prelim

NANYANG PRIMARY SCHOOL

PRIMARY 6 SCIENCE

PRELIMINARY EXAMINATION
2017

BOOKLET A

Date: 25 August 2017

Duration: 1 h 45 min

Name : _____ ( )

Class: Primary 6 ( )

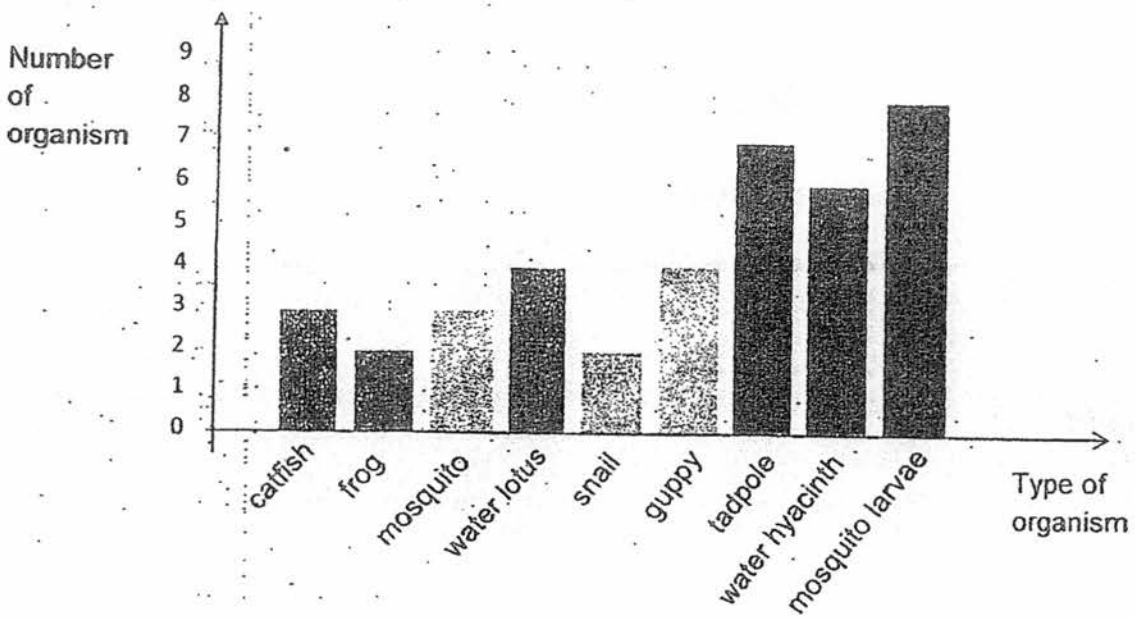
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet A consists of 25 printed pages including this cover page.

Section A (28 x 2 marks = 56 marks)

For each question from 1 to 28, 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. Wendy observed the organisms living together in a habitat. She counted the number of each organism and recorded her results in the graph below.

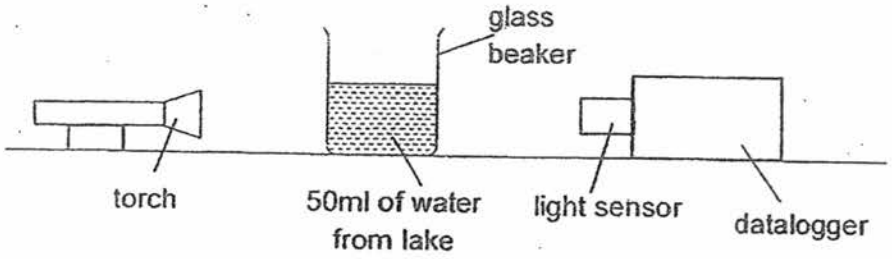


Based on the results of her observation, which of the following statements are correct?

A There are 9 populations.
B There are 39 organisms.
C There is only 1 community.
D There are 2 types of snails.

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

2. Some water was collected from two different lakes, P and Q. 50ml of water from each lake was placed in two separate glass beakers. A beam of light was shone on each beaker and the amount of light detected through the beaker of water was recorded by a datalogger.



	Water from lake P	Water from lake Q
Amount of light detected /lux	325	72

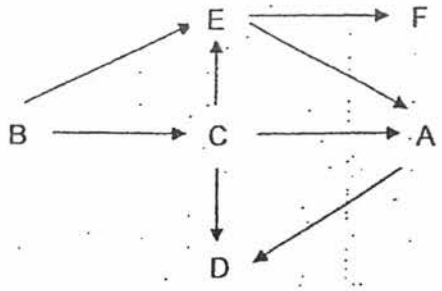
It was observed that fishes living in clear water, tend to be light-coloured while those living in murky water, tend to be dark-coloured. The table below shows the type of fish that are most likely found in lakes P and Q.

