from the glass jar.

Which of the following shows the likely results of this experiment?

	Distance from the lamp/cm	Volume of gas collected /cm ³
A	10	8
B	10	5
C	30	2
D	30	8

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

8. The table below provides some information on four types of cells, A, B, C and D. A tick (✓) indicates the presence of the part of the cell.

Parts of a cell	Cell A	Cell B	Cell C	Cell D
Cell wall		✓	✓	
Nucleus	✓	✓	✓	
Chloroplasts		✓		
Cell Membrane	✓	✓	✓	✓

Which of the above cell(s) is/are most likely to produce oxygen?

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

9. Which of the following organisms are decomposers?

- A algae
- B bacteria
- C maggots
- D mushrooms

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

10. Thomas wanted to investigate the effect of temperature on the time taken for the seeds to germinate. He placed 6 seeds each on 3 similar dishes, A, B and C and placed them under conditions necessary for germination.

Which one of the following tables is best used to record the results of his investigation?

(1)

Dish	Day	Temperature (°C)	Amount of light
A	1		
B	2		
C	3		

(2)

Dish	Day	Amount of light	Number of seeds germinated
A	1		
B	2		
C	3		

(3)

Day	Temperature (°C)		
	Dish A	Dish B	Dish C
1			
2			
3			

(4)

Day	Number of seeds germinated		
	Dish A	Dish B	Dish C
1			
2			
3			

11. Which of the following statements about the reproduction of animals are true?

- A Eggs must be fertilised before they can develop into young animals.
- B To ensure continuity of their own species, all animals give birth to their young alive.
- C Fertilisation always takes place while the egg is still inside the body of a female animal.
- D The life cycle of an animal depicts the stages of development from a fertilised egg to the adult stage.

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

12. A group of students made a record of the number of organisms found in a pond as shown below.

Organisms	Number of organisms
Guppy	11
Arrowhead	5
Water lettuce	3
Dragonfly nymph	7
Dragonfly	4

Which one of the following statements about the organisms in the pond is true?

- (1) There were 5 populations of organisms altogether.
- (2) There were an equal number of animal and plant populations.
- (3) The population size of guppy was bigger than the population size of dragonfly.
- (4) There were more organisms in the plant populations than animal populations.

13. The characteristics of Environment P are listed in the table below.

Environment P	
Temperature	25°C
Light Intensity	Dark most of the time
Moisture	Very high
Availability of oxygen	Very little
Availability of carbon dioxide	High

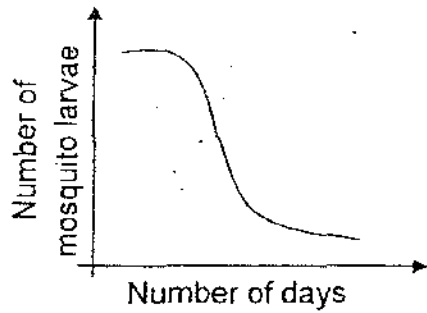
The table below shows the characteristics of the preferred habitats of 3 bacteria, A, B and C.

Characteristics of Preferred Habitat	A	B	C
Temperature	2°C	20°C to 30°C	Any temperature
Light Intensity	Dark	Very bright	Dim light
Moisture	Little	High	High
Others	Needs very little oxygen	Thrives well in places rich in oxygen	Thrives well in places rich in carbon dioxide

Which of these bacteria, A, B or C could live in Environment P?

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

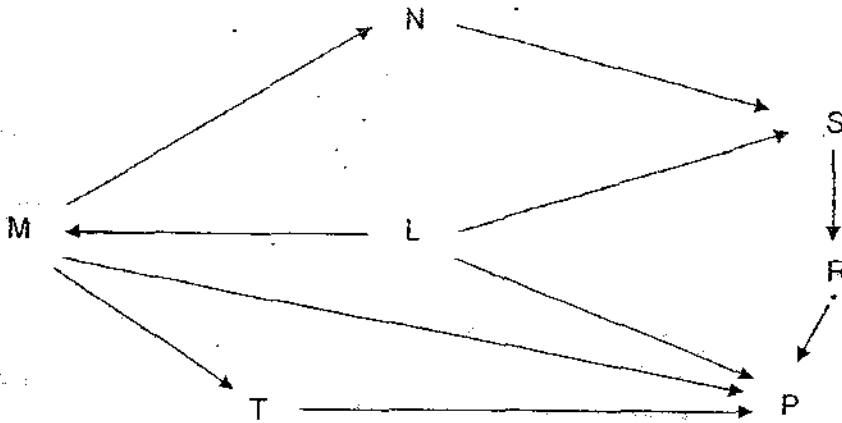
14. Study the graph below.



What is/are the likely reason(s) for the change in the number of mosquito larvae in a pond?

- A A long period of drought
 - B The absence of predators
 - C An increase in the rainfall
 - D An introduction of some fish
- (1) A only
(2) A and D only
(3) B and C only
(4) A, C and D only

15. Study the food web below.



Which of the following statements about the food web are true?

- A N and T are carnivores.
- B P is a food producer.
- C If S is removed, R will die very soon.
- D If L is removed, P will eventually die.

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

16. Mrs Toh took out a box of milk from the refrigerator and left it on the table for half an hour.



Which one of the following shows the flow of heat correctly?

- (1) box → surrounding air
- (2) surrounding air → milk
- (3) milk → box → surrounding air
- (4) surrounding air → box → milk

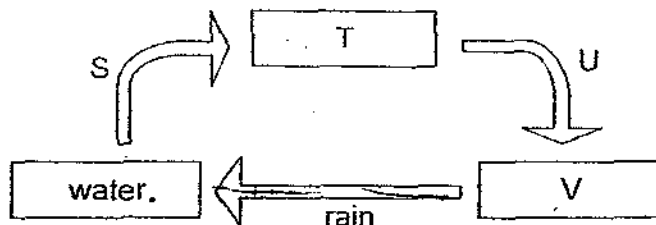
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17. Two containers, X and Y, have an equal volume of 500cm^3 . Air and water are pumped into containers X and Y respectively.

	Air pumped into container X / cm^3	Water pumped into container Y / cm^3
A	500	500
B	450	500
C	550	480
D	550	550

Which of the following shows possible amounts of air and water that can be pumped into each container?

