

NANYANG PRIMARY SCHOOL

SAL

PRIMARY 5 SCIENCE

**SEMESTRAL ASSESSMENT 2
2005**

BOOKLET A

Date : 26 October 2005

Duration : 1 h 45 min

Name : _____ ()

Class: Primary 5 ()

Marks Scored:

Booklet A:		60
Booklet B :		40
Total :		100

Parent's signature:

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FOLLOW ALL INSTRUCTIONS CAREFULLY.**

Booklet A consists of 15 printed pages including this cover page.

Section A (30 x 2 marks = 60 marks)

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

1. Which of the following parts of a potato plant is used to grow new plants?

- A flower
- B roots
- C leaf
- D stem

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

2. A seedling gets its food from _____.

- (1) roots
- (2) leaves
- (3) stems
- (4) seed leaves

3. Where does a baby in its mother's womb obtain its oxygen?

- (1) from the baby's lungs
- (2) from the mother's womb
- (3) from the mother's blood
- (4) from the liquid in the liquid-filled sac it develops in

4. Which of the following statements about our muscular system are correct?

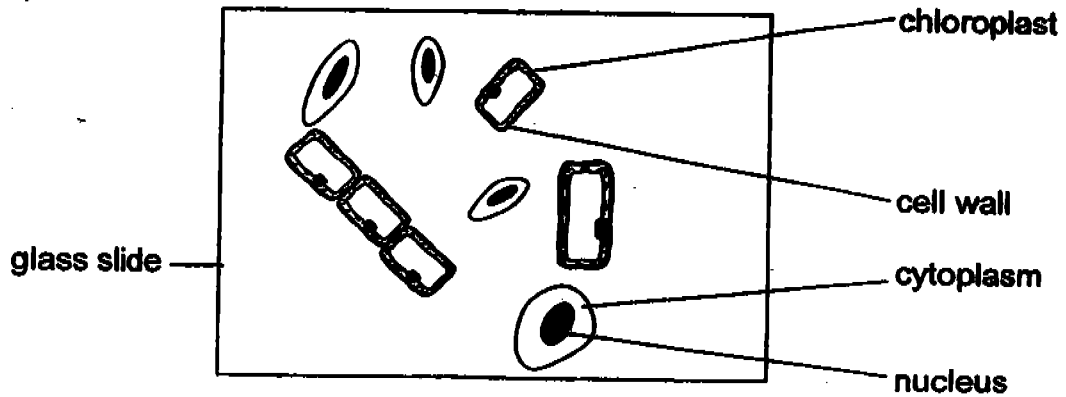
- A Our heart is made up of muscles.
- B Muscle contracts and relaxes in order to do work.
- C All muscles must be attached to bones in order to do work.

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

5. The muscular and skeletal systems work together to _____.

- (1) support the body
- (2) give the body shape
- (3) enable the body to move
- (4) protect the organs in the body

6.



Rahim observed the above cells under the microscope. He then made the following conclusions.

- A Plant cells and animal cells are observed.
- B Only five of the cells observed can make food.
- C All the cells observed can undergo cell division.

Which of the conclusion(s) he made is/are correct?

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

7. Which of the following parts can be found in a plant cell but not in an animal cell?

- (1) nucleus
- (2) cell wall
- (3) cytoplasm
- (4) cell membrane

8. Digestive juices can be found in our _____.

- A mouth
- B stomach
- C small intestine
- D large intestine

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

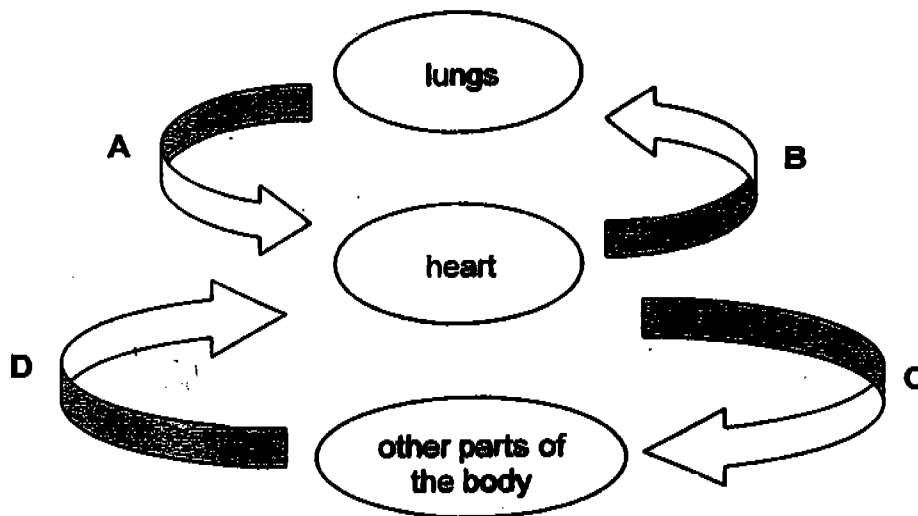
9. Arrange the following in the correct order.

- A The nerves carry the information from Kenny's ears to his brain.
- B Kenny opens the door to find out who is in his room.
- C Kenny hears songs blaring out from his room.
- D Kenny's brain tells him that he is hearing songs blaring out from his room.
- E Kenny's brain sends a message to him that he should open the door to find out who is in his room.

- (1) A, C, D, E, B
- (3) C, A, D, E, B

- (2) A, D, B, E, C
- (4) D, C, A, B, E

10. The diagram below shows the human circulatory system.



Which 2 arrows show blood vessels containing oxygenated blood?

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

- (2) A and D
- (4) B and D

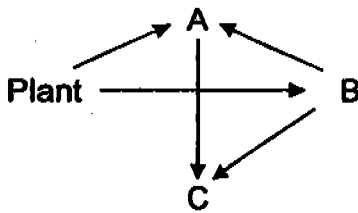
11. Siti conducted 3 experiments on food relationships in a community consisting of 1 plant and 3 other organisms.

The table below shows the observations of the experiments conducted over 3 days.

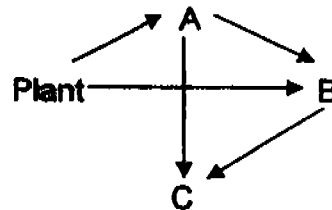
Experiment	Start of Experiment	End of Experiment
I	5 freshly-plucked leaves from the plant one living organism B	bits of leaves one living organism B
II	5 freshly-plucked leaves from the plant one living organism A one living organism B	bits of leaves one living organism A
III	one living organism A one living organism B one living organism C	one living organism C

Which one of the following shows a possible food relationship among the plant, organisms A, B and C?

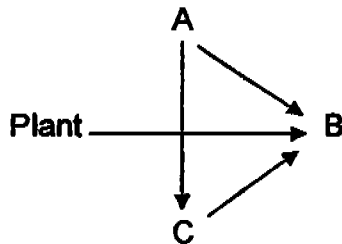
(1)



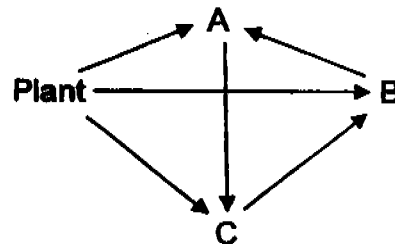
(2)



(3)



(4)



12. Jasmine conducted an experiment using 4 similar plants. The table below shows the observations of the experiment conducted over 1 week.

Plant	Conditions	Observations at the end of the experiment
A	watered daily and left in the sun	leaves were healthy and bright green
B	watered daily and left in a dark room	leaves were limp and yellow
C	left in the sun	leaves were dry
D	left in a dark room	leaves were limp and yellow

What was she trying to find out in the above experiment?

- (1) Plants need water.
- (2) Plants need sunlight.
- (3) Plants need sunlight and water.
- (4) Plants need sunlight, water and carbon dioxide.

13. Which of the following statements are true?

- A The Earth rotates and revolves at the same time.
- B The Earth completes one revolution every 365 days.
- C The Earth rotates on its own axis from East to West.
- D The Earth takes 48 hours to complete 3 rotations.

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

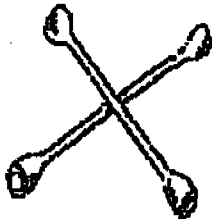
14. Devi commented to her friend that she would prefer to carry books down the stairs than up the stairs. Which of the following forces act on Devi to cause her to feel this way about going up the stairs?