Type of fish	Position in the pond		Colour of fish	
	Near the surface	Near the bottom	Dark	Light
Fish A	✓		✓	
Fish B	✓			✓
Fish C		✓	✓	
Fish D		✓		✓

Which type of fish would most likely be found in lake P near the surface of the water?

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

3. Study the food web below.

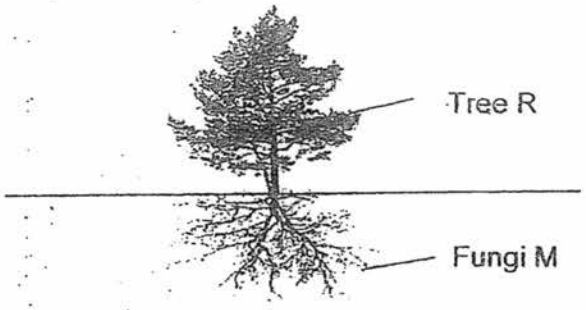


Based on the above food web, which of the following statements are correct?

A There are 5 food chains.
B Organism E is a plant and animal eater.
C Organism C is a predator of organism B.
D Organisms A and D are predators of organism C.

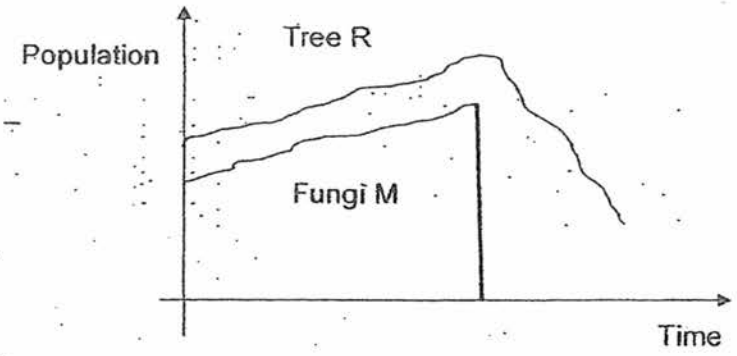
(1) A and C only
(2) B and D only
(3) A, B and D only
(4) B, C and D only

4. Tree R grows in a cold environment where there is a shortage of nutrients in the ground. Fungi M is often found growing on the roots of tree R.



To study their relationship, fungi M is totally removed from the roots of tree R.

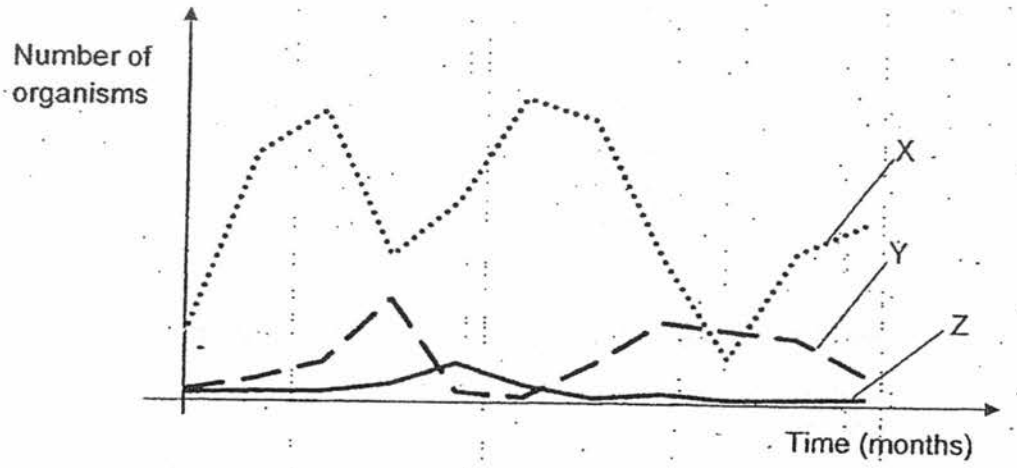
The graph below shows the population size of organisms R and M, before and after the fungi is removed.



Based on the information given above, what is the most likely relationship between tree R and fungi M?