- (1) A and C only
 (2) B and C only
 (3) A, B and C only
 (4) A, B and D only
18. Study the diagram below that represents the water cycle.



What do the letters S, T, U and V represent?

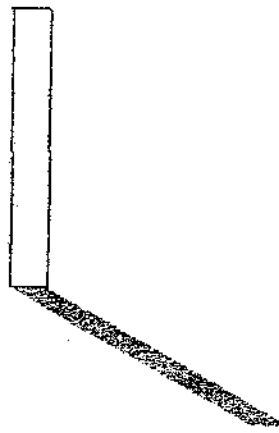
	S	T	U	V
(1)	Condensation	Water droplets	Evaporation	Water vapour
(2)	Condensation	Water	Evaporation	Water droplets
(3)	Evaporation	Water droplets	Condensation	Water vapour
(4)	Evaporation	Water vapour	Condensation	Water droplets

19. Which of the following shows the shadow formed by a pole at 9.30am?

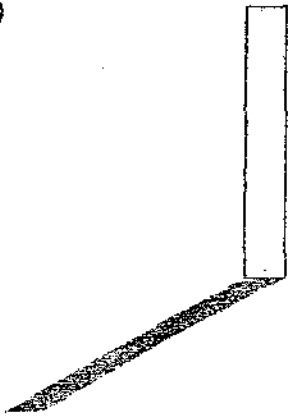
(1)



(2)



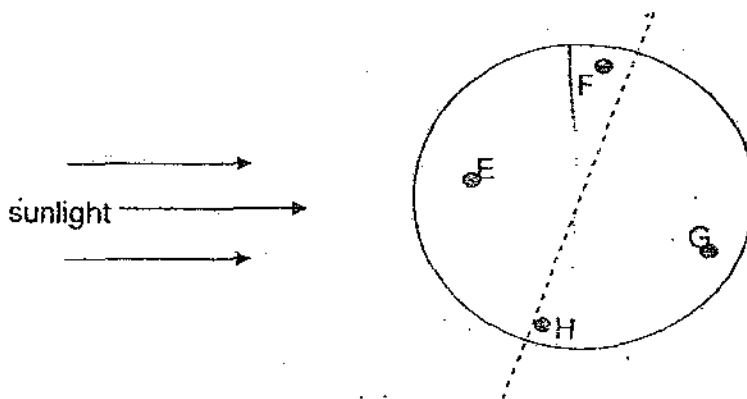
(3)



(4)



20. The diagram below shows four different locations on Earth's surface.



From the diagram above, which location will be the next to experience sunrise?

- (1) E
- (2) F
- (3) G
- (4) H

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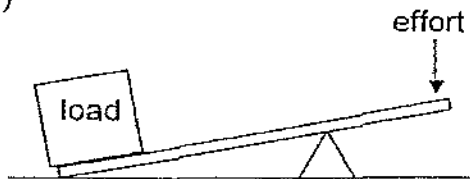
21. Which of the following statement(s) about heat energy from the Sun is/are true?

- A It is required for photosynthesis.
- B It is required for living things to survive.
- C It is dependent on the amount of light energy.
- D It is required for the water cycle to take place.

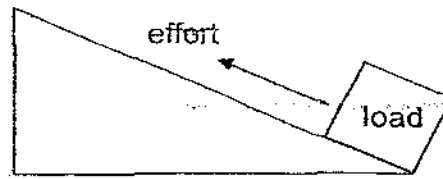
- (1) A and D only
- (2) B and C only
- (3) A, C and D only
- (4) B, C and D only

22. Which one of the following simple machines would require the greatest effort to lift a load of 50kg?

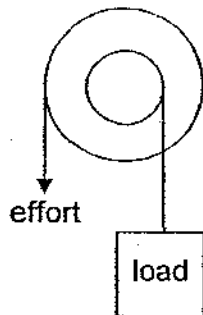
(1)



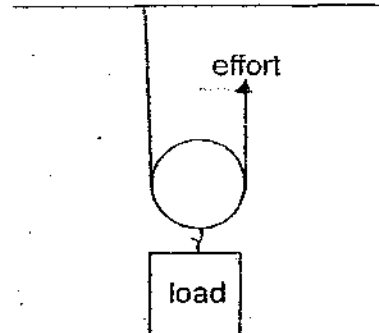
(2)



(3)



(4)



23. Bala conducted an experiment by heating water in each set-up to boiling point. He used identical heat sources and beakers for all set-ups. The table below shows the specifications of set-ups W, X and Y, and the results of the experiment.

Set-up	Amount of salt/g	Amount of liquid / ml	Time taken for liquid to boil / min
W	50	150	9
X	100	150	12
Y	150	150	15

In this experiment, Bala is trying to find out _____.

- (1) the time taken for water to boil
 - (2) if the presence of salt affects the boiling point of water
 - (3) if the presence of salt affects the time taken for the water to boil
 - (4) if the time taken for a liquid to boil depends on the volume of the liquid
24. Four identical metal blocks were dropped into a container of flour. The depth of the dents made by each block in the flour was measured and recorded in the table below.

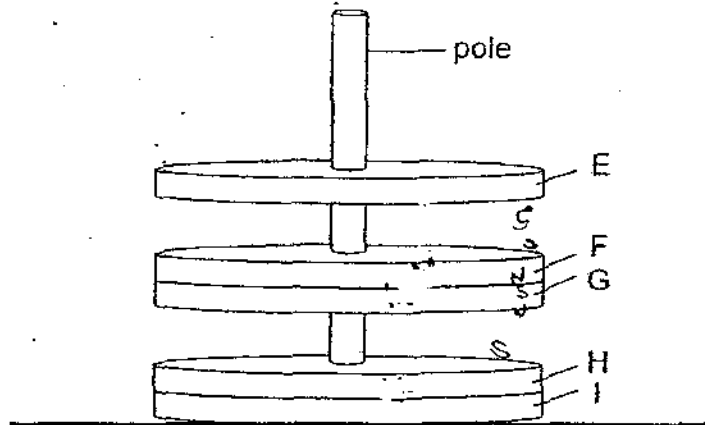
Metal block	Depth of dent made in the flour / cm
G	5.2
H	1.5
I	4.9
L	2.7

Which one of the metal blocks had the greatest kinetic energy when falling?

- (1) G
- (2) H
- (3) I
- (4) L

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25. Benny placed objects E, F, G, H and I through a pole and the diagram below shows his observation.