- A frictional force
- B magnetic force
- C gravitational force

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

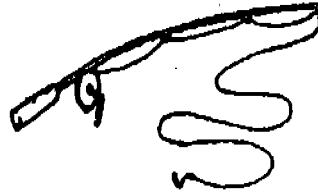
15. Which of the following simple machines require the effort to move over a longer distance than the load?

A



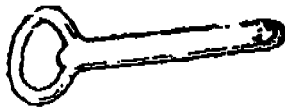
cross spanner

B



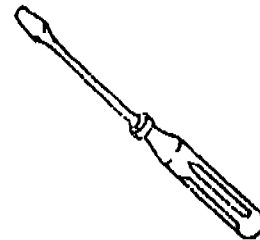
fishing rod

C



bottle cap opener

D



screwdriver

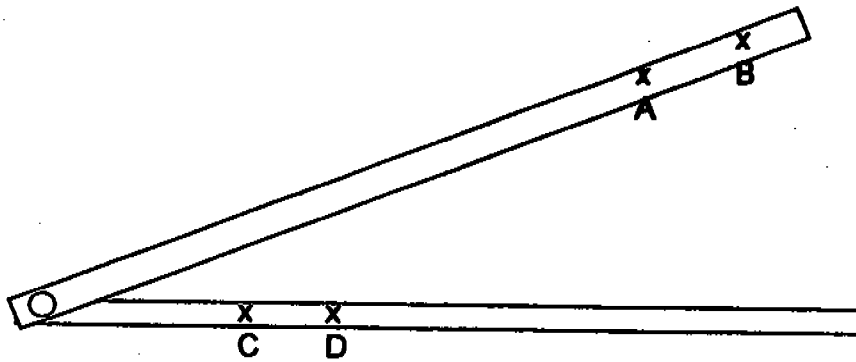
- (1) A and B only
- (2) C and D only
- (3) A, C and D only
- (4) A, B, C and D

16. Which of the following statements are true about friction?

- A It is a push or a pull.
- B It slows down motion.
- C It causes things to wear out.
- D It pulls all things towards the centre of the Earth.

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

17. The diagram below shows the side view of a paper cutter. Where should the positions of the load and effort be if Eileen wants to cut papers with the least effort?

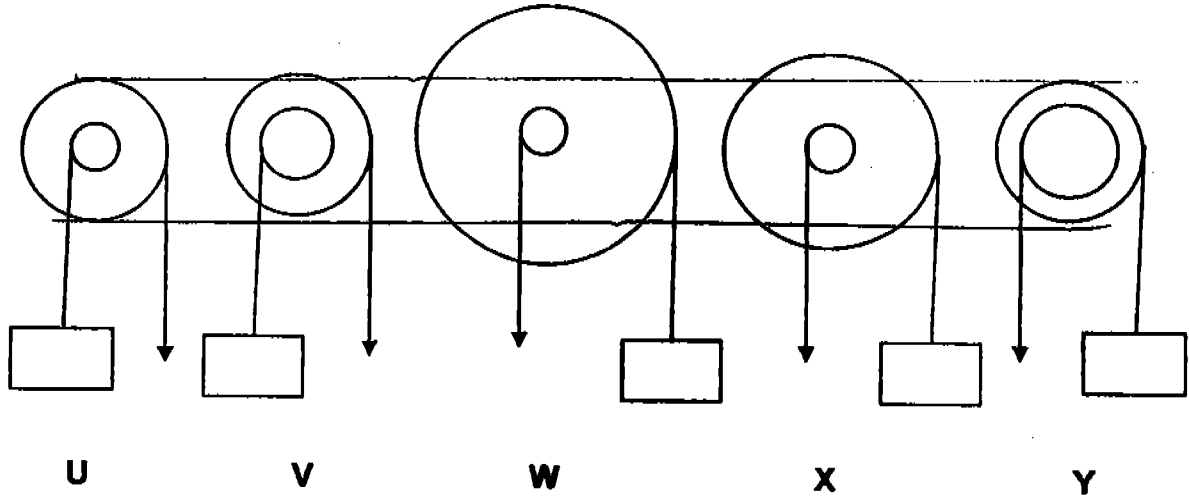


	Position of load	Position of effort
(1)	C	A
(2)	C	B
(3)	D	A
(4)	D	B

18. Which of following components of an electric circuit does not match the symbol?

	Electrical component	Symbol
(1)		
(2)		
(3)		
(4)		

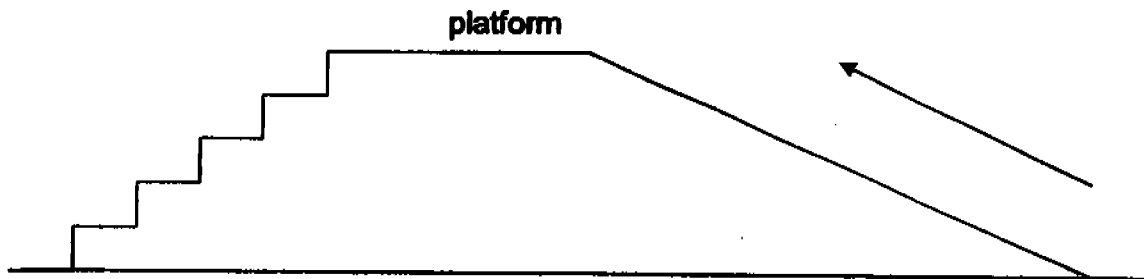
19. Jiehan wanted to find out if the size of the axle ^{relative to the wheel} would affect the amount of effort needed to lift a load. Which wheel and axle setups should he choose in order to carry out a fair test?



- A: U and V
 B: W and X
 C: U, V and Y
 D: U, W and X

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

20. Jackson chose the ramp instead of the stairs to move his bicycle up to the platform as shown below.



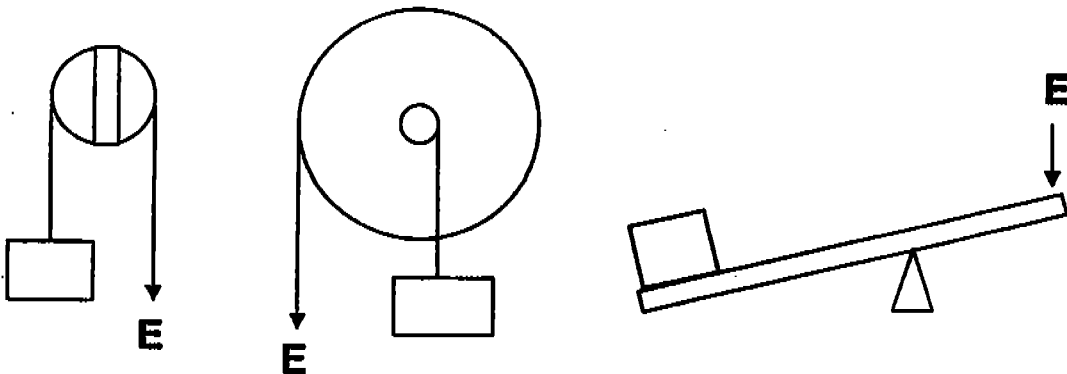
What would most likely be his reason for doing so?

- (1) He is not working against gravity.
 (2) He would reach the platform faster.
 (3) He used less effort to move the bicycle up the ramp.
 (4) He would experience less friction when moving up the ramp.

21. The table below shows the effort required to lift 3 different loads using different simple machines.

	A	B	C
Load (kg)	100	40	90
Effort (kg)	26	58	91

Based on the data, which of the following simple machines could have given such readings?