	Tree R	Fungi M
(1)	benefitted from fungi M	benefitted from tree R
(2)	benefitted from fungi M	harmed by tree R
(3)	harmed by fungi M	benefitted from tree R
(4)	harmed by fungi M	harmed by tree R

5. The graph below shows the relationship between 3 organisms, X, Y and Z, in a complete food chain.

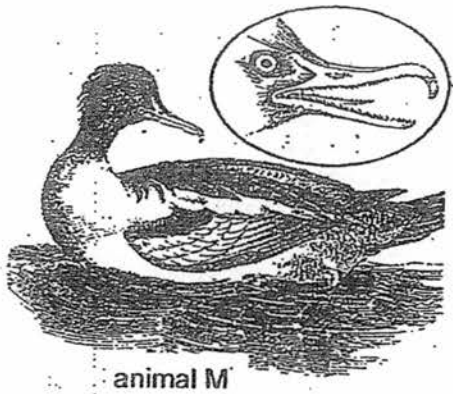


Based on the information given above, which of the following statements are correct?

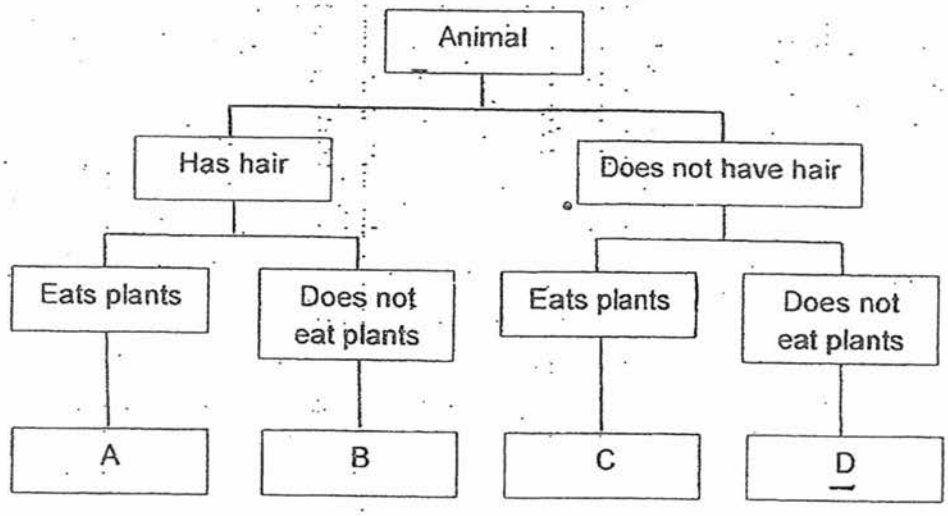
A Organism Z is an animal-eater.
B Organism X is a prey of organism Y.
C Organism Y is a predator of organism Z.
D. Organism X obtains energy from the Sun.

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

6. During a field trip through a nature reserve, Jansen spotted animal M near a pond. Animal M had wings and could swim. It also had many sharp, jagged edges along its beak.



He then drew up the following classification chart.



Based on the information provided, where should Jansen place animal M in the above classification chart?

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

7. A group of Science students studied Animal Y which lives in a tropical rainforest.

animal Y

The students made some observations as shown below.

A. It sleeps on tall trees at night.
B. It has a tail that is as long as its body.
C. It spends most daylight hours searching for food.
D. It has a thick outer covering of fur to keep it warm.

Based on the above information and diagram, which of the above statements show the behavioural adaptations of animal Y which help it to survive in the rainforest?

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

8. Tree P grows in a very cold environment. It has adaptations that protect it from the wind and the cold weather. Tree P has also adapted to grow on ground that is rocky and has very little soil. Water is found very deep in the ground. Snow that falls on tree P slides off its leaves easily so that the snow does not accumulate and break the branches.

a population of tree P

enlarged view of tree P's leaves

Based on the information provided, which of the statement(s) below is/are true?

A Tree P has needle-like leaves.
B Tree P has long and deep roots.
C Tree P grows close to one another.

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

9. Which of the following characteristics does not help a bird to fly quickly through the air?

(1) Sharp claws to grab its prey.
(2) Feathers to keep its muscles warm.
(3) Hollow bones to reduce its body weight.
(4) Streamlined body to reduce frictional force.