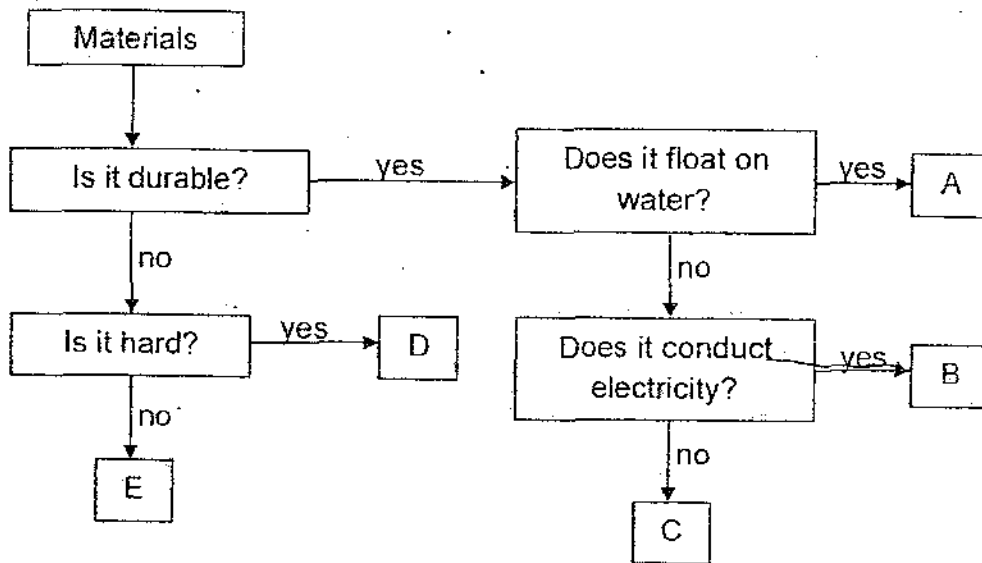


Which of the following are correctly matched according to Benny's observation?

	Conclusion	True	False	Not possible to tell
A	Object E is a magnet.	✓		
B	All five objects are magnets.	✓		
C	Object I is made from a magnetic material.		✓	
D	The like poles of objects E and H are facing each other.			✓

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

26. Study the flow chart below.



Which materials, A to E, are used to make an aluminium spoon and a paper bag?

	Aluminium spoon	Paper bag
(1)	A	D
(2)	B	E
(3)	C	E
(4)	D	C

27. The diagram below shows the positions of objects Q and S on a lever.



What should be done to balance the lever?

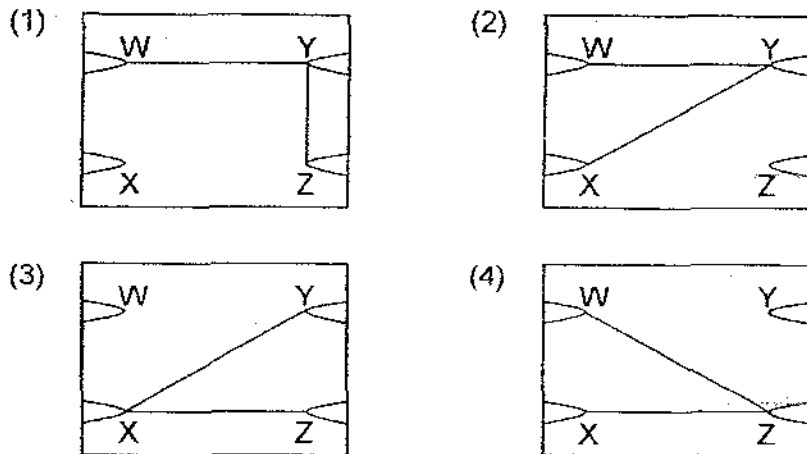
- (1) Move S nearer to the fulcrum.
- (2) Move Q nearer to the fulcrum.
- (3) Move the fulcrum further from Q.
- (4) Move S and Q 5cm nearer to the fulcrum.

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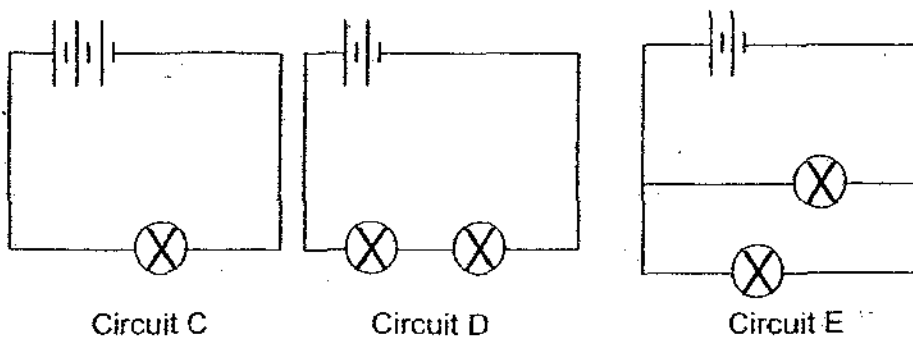
28. A circuit card has four paper clips at points W, X, Y and Z. When the wires of a circuit tester are connected to two paper clips at each time, the following observations were made.

Paper clips connected	Does the bulb in the circuit tester light up?
W and X	No
W and Y	Yes
W and Z	Yes
X and Y	No
X and Z	No

Which of the following shows a possible arrangement of the wires behind the circuit card?



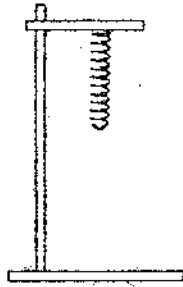
29. Circuits C, D and E are made up of identical batteries and bulbs.