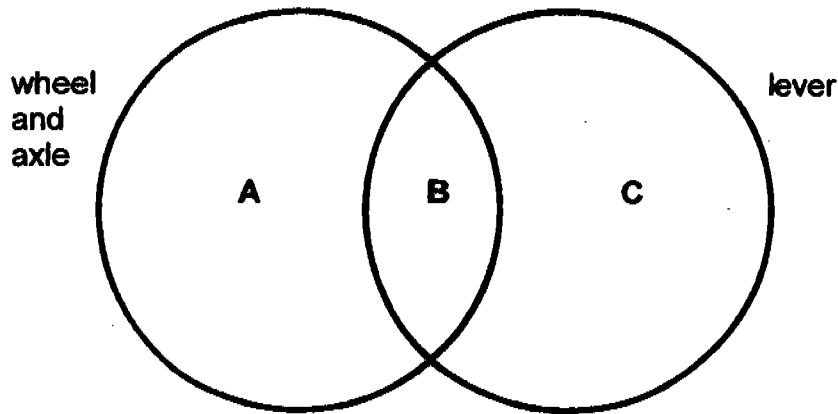
Setup X

Setup Y

Setup Z

	A	B	C
(1)	X	Y	Z
(2)	Y	Z	X
(3)	Z	X	Y
(4)	Z	Y	X

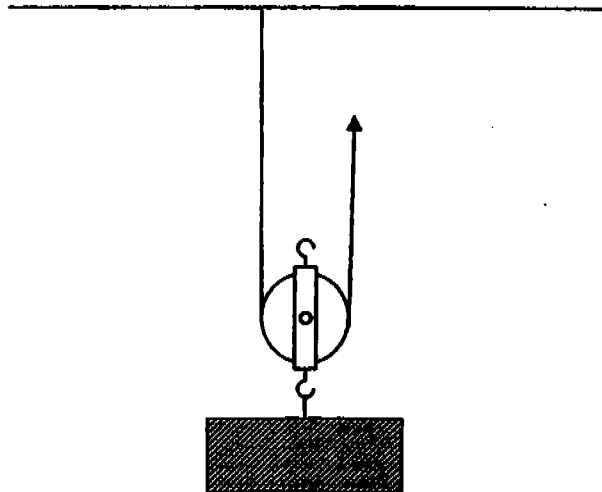
22. Study the Venn diagram carefully.



Which of the following do A, B and C represent?

	A	B	C
(1)	steering wheel	screwdriver	elbow
(2)	crowbar	nutcracker	wheelbarrow
(3)	wheelbarrow	elbow	crowbar
(4)	nutcracker	screwdriver	steering wheel

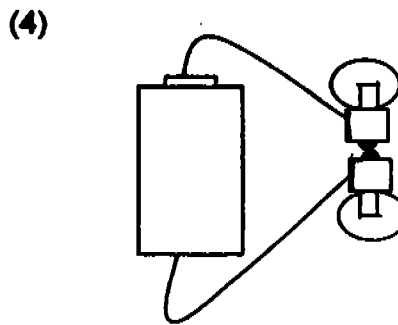
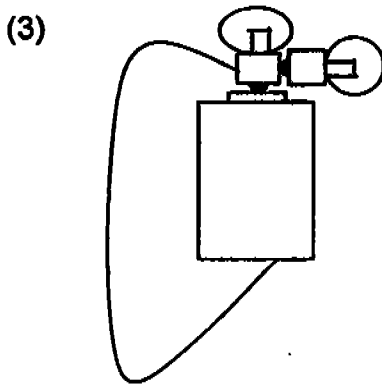
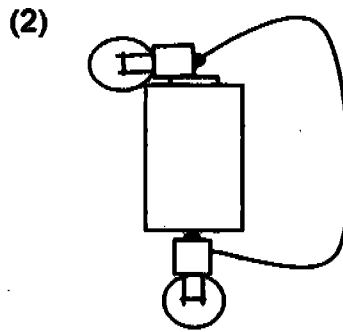
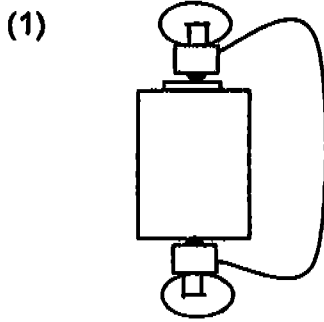
23. The diagram below shows a load lifted by a pulley.



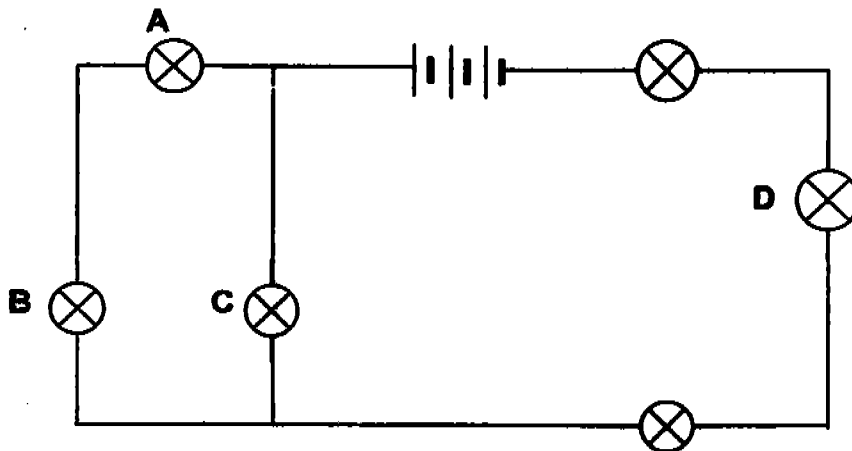
Which one of the following statements is true for the diagram shown above?

- (1) Less effort is needed to lift the load.
- (2) The pulley does not move with the load.
- (3) The pulley changes the direction of force.
- (4) The load moves twice the distance the effort moves.

24. Which one of the following electric circuits will allow only 1 bulb to light up?



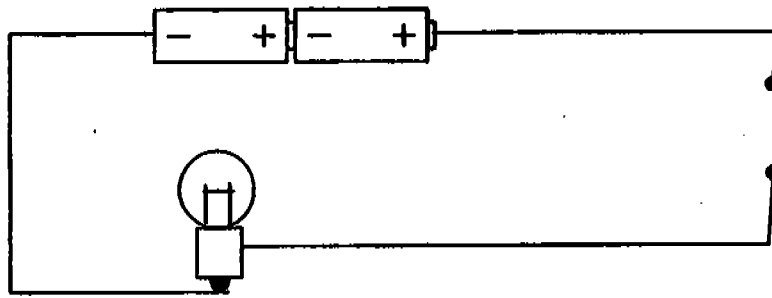
25. Study the circuit below.



When one of the bulbs fused, all the other bulbs remained lit. Which bulb had fused?

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

26. The diagram below shows a circuit tester.

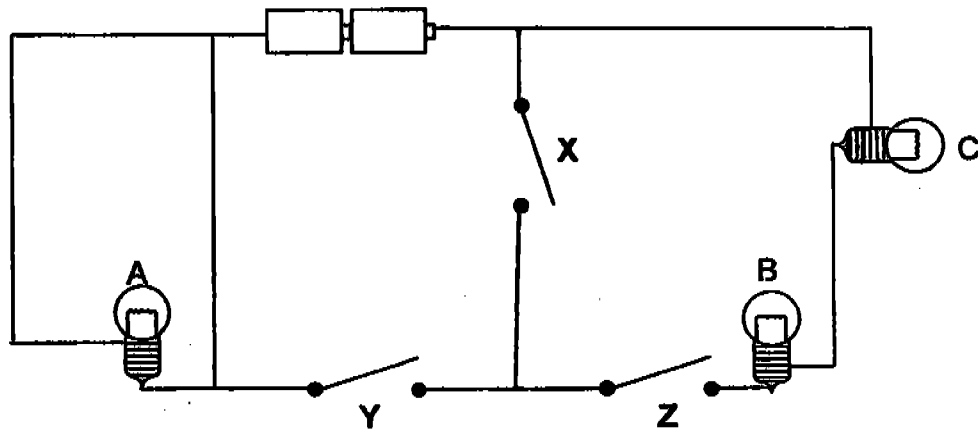


Which of the following items when placed in the gap will close the circuit?

- A magnet
- B pencil lead
- C copper wire
- D battery holder

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

27. Study the circuit below.



If switches X and Y are closed, which bulbs will light up?