10. Which of the following structural adaptation would most likely be found in animals living in a hot and dry place?

	Adaptation	Purpose of adaptation
(1)	Hunt at night	Lose less water at night
(2)	Live in burrows in the ground	Temperature in burrows is lower than above ground
(3)	Have light-coloured outer coverings	Gain less heat than dark-coloured outer coverings
(4)	Have a thick layer of fats under their skin	Help to keep warm during hibernation

11. Which of the following shows the correct cause and effect relationships on air pollution?

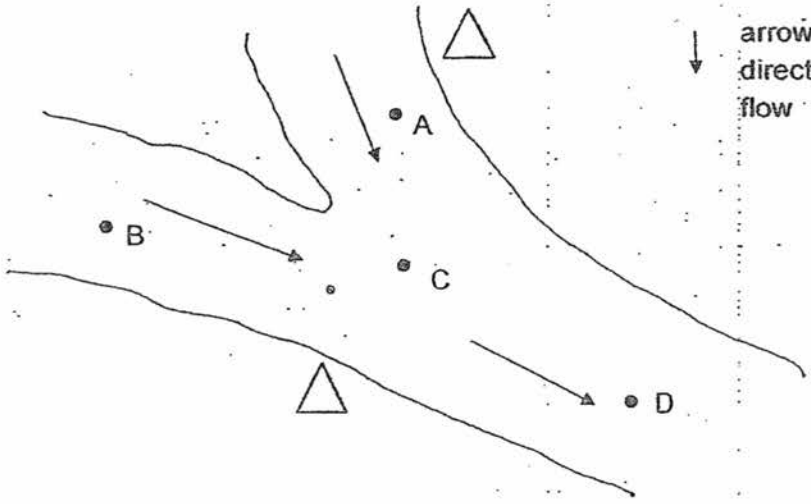
	Cause	Effect on air pollution
A	Increased use of fossil fuels	Decrease
B	Conservation in electricity usage	Decrease
C	Increase in number of forest fires	Increase
D	Greater effort to recycle materials	Increase

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

12. The diagram below shows process Z.

Process Z

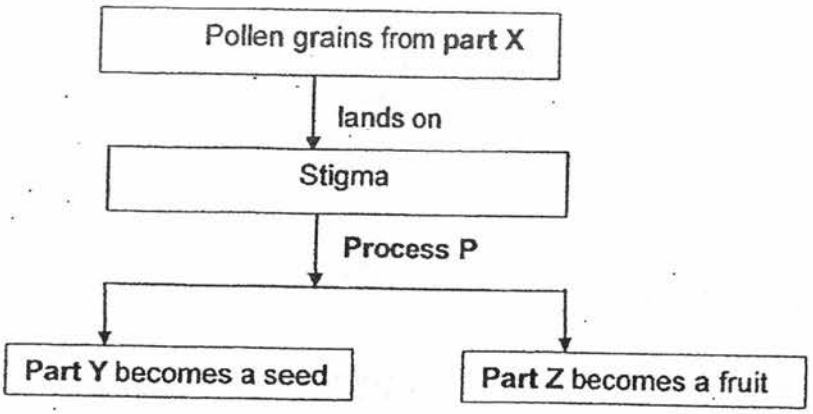
The river shown below flows past places where process Z (△) has occurred close to the river.



Which of the following are possible outcome(s) for the river shown above?

	Point in the river	Amount of submerged plants	Amount of dissolved oxygen	Amount of live fish
(1)	A	High	Low	High
(2)	B	Low	High	High
(3)	C	Low	Low	Low
(4)	D	High	High	Low

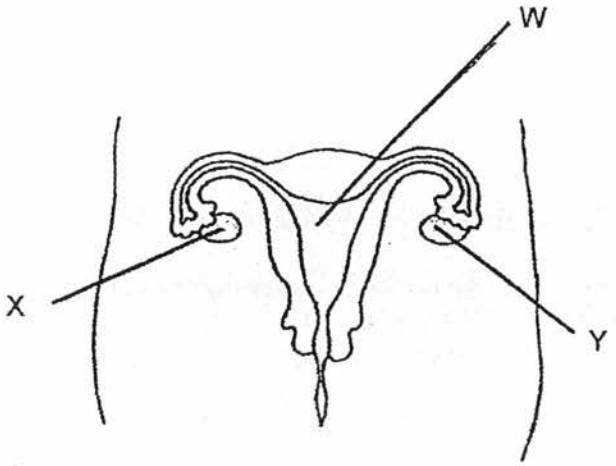
13. Study the diagram below.



Which one of the following correctly identifies parts X, Y, Z and process P?