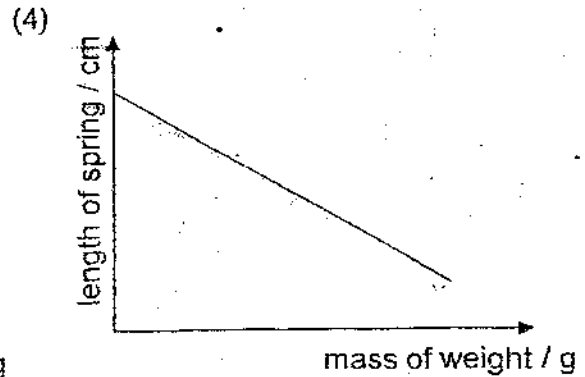
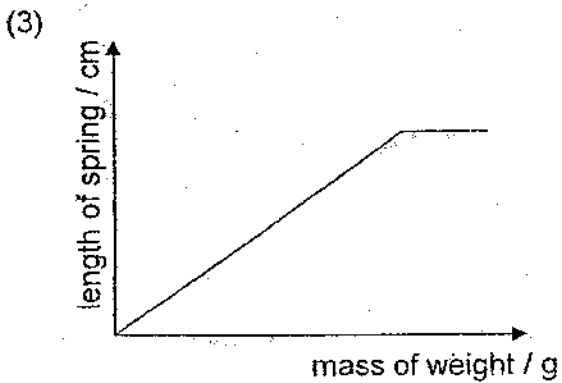
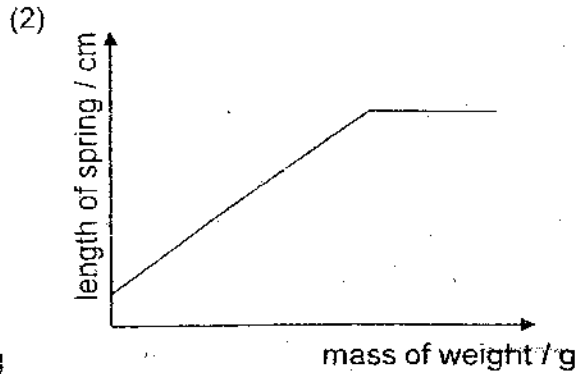
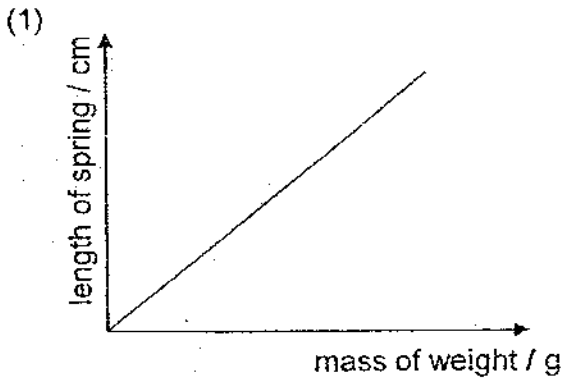
Which of the following shows the correct order of circuits arranged in ascending order of the brightness of the bulb?

- (1) C, E, D
 (2) D, E, C
 (3) D, C, E
 (4) E, D, C

30. Alvin set up an experiment as shown below to investigate the effects of increasing mass on the extension of a spring. He hung weights of different mass on the spring and measured the length the spring. Alvin plotted his results in a line graph.



Which one of the following shows the most likely results he would have obtained from his experiment?





**CATHOLIC HIGH SCHOOL
PRIMARY 6
PRELIMINARY EXAMINATION 2**

**SCIENCE
EM 1 / EM 2**

Name: _____ ()

Class : Primary 6 ___

Date : 25 June 2009

BOOKLET B

16 Questions
40 Marks

Total Time for Booklets A & B: 1 hour 45 minutes

Instructions to Candidates

Follow all instructions carefully.
Answer all questions.

Parent's Signature: _____

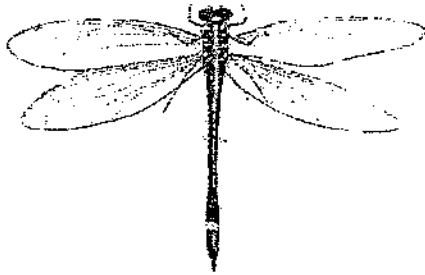
Date: _____

Score	
Section A	60
Section B	40
Total	100

Section B: (40 marks)

For questions 31 to 46, write your answers in this booklet. The maximum number of marks available is shown in [] at the end of each question or part-question.

31. The diagrams below show two insects.



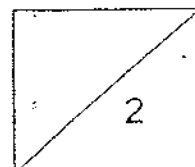
Dragonfly



Butterfly

(a) State two observable similarities between the two animals. [1]

(b) State one difference between the life cycles of the two animals. [1]

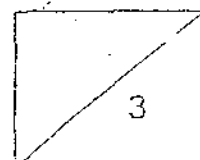


32. The table below shows the changes in the rate of heartbeat of a person when engaging in a game of basketball.

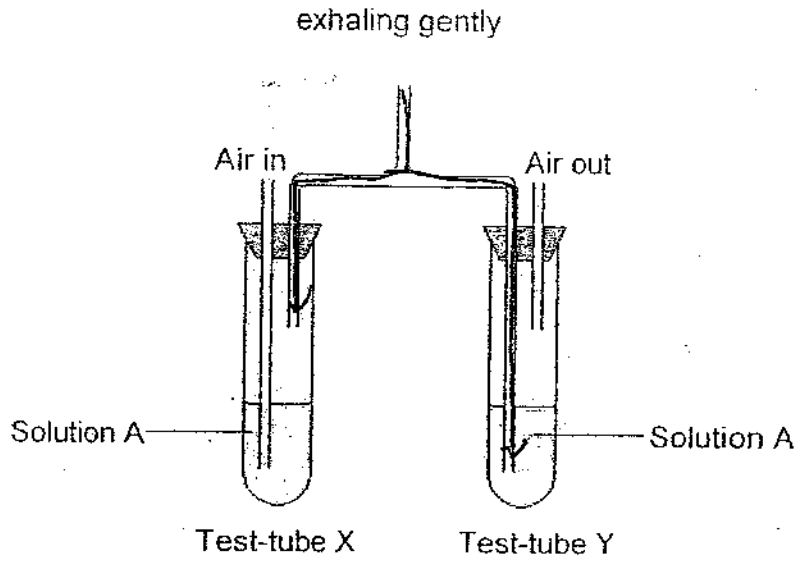
Duration/ min	2	4	6	8	10
Number of heart beat/min	64	80	98	110	110

- (a) Based on the table above, what is the pattern between the duration of the game and the number of heartbeats per minute? [1]

- (b) Explain why the person's heart beat per minute increases when he exercises. [2]



33. Ronald sets up the following experiment as shown below.



The table below shows how Solution A will react to different amounts of carbon dioxide.