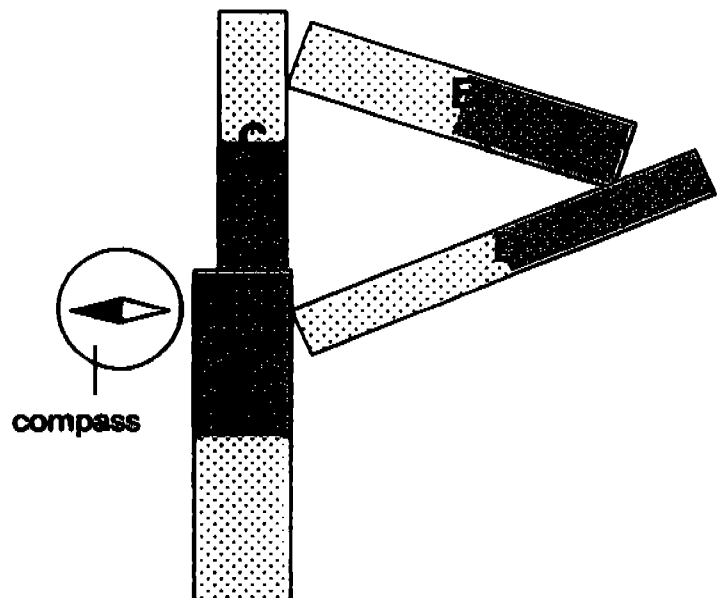
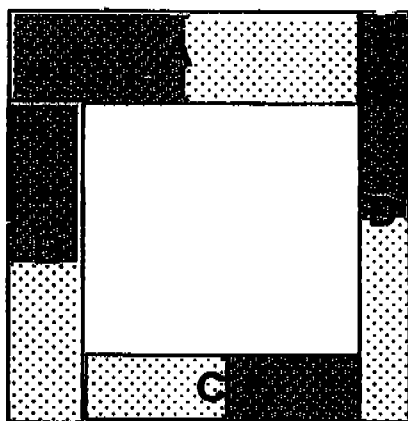
- | | |
|------------------|-----------------------|
| (1) A only | (2) B and C only |
| (3) A and C only | (4) None of the bulbs |

28. The table below shows the electricity consumption of some appliances measured in Watt.

Appliance	Electricity consumption (Watt)
Computer	270
Air conditioner	1500
Electric fan	100 – 250
Refrigerator	500 – 725
Television	110 – 170
Vacuum cleaner	1000 – 1440

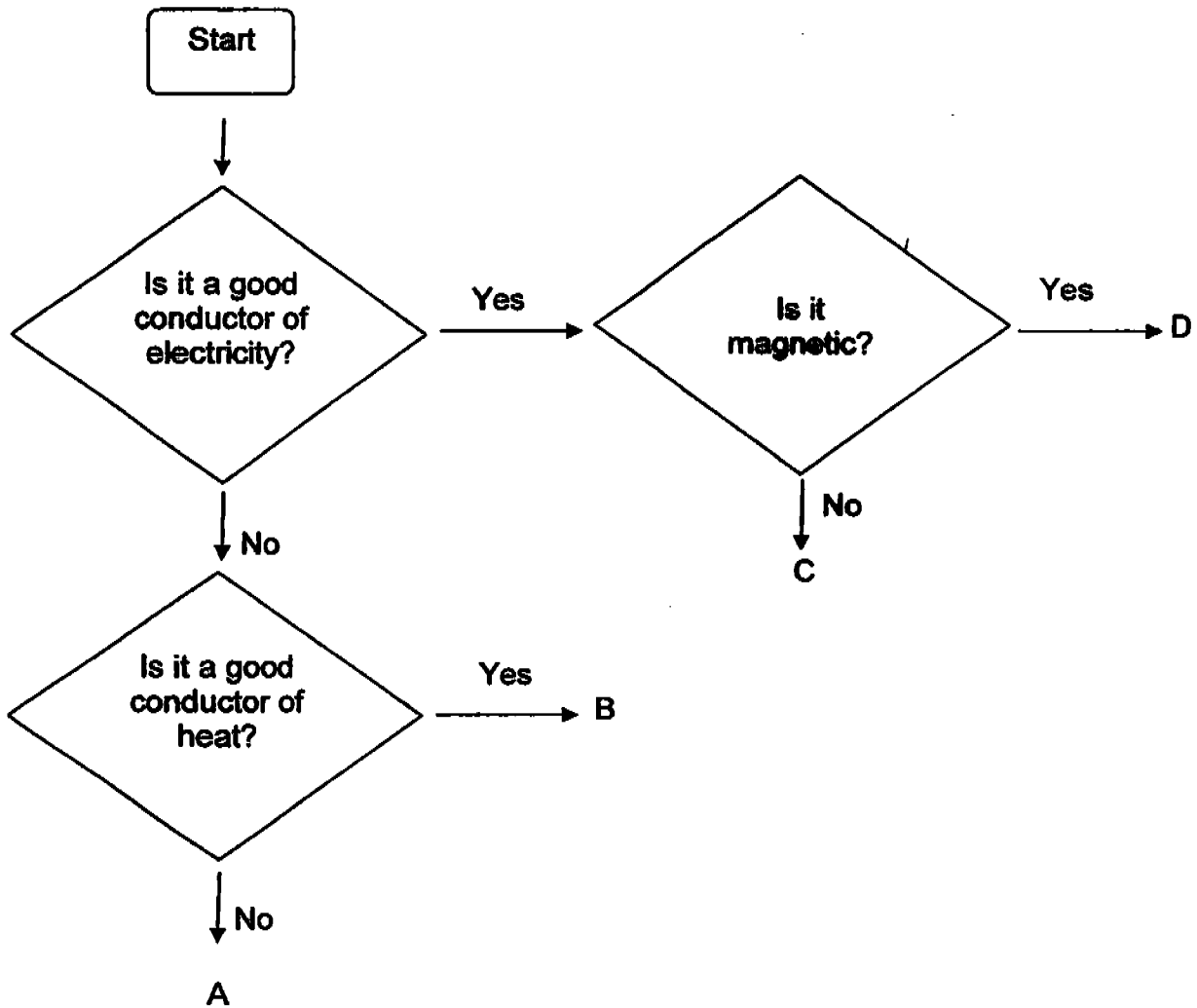
If all the appliances were turned on for the same duration, which two appliances would consume the most electricity?

- (1) Refrigerator and computer
 - (2) Air conditioner and television
 - (3) Vacuum cleaner and refrigerator
 - (4) Vacuum cleaner and air conditioner
29. The diagrams below show 2 different arrangements of 4 magnets, A, B, C and D. One of them was found to be demagnetised. Which one of the pieces is most likely to be demagnetised?



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

30. Study the flow chart below.



Which one of the following items represents A?

- (1) clay spoon
- (2) steel spoon
- (3) copper wire
- (4) aluminium foil

NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

SEMESTRAL ASSESSMENT 2 2005

BOOKLET B

Date : 26 October 2005

Duration : 1 h 45 min

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Class: Primary 5 ()

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Booklet A:		60
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Total :		100

Parent's signature:

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Booklet B consists of 15 printed pages including this cover page.

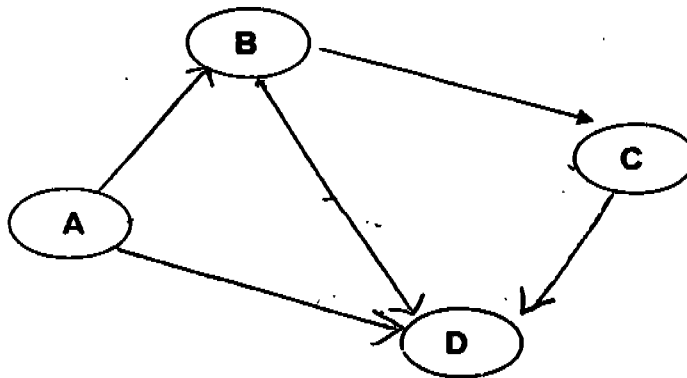
Section B (40 marks)

Write your answers to questions 31 to 46 in the spaces provided.
Marks will be deducted for misspelt key words.

31. A food web consists of 4 organisms, A, B, C, and D.
Information about these organisms is given in the box below.

1	Only A can make food.
2	One of the animals eats plants only.
3	One of the animals eats plants and one other animal.
4	D preys on 2 organisms.

- (a) Complete the food web below. (2 marks)



- (b) A change in one population will affect other populations. State one change that will lead to an increase in the population of C. (1 mark)

32. Mei Yin carried out a test on an unknown food item X. She placed a few drops of solution A onto the food item. The solution turned from yellowish-brown to dark blue.

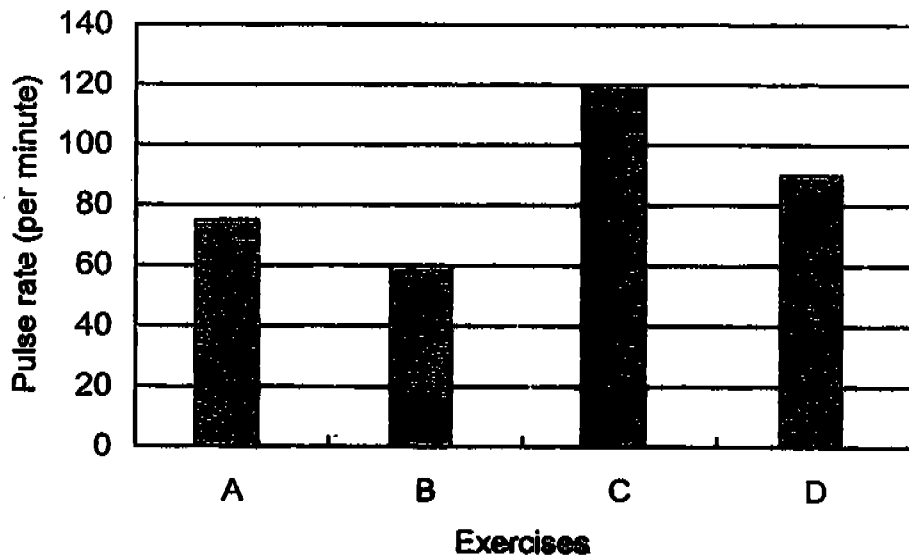
(a) What is solution A? (1 mark)

(b) In the box below, put a tick (✓) in the box(es) if the food item(s) listed would turn dark blue when solution A is added to it.