	X	Y	Z	P
(1)	Anther	Ovule	Ovary	Pollination
(2)	Stigma	Ovary	Ovule	Fertilisation
(3)	Anther	Ovule	Ovary	Fertilisation
(4)	Stigma	Ovary	Ovule	Germination

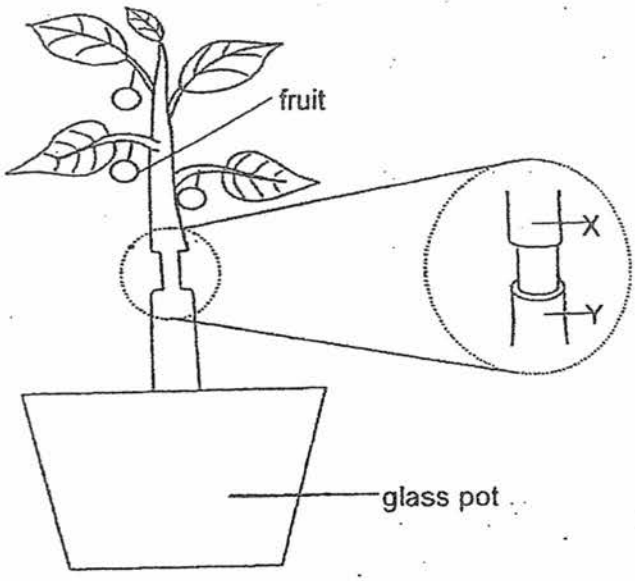
14. The diagram below represents the female reproductive system.



Which of the following statements is **false**?

(1) X and Y are the ovaries.
(2) X can still produce eggs if Y is missing.
(3) X and Y produce sperms to fertilise the egg.
(4) W is the place where the fertilised egg will develop into a foetus.

15. In the diagram below, an outer ring of the stem consisting of the food-carrying tubes between positions X and Y of a plant had been removed. The water-carrying tubes remained in the stem.

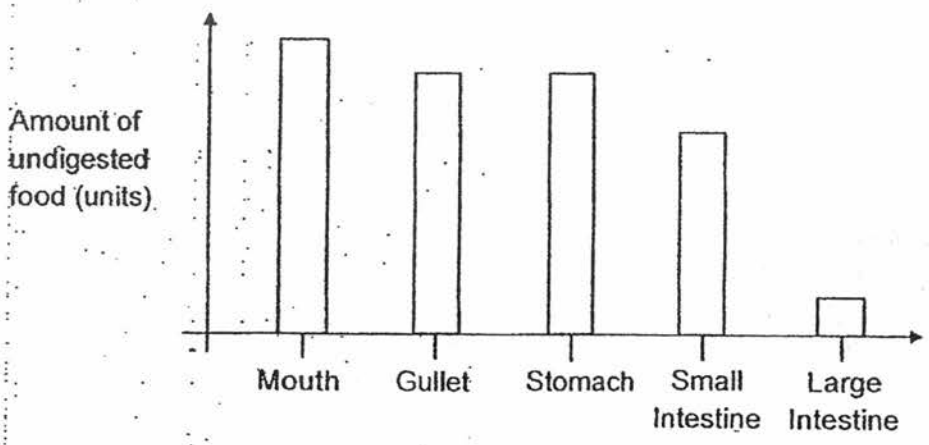


After a few days, which of the following are most likely observations that could be made about the plant parts?

A Part X will be swollen.
B Part Y will be swollen.
C The leaves have dried up.
D The fruits have grown bigger.