Amount of carbon dioxide	Colour of Solution A
Less than 0.03%	Purple
About 0.03%	Green
More than 0.03%	Yellow

Ronald blew gently into the set-up for 5 times and observed whether there were changes to Solution A.

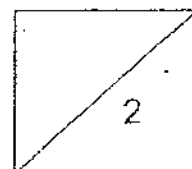
(a) Indicate the colour change to Solution A in [1]

Test tube X _____

Test tube Y _____

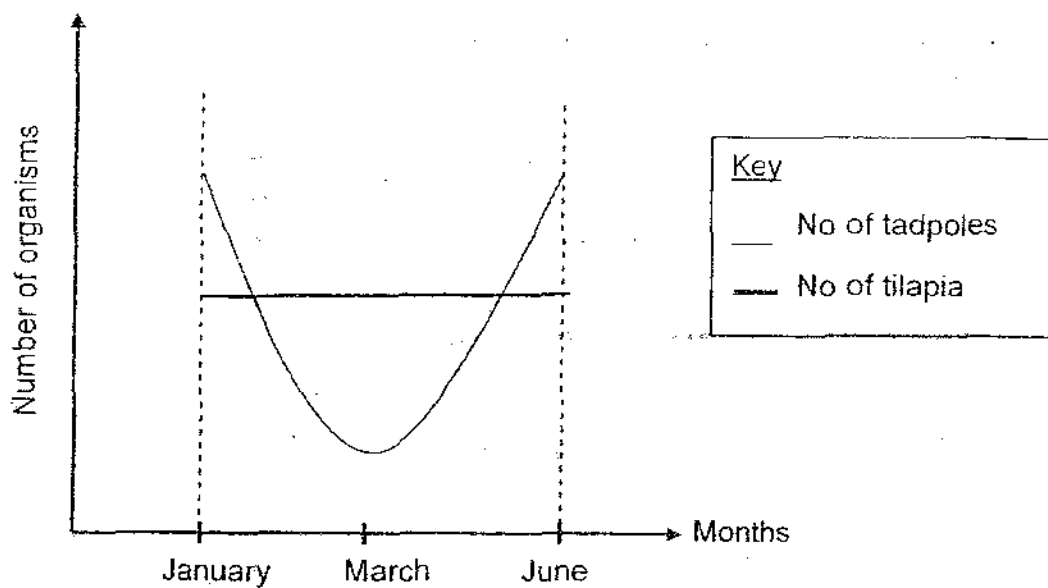
(b) Based on the experiment, what do you think is Ronald's hypothesis? [1]

Colour



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35. The graph below shows the number of tadpoles and tilapias in a pond from January to June.

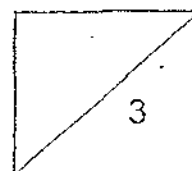


- (a) What is the likely reason for the number of tilapias to remain the same throughout the 6 months? [1]

- (b) Assuming that the tadpoles were not eaten by the tilapias, explain the likely reason for the sharp drop in their numbers from January to March? [1]

- (c) Why was there a sharp increase in the population of tadpoles from March? [1]

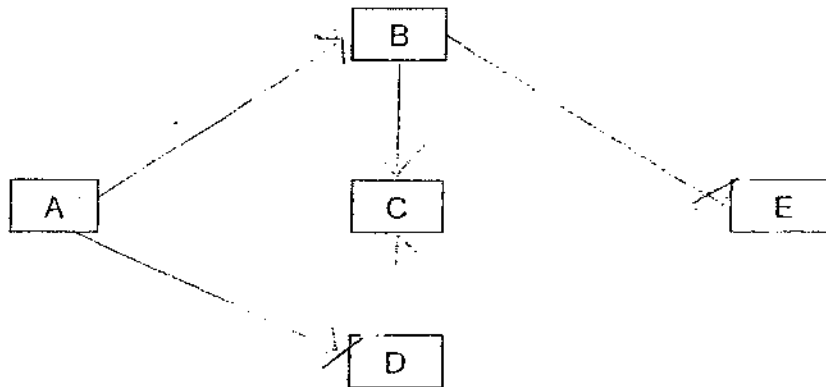
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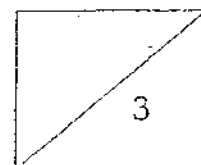
36. The following table shows the food relationships for organisms A, B, C, D and E.

Organisms	Food it feeds on
A	-
B	A
C	B and D
D	A
E	B

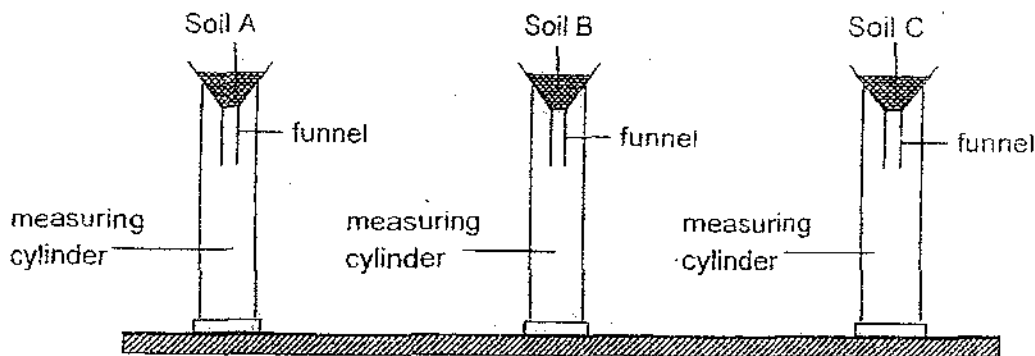
- (a) Draw arrows to complete the food web based on the above information. [2]



- (b) If the entire population of B becomes extinct, what would be the effect on organisms A and E in this community? Explain your answer clearly. [1]



37. Jean set up the experiment as shown below:



She poured 100ml of water into each funnel and measured the amount of water collected in the measuring cylinder after 5 minutes.

Her findings were recorded in the table below.

Soil	A	B	C
Amount of water collected/ml	10	75	100

She was also given some information about 3 types of plants.