(1 mark)

Food item	Turns dark blue
Porridge	
Fresh prawn	
Minced meat	
Mashed potato	

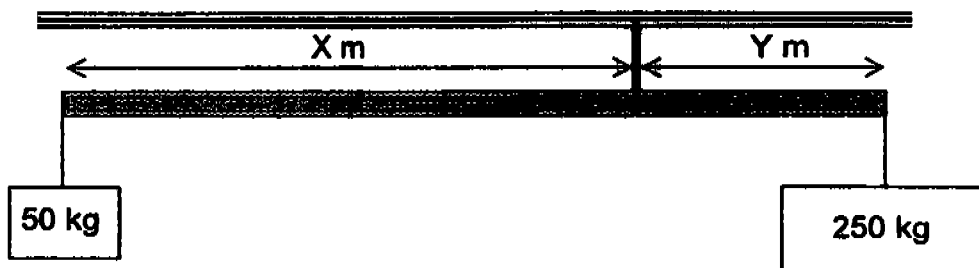
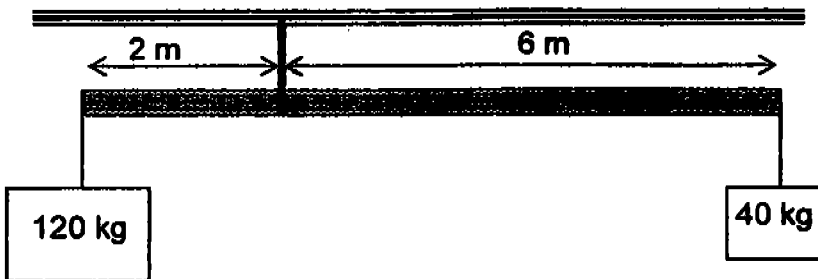
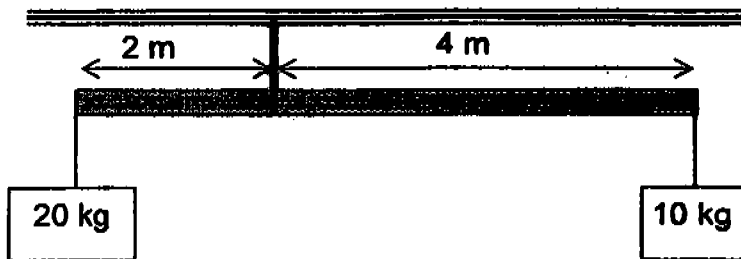
33. Siew Ming carried out an experiment to find out the change in pulse rate after exercising. After each exercise, she measured her pulse rate. She recorded the results and drew the graph as shown below.



(a) Arrange the 4 exercises, starting with the least vigorous to the most vigorous. (1 mark)

(b) Explain why her heart beats at different rates after different exercise. (2 marks)

34. (a) The diagrams below show 3 wooden beams balanced with different loads.

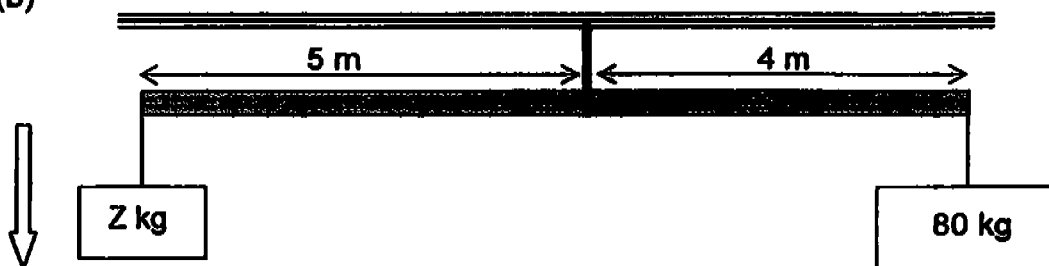


What are the values of X and Y if the beam is 12 m long?

(2 marks)

X: _____ m Y: _____ m

(b)

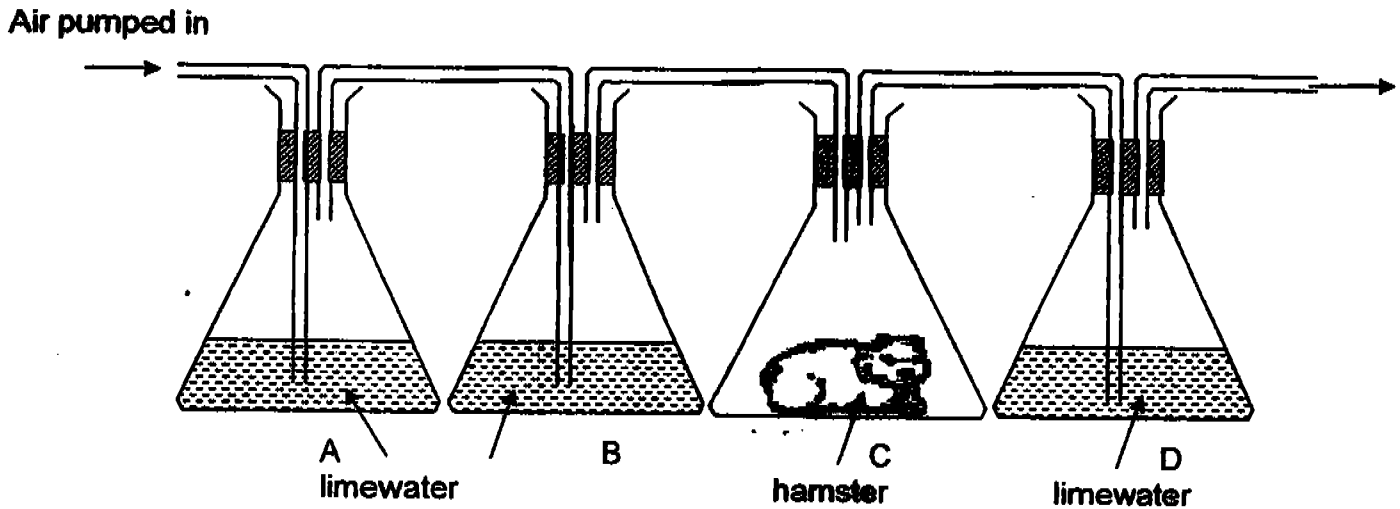


What is a possible value of Z if the beam above tilts downwards as indicated by the arrow above?

(1 mark)

Z: _____ kg

35. Tina carried out an experiment as shown below.



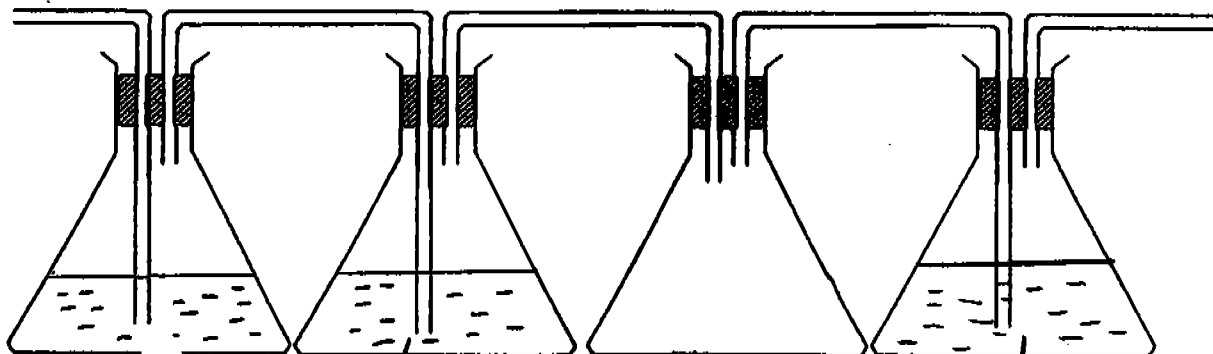
(a) What was the aim of the experiment? (1 mark)