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

16 The graph below shows the amount of undigested food as it enters various organs in a digestive system after a meal.



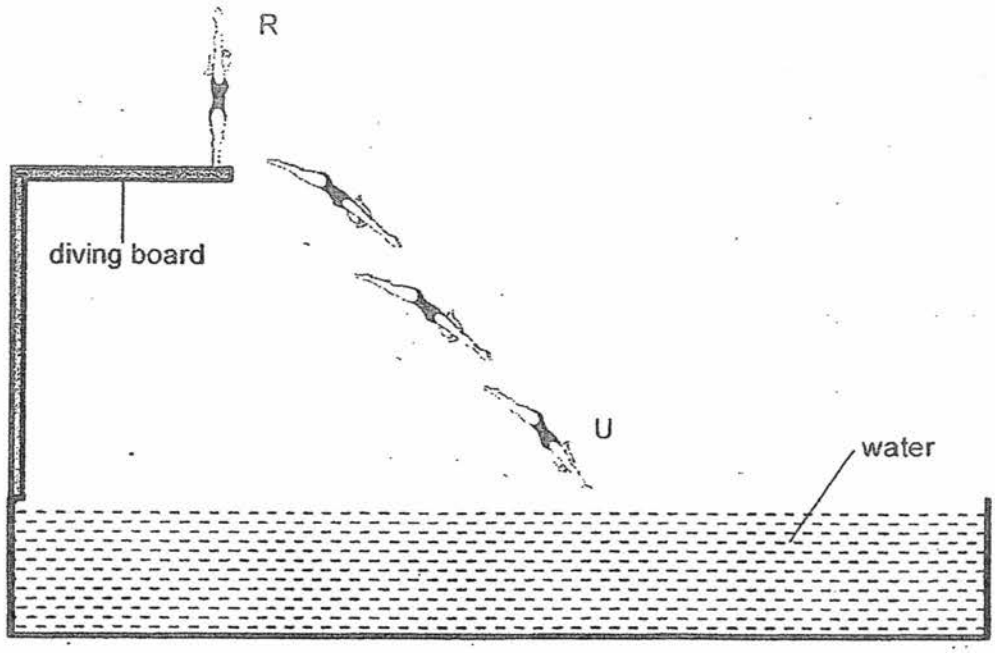
Human Digestive System

Based on the information above, which of the following statement(s) is/are correct?

A Digestion starts in the stomach.
B No digestion takes place in the gullet.
C Most of the food is digested in the small intestine.

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

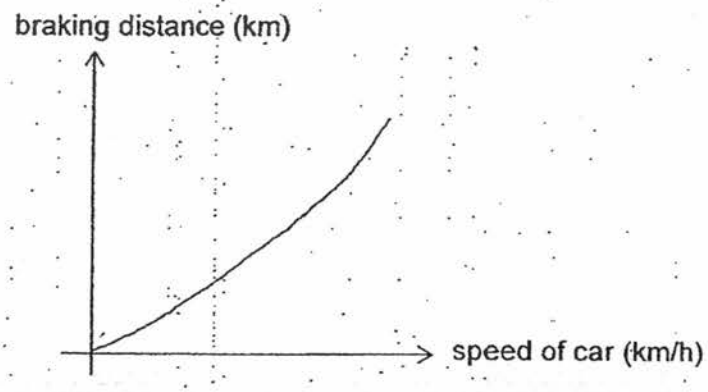
17. The diagram below shows a girl diving into a swimming pool.



Which one of the following shows the correct comparison of the gravitational potential energy and kinetic energy of the girl at point U?

	Kinetic energy at point U	Gravitational potential energy at point U
(1)	More than at point R	Less than at point R
(2)	Less than at point R	More than at point R
(3)	More than at point R	More than at point R
(4)	Less than at point R	Less than at point R

18. A group of pupils conducted an experiment to find out the braking distance of a car travelling at a certain speed on a dry road. The braking distance is the distance the car has to cover when the brakes are applied before it comes to a complete stop. The graph below shows the data collected by the pupils.



Based only on the graph above, which of the following statements is true?

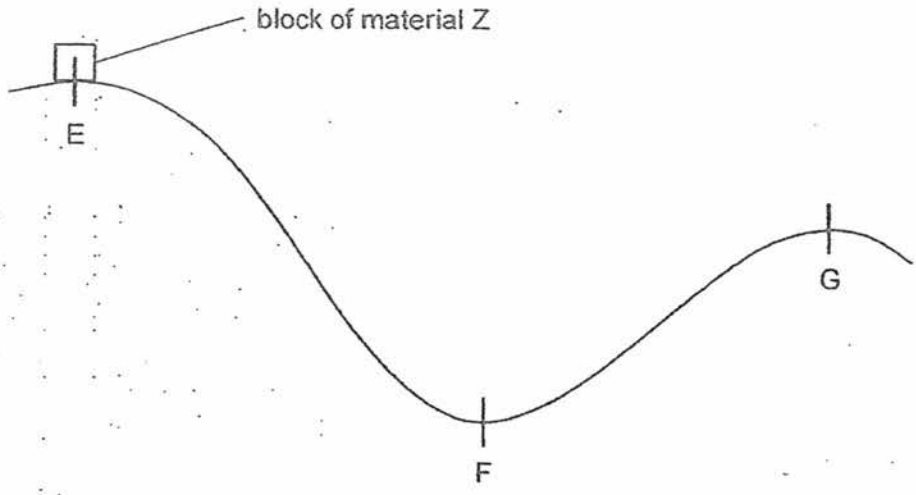
(1) The braking distance is not affected by the mass of the car.

(2) The car will move a longer distance to come to a stop when its speed is higher.

(3) The braking distance will increase when the kinetic energy of the car decreases.

(4) The braking of the car will convert chemical potential energy of the car into heat and sound energy.