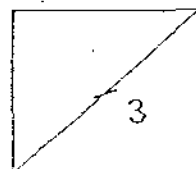
Plant	Habitat	Amount of water needed
Cactus	Desert	Little
Mangrove	Swamp	A lot
Frangipani	Roadside	Moderate

(a) What was the aim of her experiment? [1]

(b) State one other factor that must be kept constant in order to ensure a fair test. (Do not mention size and type of funnel and measuring cylinder) [1]

_____ to decide

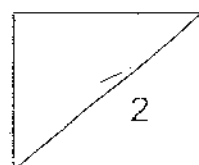
(c) What observation will Jean have to make from the experiment if soil A is suitable for the growth of mangrove plants? [1]



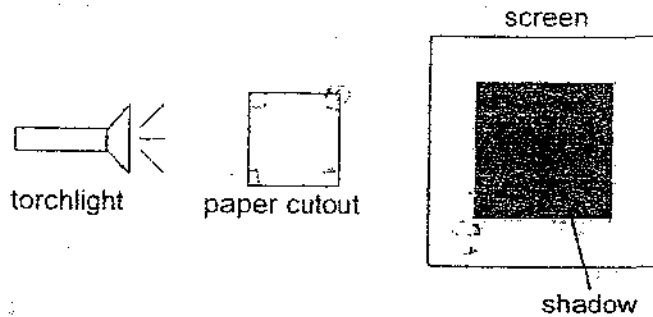
38. Amy put an equal number of beans in two beakers, A and B. She placed Beaker A in sunlight and Beaker B in the dark. She watered them daily and recorded the height and observations of the seedlings every two days as shown below.

Days	Beaker A (in the light)		Beaker B (in the dark)	
	Average height (mm)	Observations	Average height (mm)	Observations
2	4	Seed leaves growing	4	Seed leaves growing
4	10	Green healthy leaves	15	Pale green leaves
6	20	Straight stems & green leaves	31	Long thin stems & yellowish leaves
8	31	Straight stems, green leaves started to open.	50	Thin stems started to droop. Yellow leaves.
10	42	Very straight stems. Green leaves opened.	60	Straggly thin stems. Yellow closed leaves.
12	55	Straight strong stems & open large green leaves.	65	Few stems left. The rest growing all over with small yellow leaves.

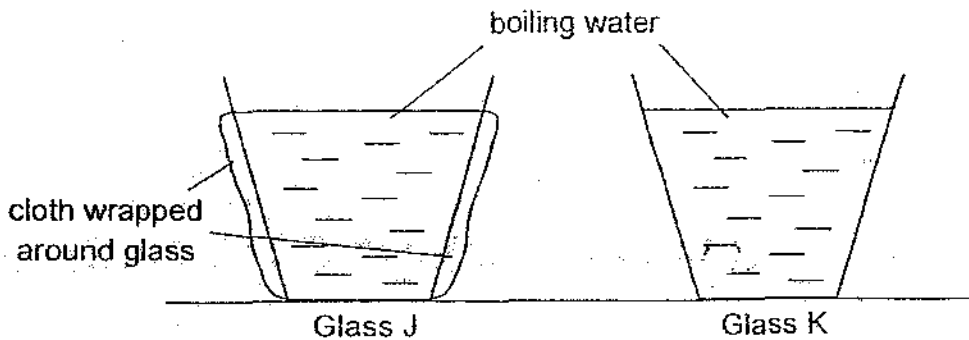
- (a) Using the information given above, state a difference between the plants growing in the light and those growing in the dark on the eighth day. [1]
- (b) Based on the average height of the plants in Beakers A and B, what conclusion can Siti make about the plants growing in the light and those growing in the dark? [1]



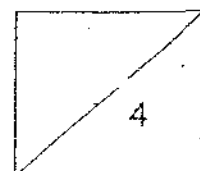
39. Sharon shone a powerful torchlight onto a square-shaped paper cut-out and cast a shadow on the screen as shown below.



- (a) How will the shadow be affected if Sharon moves the torchlight nearer to the cut-out? [1]
- _____
- (b) What will happen to the shadow if Sharon lengthens the distance between the cut-out and the screen? [1]
- _____
40. Sam poured 100ml of boiling water into two similar glasses, J and K, and left them to cool at the same place. Glass J was wrapped with a piece of cloth.

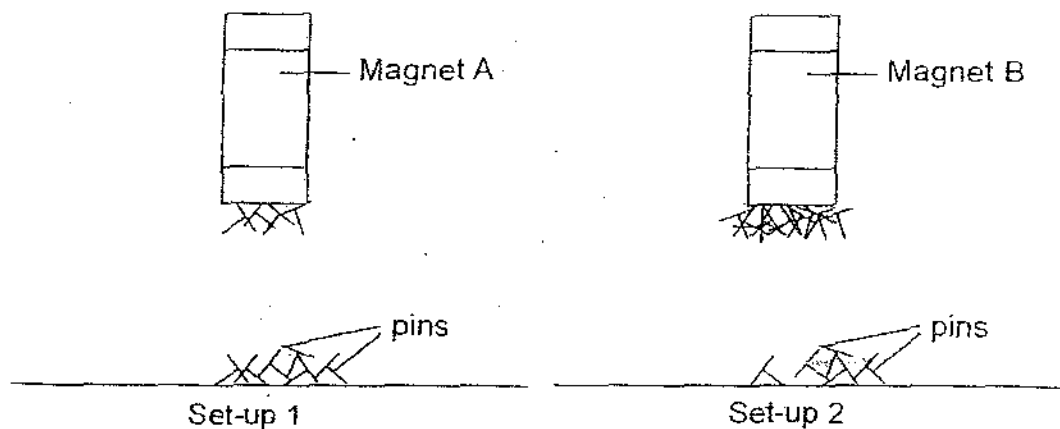


- (a) In which glass would the water lose heat slower? [1]
- _____
- (b) Explain your answer in part (a). [1]
- _____



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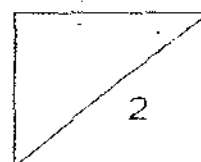
41. Shatish set up the experiment below using 2 magnets and some identical pins.



He counted the number of pins attracted to each magnet and recorded his results.