(b) Arrange the conical flasks, A, B and D, from the least chalky to the most chalky. (1 mark)

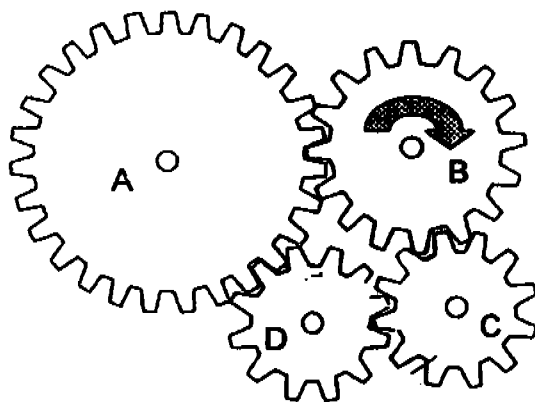
least chalky \longrightarrow most chalky

(c) Tina repeated the experiment using 3 other similar hamsters. Explain why she did that. (1 mark)

- (d) Draw and label the content for the conical flasks that are used as a control. Set-up for the experiment. (1 mark)



36. The diagram below shows four gears, A, B, C and D.

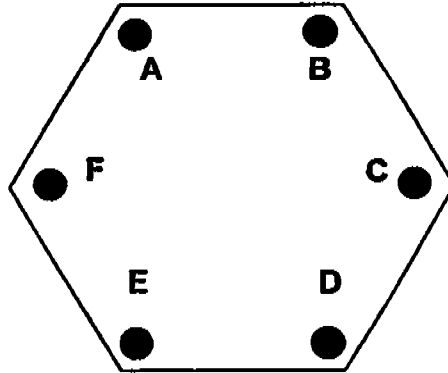


The number of teeth in each of the gears is shown in the table below. The direction of rotation of the driving gear, B, is as shown.

Gear	Teeth
A	27
B	16
C	12
D	12

- (a) Draw on the diagram the direction of rotation of Gear D. (1 mark)
- (b) How many rounds will Gear C turn if Gear A turns 2 rounds? (1 mark)

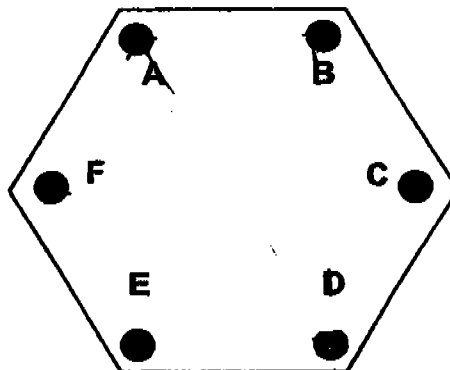
37. Ali made a circuit card shown below with metal pins at each of the points, A, B, C, D, E and F. Some of the pins were connected by wires behind the card.



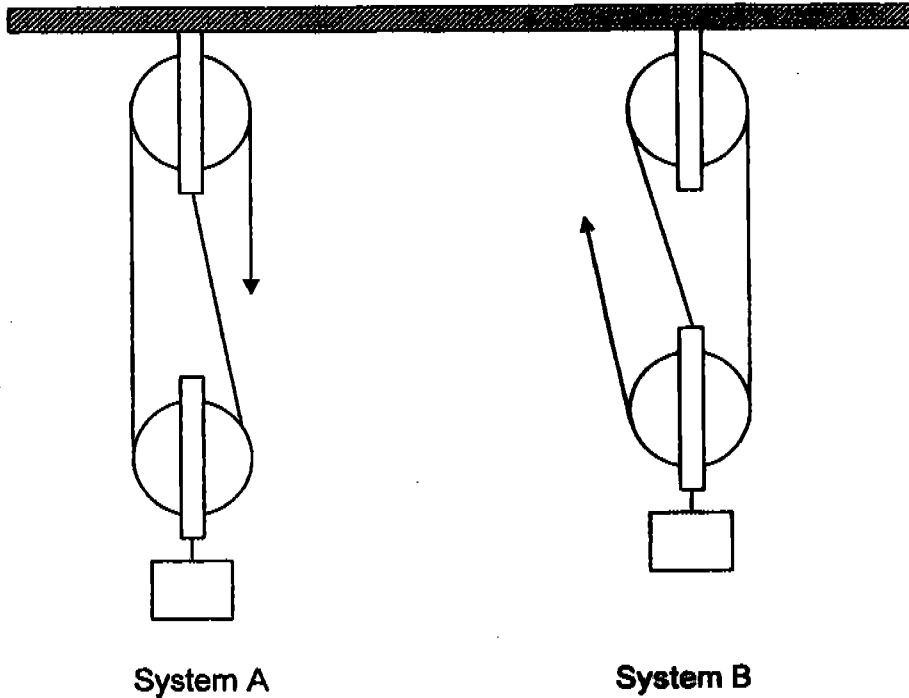
He tested pairs of the metal pins with a circuit tester and tabulated the results in the table below.

Pins tested	Did the bulb light up?
A and B	Yes
A and C	No
A and D	Yes
A and E	No
A and F	Yes
B and F	Yes
C and D	No
D and E	No
D and F	Yes

Based on the results above, draw the possible arrangement of the wires on the circuit card below. (2 marks)



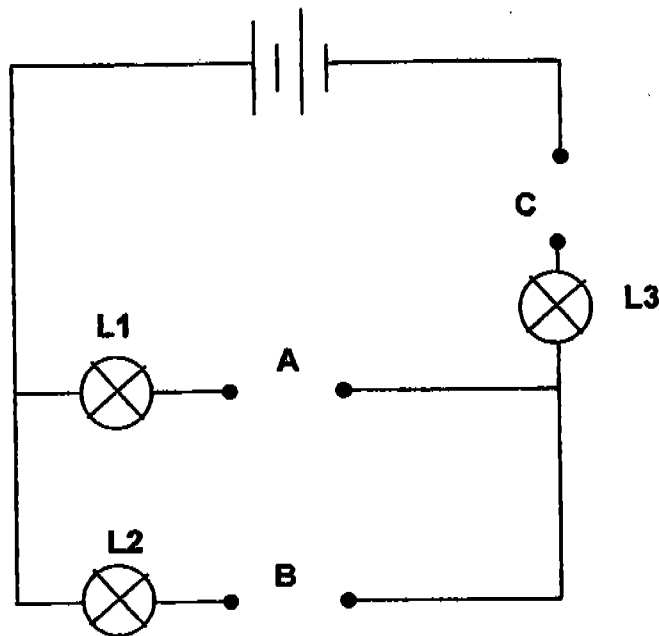
38. The diagram below shows two different pulley combinations with both fixed and movable pulleys. Minyi and Willie tried lifting the same load with both combinations. At the end of it, Minyi preferred using System A while Willie preferred System B.



- (a) Give a reason why Minyi preferred using System A. (1 mark)

- (b) Give a reason why Willie preferred using System B. (1 mark)

39. Tim had 4 different rods, V, W, Y and Z. He placed three rods at each time in the electrical circuit shown below and recorded his observations of the three light bulbs, L1, L2 and L3, in the table below.



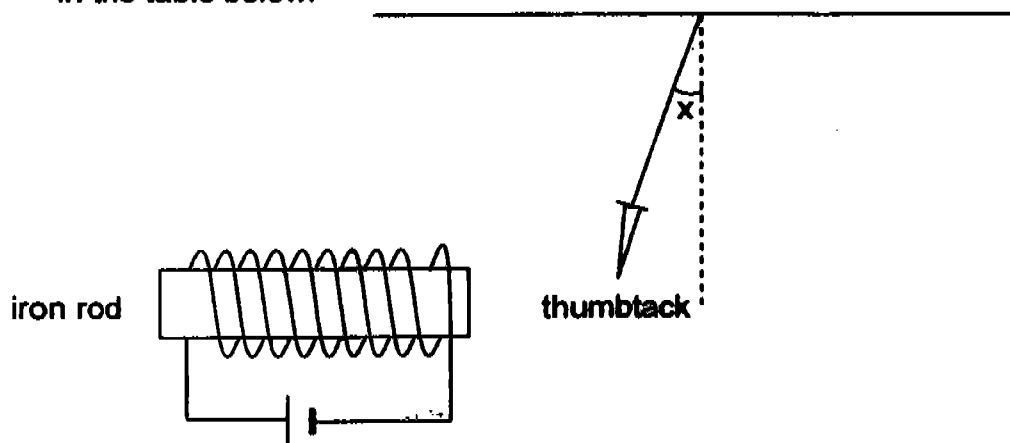
A	L1	B	L2	C	L3
V		Y		W	
V		W		Y	
W		Y		Z	
Z		Y		V	

✓ : Lighted up

X : Did not light up

Based on the results above, which rods are conductors of electricity?
(2 marks)

40. Billy set up an experiment as shown in the diagram below. He measured the angle made by the thumbtack from the vertical position as he increased the number of batteries. He recorded his observations in the table below.