19. A block of material Z was moved from a stationary position at point E to point G and beyond as shown below.



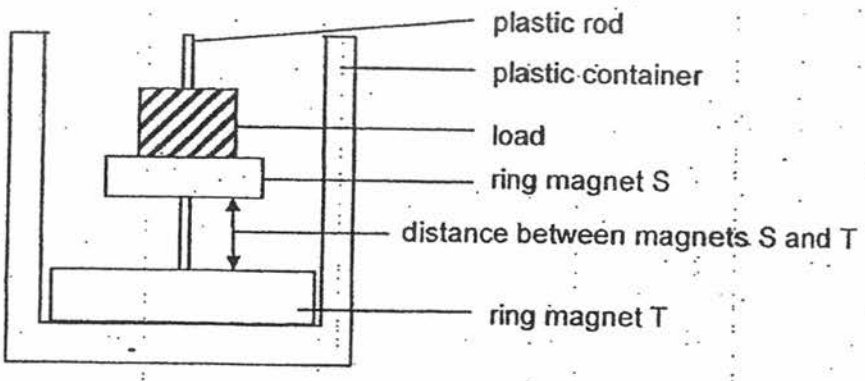
The block left a trail of bits of material Z as it moved from point E to beyond point G.

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

A A force exerted on the block caused it to move.
B Friction caused the block to undergo wear and tear.
C The speed of the block increased from point F to point G.
D The gravitational force acting on the block decreased from point E to F, then increased from point F to G.

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

20. In the diagram below, when ring magnet S was placed on top of ring magnet T through a plastic rod, the two magnets stayed apart even when a load was placed on top of magnet S.



An experiment was conducted on the set-up above using different loads and the results are shown in the table below.

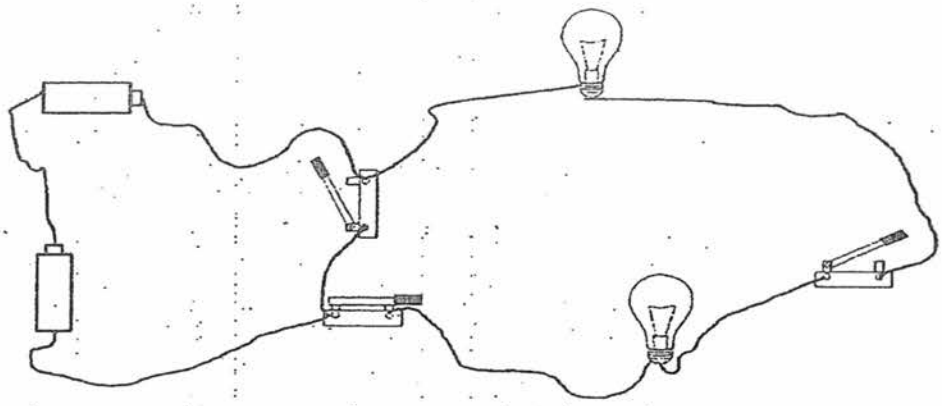
Mass of load (g)	Distance between ring magnets S and T (cm)
0	12.0
10	7.5
20	4.3
30	1.8
40	0.7
50	0

Based on the information above, which of the following statement(s) is/are correct?

A Magnet T is a stronger magnet than magnet S.
B The like poles of magnets S and T are facing each other.
C There is no magnetic force of repulsion acting between magnets S and T when the mass of load is 50 g.

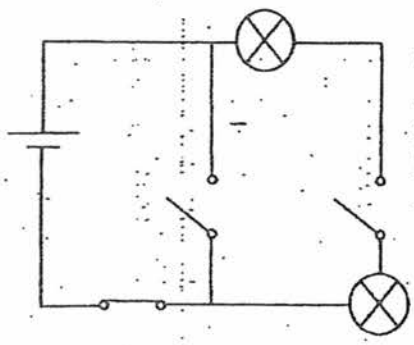
(1) B only
(2) A and B only
(3) A and C only
(4) A, B and C

21. Study the circuit below.

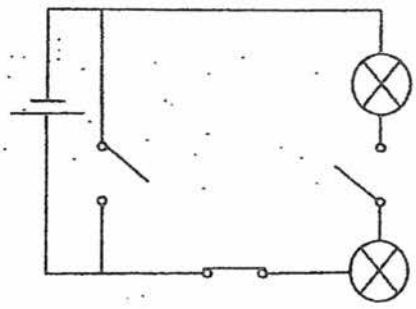


Which one of the following circuit diagrams correctly represents the set-up above?