- (a) What is Shatish trying to find out in his experiment? [½]

- (b) Which magnet, A or B, is stronger? Give a reason for your answer. [1½]



42. Liu Yi made the following observations of six different cubes.

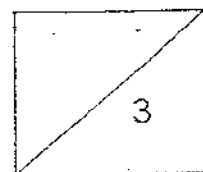
Cube	Volume of cube / cm ³	Material of cube	Texture of surface
A	100	plastic	rough
B	90	wood	rough
C	50	wood	smooth
D	50	plastic	smooth
E	90	metal	smooth
F	100	metal	rough

- (a) Based on the information above, classify the six cubes into two groups, 1 and 2. Write the letters of the cubes in the appropriate column. [1]

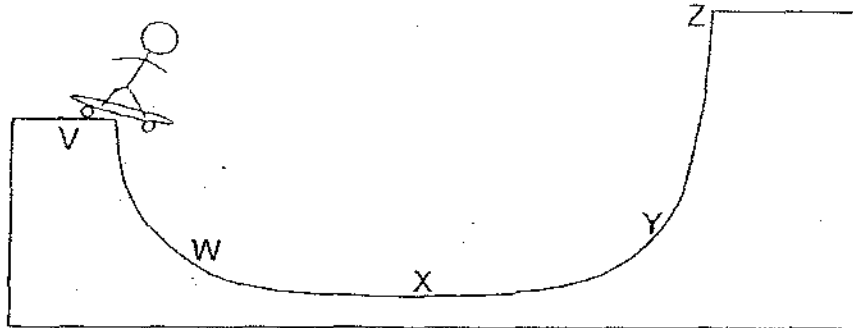
Group 1	Group 2

- (b) Using the cubes you classified in group 1, sort them into two smaller groups. Write suitable headings in the table to show how you have classified the cubes. [2]

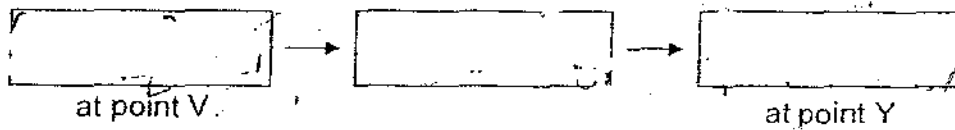
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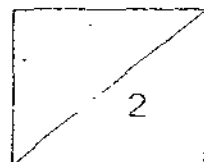
43. Jude went skateboarding as shown in the diagram below.



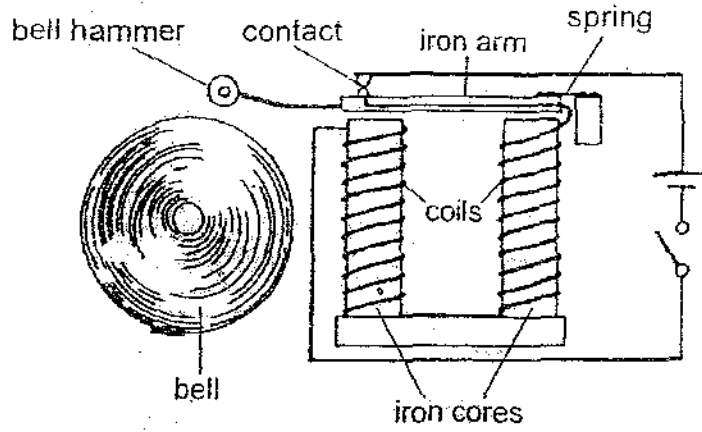
- (a) Jude kicked off from point V and skated down the ramp. He stopped at point Y. Fill in the blanks below to show the conversion of energy. [1]



- (b) Jude wanted to skate down the ramp and reach point Z. Is this possible? Explain your answer clearly. [1]



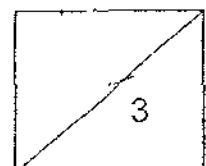
44. The diagram below shows an electric bell.



(a) Explain what happens when the switch is closed. [2]

(b) What property of iron allows this electric bell to work? [1]

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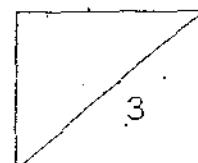


45. Jack wanted to investigate how the time taken for a toy car to travel down a ramp is affected by the ramp's angle of inclination. He prepared the following items including four ramps of the same height.

(a) Tick the appropriate item(s) he should use in his experiment. [2]

Toy car	<input type="checkbox"/>
Meter ruler	<input type="checkbox"/>
Stopwatch	<input type="checkbox"/>
Ramp P: has a surface made of wood and is at 45° inclination	<input type="checkbox"/>
Ramp Q: has a surface made of glass and is at 45° inclination	<input type="checkbox"/>
Ramp R: has a surface made of wood and is at 20° inclination	<input type="checkbox"/>
Ramp S: has a surface made of fabric and is at 20° inclination	<input type="checkbox"/>

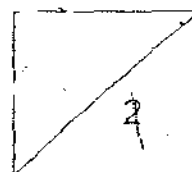
(b) State two variables that could affect Jack's results. (Do not mention the toy car) [1]



46. Gordon had 4 wheels and axles of different sizes. He used them to lift identical loads of equal mass. The table below records the relative size of the axle to the wheel and the effort required to lift the load.

Wheel and axle	Diameter of wheel/cm	Diameter of axle/cm	Effort needed to lift the load/g
P	24	12	720
Q	24	6	360
R	24	4	
S	24	3	

- (a) Based on the information given, fill in the effort needed to lift the load in the table above. [1]
- (b) What is the relationship between the relative size of the axle to the wheel and the effort needed to lift the load? [1]
- (c) What could Gordon do to wheel and axle P so that the load can be lifted with an effort smaller than 720g? [1]



Section A

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

Section B

No.	Part of Question	Answer	Total marks for question
31	a	They both have 3 body parts/ six legs/ They have wings/feelers/2 pairs of wings/ feelers (Any of the two observable traits) Characteristic: Flying [0] Both at adult stage [0]	1
	b	The dragonfly has a 3-stage life cycle while the butterfly has a 4 stage life cycle.	1
32	a	As the duration of the game increases, the number of heartbeats per minute increases [$\frac{1}{2}$] until the 8th minute and it remained constant [$\frac{1}{2}$]	1
	b	It increases as the heart needs to pump faster [1] to supply more oxygen [$\frac{1}{2}$], food and energy [$\frac{1}{2}$] to other parts of the body. Person needs more oxygen and energy when exercising so heart beats faster [0] > idea is to pump	2
33	a	Test tube A Green Test tube B Yellow	1
	b	Exhaled air contains more carbon dioxide than atmospheric air/ surrounding air	1
34		Smooth skin [$\frac{1}{2}$] Seeds without core [$\frac{1}{2}$] Seeds in a pod [$\frac{1}{2}$] Seeds without a pod [$\frac{1}{2}$]	2
35	a	The tilapias were of the same sex / all male / all female/ The number of deaths is equal to the number of births Or The tilapias did not reproduce. Not accepted: {0} - Tilapias feed on tadpoles. - They had no predators.	1
	b	Accepted: - The tadpoles all developed into frogs/toads and left the pond. - There was a new predator being introduced into the pond. - Another new predator was feeding on the tadpole. - There was a disease that affected the tadpoles - The food source was greatly reduced/suddenly affected	1