Number of batteries	0	1	2	3
Angle x (°)	A	18	30	42

- (a) What is the value of A? Give a reason for your answer. (2 marks)

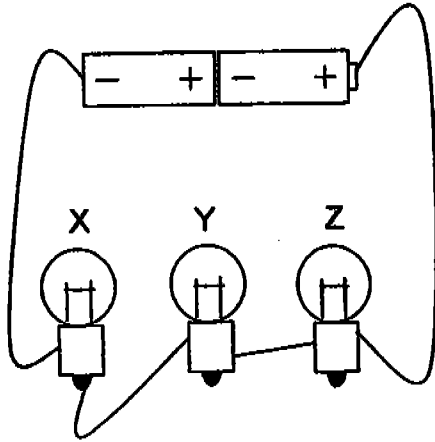
- (b) Explain why the thumbtack moved from the vertical position. (1 mark)

- (c) He changed one more variable and carried out the experiment again. He recorded his readings in the table below.

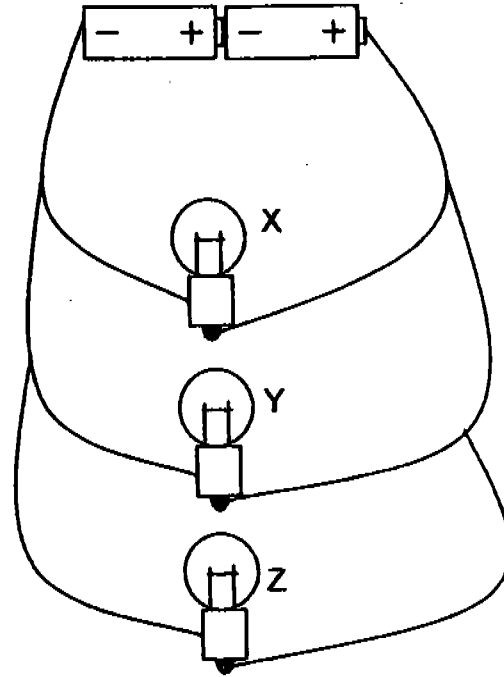
Number of batteries	1	2	3
Angle x (°)	27	41	54

What could Billy have done to get the second set of readings if he kept the iron rod the same? (1 mark)

41. The circuit diagrams below show 3 identical bulbs, X, Y and Z, arranged in two different ways.



Circuit A



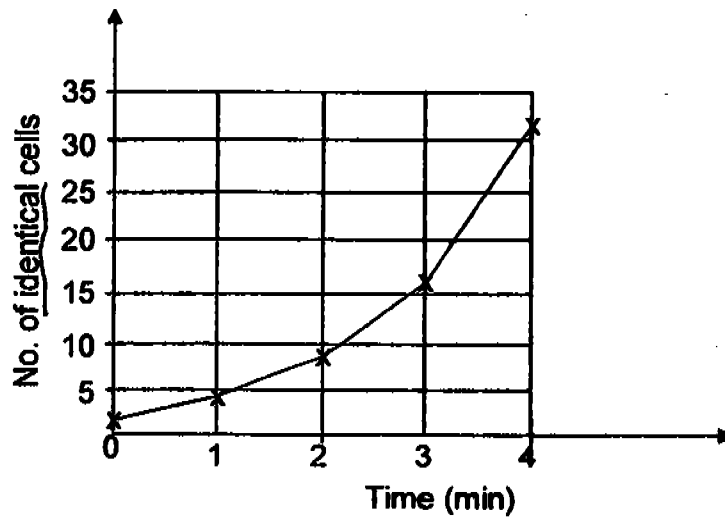
Circuit B

Describe what happened to bulbs X and Z when bulb Y from both circuits fused. (2 marks)

(a) Circuit A:

(b) Circuit B:

42. Nicole conducted an experiment to study the process of cell division in an unicellular organism. She placed two identical cells of this organism on a nutrient-filled agar and made her observation over a few minutes. She plotted her results on the graph shown below.

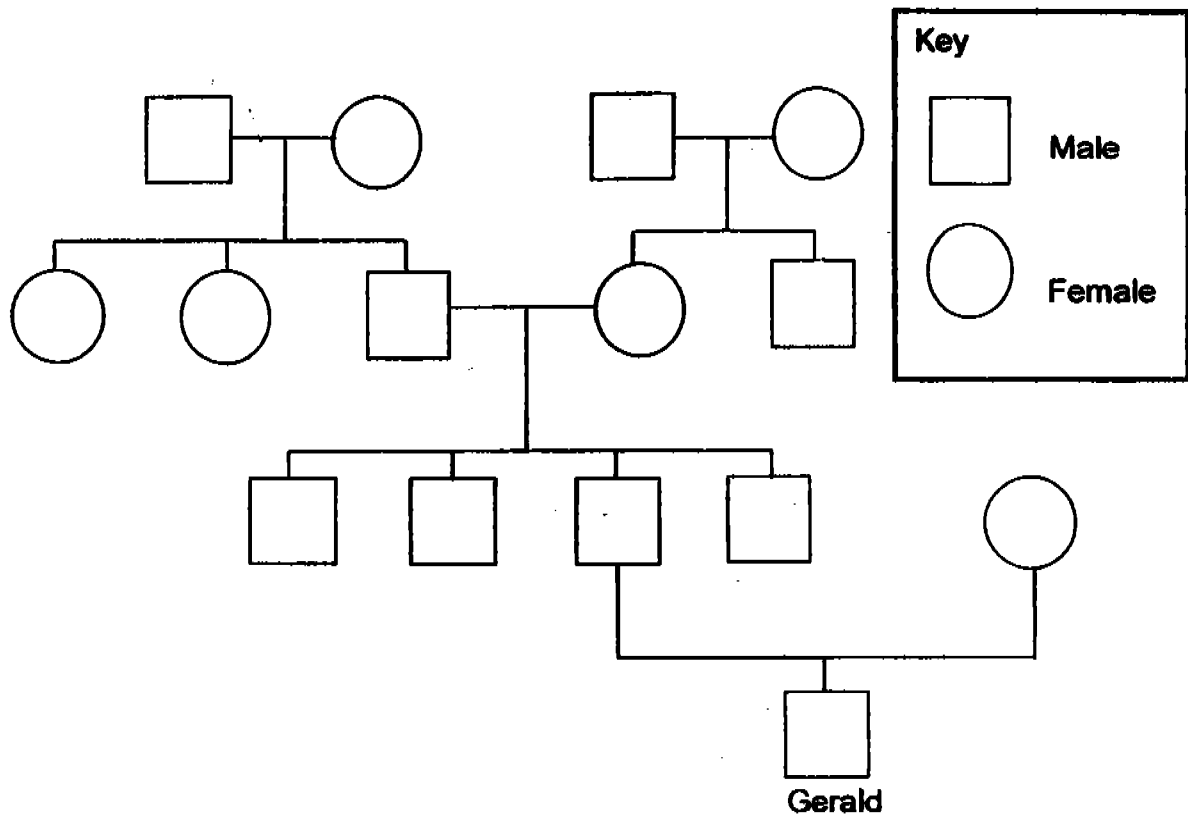


- (a) Describe the increase in the number of cells over time. (1 mark)

- (b) Identify the organism that Nicole could have used in her experiment. (1 mark)

- (c) State the type of reproduction that this organism has undergone. (1 mark)