		<p>Not accepted:</p> <ul style="list-style-type: none"> - There was not enough food. - The amount of food decreases - The food that tadpoles is feeding is destroyed - There were predators - There were an increase in predators (could just mean tilapias) - There was a disease - There was a deadly disease > killed all - There was a presence of predators - A disease that killed the tadpoles <p>If the answer suggests killing off the tadpoles or is unclear about predators, 0marks is awarded. Answer must relate to tadpoles.</p>	
	c	<p>Accepted:</p> <ul style="list-style-type: none"> - The eggs laid by female frogs/ toads hatched after March. - Frogs reproduced [$\frac{1}{2}$] - Frogs laid eggs [$\frac{1}{2}$] - The eggs of the frogs turned into tadpoles after March - The tadpoles grew into frogs which laid eggs [$\frac{1}{2}$] <p>Not accepted:</p> <ul style="list-style-type: none"> - Frogs give birth - Tadpoles reproduce 	1
36	a	<pre> graph TD A[A] --> B[B] A[A] --> D[D] B[B] --> C[C] B[B] --> E[E] D[D] --> C[C] </pre> <p>Minus 1/2m for every wrong arrow</p>	
	b	<p>Population E will <u>decrease</u> and eventually <u>die out</u> [$\frac{1}{2}$] and Population A will increase [$\frac{1}{2}$]</p> <p>Population E will eventually die out [$\frac{1}{2}$] and population increase</p> <p>Population E will die [0] > must imply extinction</p> <p>If population E becomes extinct [0]</p> <p>Depends on the answer, many were long but did not state that population E has died out</p>	1
37	a	<p>The aim of the experiment is to find out how long/fast water flows through the soils.</p> <p>It is to find out which soil retains the most / least water</p>	1

		It is to find out how well water flows through the soil. Soil suitable for each plant [0] – not in experiment / data collected							
	b	The amount of soil must be kept the same The amount of water must be kept the same / temperature / time taken [0]	1						
	c	The amount of water collected is the least. The amount of water collected is little [½] Whether soil was suitable for each plant [0] Whether soil retain more or less water [0]	1						
38	a	Plants growing in the light have green leaves while those growing in the dark have yellowish leaves. Plants growing in the light have shorter stems than those growing in the dark. Plants growing in the light have straight stems while those growing in the dark have drooping stems. Plants growing in the dark have thinner stems than those growing in the light.	1						
	b	Plants growing in the dark are taller than those growing in the light.	1						
39	a	The shadow will become larger. [1]	2						
	b	The shadow will become bigger. [1]							
	a	Glass J [1]							
40	b	Cloth is a poor conductor of heat [½] that slows down the transfer of heat from the water to the surrounding air [½] Prevent heat / trap heat Insulator of heat [0]	2						
	a	He is trying to find out which magnet, A or B, is stronger. [½] Attract more pins [0] Different magnets have different magnetism [0]	2						
41	b	Magnet B is stronger [½] At the same distance / height [½], magnet B is able to attract more pins than magnet A [½].							
	a	Group 1: A, B, F Group 2: C, D, E [1] (vice versa) (minus ½m for every wrong letter)							
42	b	Headings – 1m Classification – 1m Answer 1: <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>100cm³</td> <td>90cm³</td> </tr> <tr> <td>A</td> <td>B</td> </tr> <tr> <td>F</td> <td></td> </tr> </table> Good conductor of heat / Poor conductor	100cm ³	90cm ³	A	B	F		3
100cm ³	90cm ³								
A	B								
F									

		<p>Once alive / never alive B A F C DE</p> <p>Answer 2:</p> <table border="1"> <tr> <td>50cm³</td> <td>90cm³</td> </tr> <tr> <td>C</td> <td>E</td> </tr> <tr> <td>D</td> <td></td> </tr> </table> <p>Bigger volume / smaller volume [1] Natural / man made [0]</p>	50cm ³	90cm ³	C	E	D		
50cm ³	90cm ³								
C	E								
D									
43	a	<p>Gravitational Potential Energy → Kinetic Energy → Gravitational Potential Energy [1]</p> <p>Any of the GPE spelt wrongly but the other is correct, don't minus marks Any energy written wrongly, minus 0.5m</p>	2						
	b	<p>No. Point Z is higher than point V [½] He has <u>insufficient kinetic energy</u> built up to push him to point Z. [½] If answer "yes", 0m.</p>							
44	a	<p>When the <u>switch is closed</u>, <u>electricity flows through the circuit/coils</u>. [½] The <u>iron cores are magnetised</u>. [½] The magnetised iron cores will <u>attract the iron arm</u> and the <u>bell hammer will strike the bell</u> [1] (to hit the bell, the iron arm must be attracted)</p>	3						
	b	<p>Iron is a magnetic material / magnetic conductivity [1] Good conductor of magnet [0] Minus [½] if pupil gave 2 properties e.g. magnetic and conduct electricity.</p>							
45	a	<p>Tick: Toy car [½] Stopwatch [½] Ramp P [½] Ramp R [½]</p> <p>If pupils ticked less than 4, award [½] for every correct tick. If pupils ticked more than 4, minus [½] for every wrong tick.</p>	3						
	b	<p>Length of ramp, [½] Starting point of the toy car [½]</p>							
46	a	<p>240 [½] 180 [½]</p>	1						
	b	<p>The bigger the relative size of the axle to the wheel, the greater the effort needed to lift the load. [1] / The smaller the relative size of the axle to the wheel, the smaller the effort needed to lift the load. [1]</p>	1						
	c	<p>Increase the size of the wheel [½] / Decrease the size of the axle [½] / Decrease the relative size of the axle to the wheel [½]</p>	1						