43. Study Gerald's family tree below.

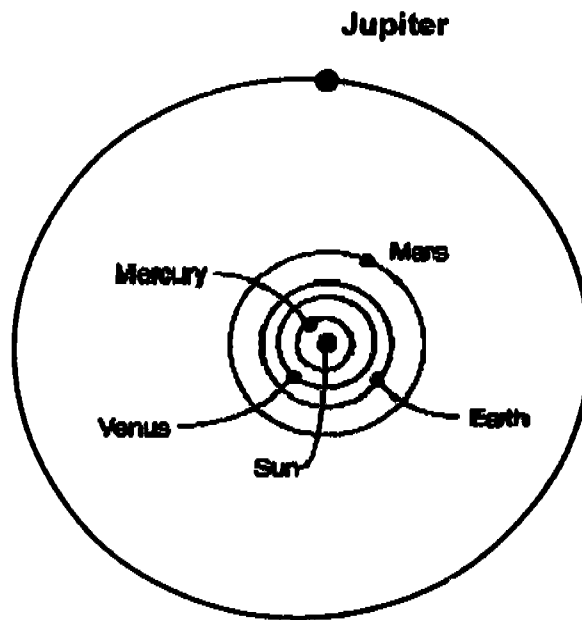


- (a) Gerald's grand-uncle had just passed away. Cross him out of the family tree with an 'X'. (1 mark)
- (b) Gerald's paternal grandfather is colour blind. This disease affects all the males related to his grandfather. How many male(s) in this family tree is / are colour blind? (1 mark)

44. Fill in the blanks with suitable word(s). (2 marks)

Man-made satellites play an important role in our daily lives. We need the help of satellites for _____ so that we are prepared for a wet or dry day and also to predict the paths of destructive hurricanes and typhoons. The path in which man-made satellites takes as they go round the Earth is called an _____. Indeed, without satellites, we will not be able to watch news broadcasts or communicate with relatives in other parts of the world.

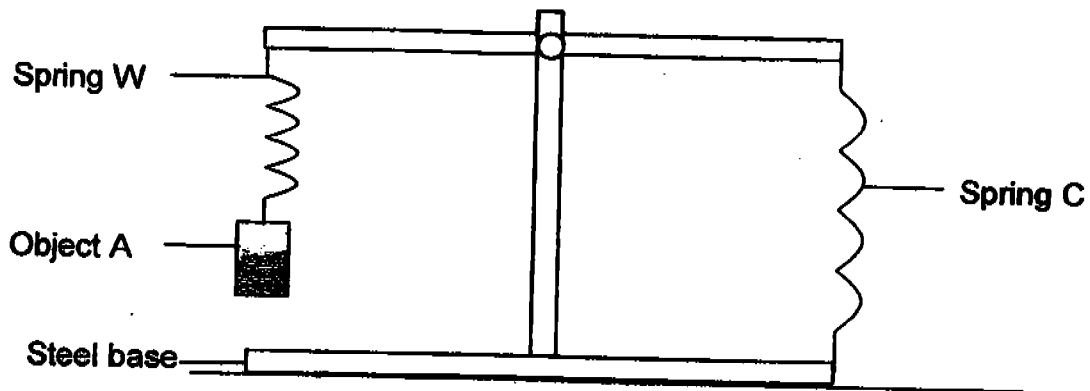
45. The following drawing shows the positions of the first 5 planets in the Solar System that are nearest to the Sun. (2 marks)



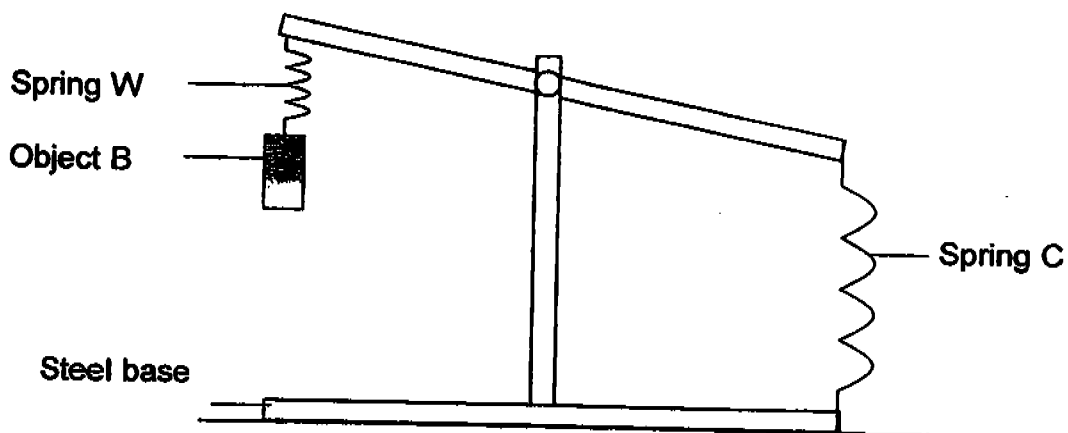
Study the following statements about the drawing above. Using only information that you can obtain from the drawing, decide if the statement is 'True', 'False' or 'Not Possible To Tell' by putting a tick (✓) in the appropriate box.

	Statements	True	False	Not Possible to Tell
(i)	Mars is further away from the Sun than the Earth.			
(ii)	The drawing shows the rotation of the Earth around the Sun.			

46. Andrea set up the experiment as shown below. The rod was balanced by a 1 kg object, labelled A.



When he replaced object A with object B of the same mass, he noted that the rod was tilted as shown below.



Explain why the rod was balanced with object A but tilted when replaced with object B. (2 marks)

—————END OF PAPER—————

Setters: Primary 5 Science teachers

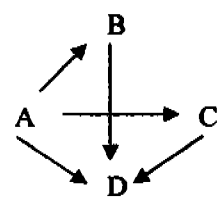
Nanyang Primary School
Primary 5 Science SA2 (2005)

Exam 2005

Answer Sheets

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

31a.



31b. The population of D decreases.

32a. Iodine solution

32b.

✓
✓

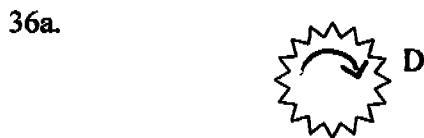
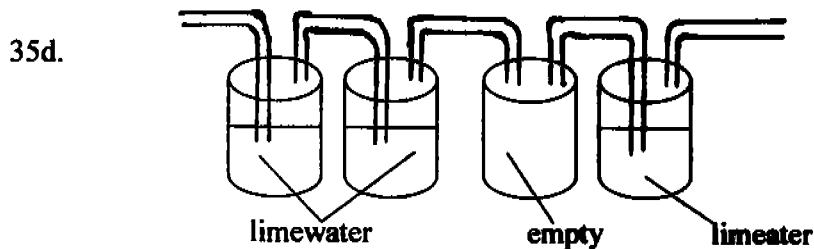
33a. B, A, D, C

33b. Her heart has to beat faster after the more vigorous exercise as it needs to pump more oxygen and food for respiration to take place so as to release more energy to the body.

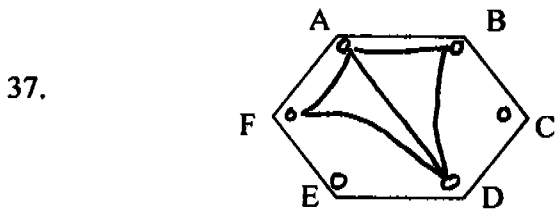
34a. X : 10
 Y : 2

34b. 120

- 35a. To show that the hamster gives out carbon dioxide during respiration.
 35b. B, A, D
 35c. She wanted to have a reliable result before she makes a conclusion.



36b. $4\frac{1}{2}$

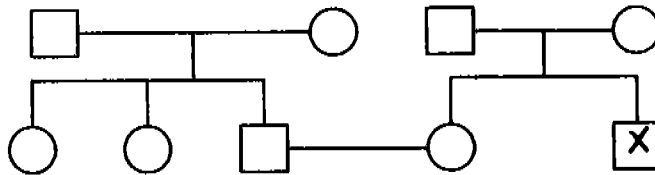


- 38a. System A changes the direction of force so she can use it to bring a heavy object to somebody above.
 38b. System B does not change the direction of force so she can bring heavy loads from the bottom to the top where she is standing.
 39. Rods V and Y are conductors of electricity.
 40a. No. No battery is supplying electrical energy so that the iron rod becomes an electromagnet.
 40b. The iron rod has become an electromagnet.
 40c. He could have coiled more wire around the iron rod.

- 41a. Only X will light up.
 41b. Both bulbs continued to light up.

- 42a. The number of identical cells doubled every minute.
 42b. Bacteria
 42c. Cell division

43a.



- 43b. 7 men
 44. Weather forecast.
 Orbit
 45. (i) True
 False

46. Object A is a magnet which is attracted to the magnetic steel base by magnetic force. However, object B is non-magnetic and therefore allows spring C to be stretched less.