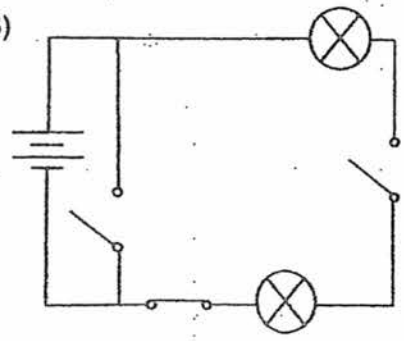
(1)



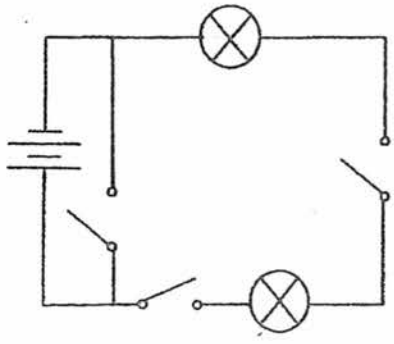
(2)



(3)

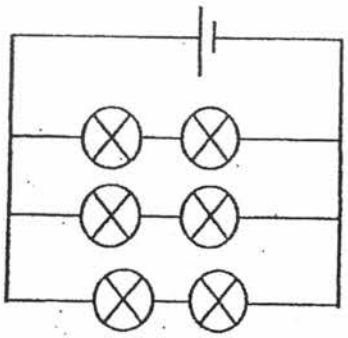


(4)

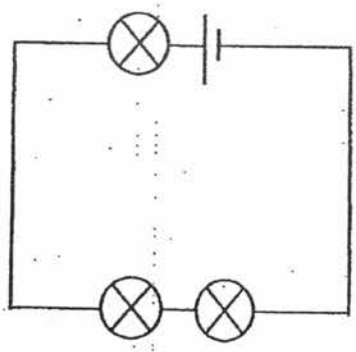


22. Study the circuit diagrams below.

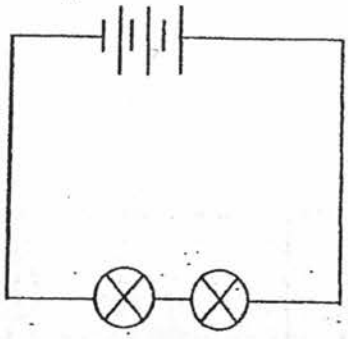
circuit E



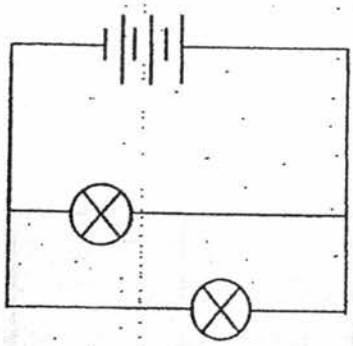
circuit F



circuit G



circuit H



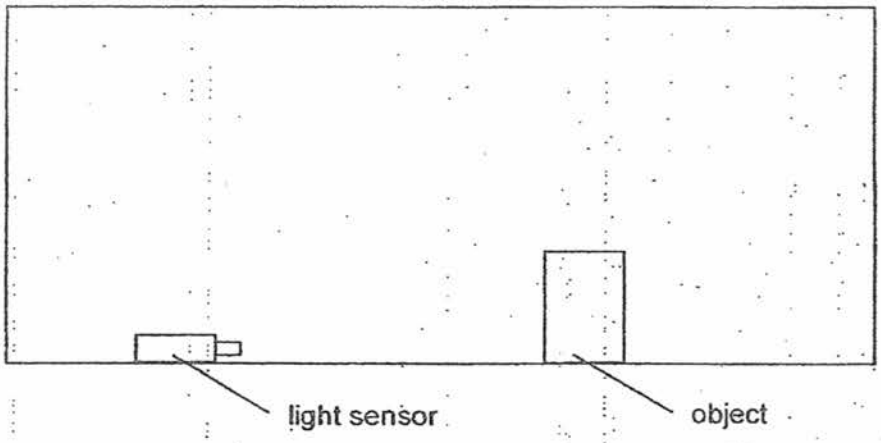
Which of the following correctly arranges the bulbs in each circuit from the dimmest to the brightest?

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

23. Which one of the following statements is an example of using electricity safely?

(1) Use energy-saving bulbs.
(2) Plug in multiple appliances into the same socket.
(3) Convert to solar panels as a source of electricity.
(4) Dry your hands before handling electrical appliances.

24. Different objects, K, L and M, were placed one at a time in a dark room with a light sensor as shown below.



The light sensor was connected to a datalogger and its readings are shown in the table below.

Object	Amount of light detected (units)
K	5
L	0
M	198

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

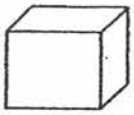
A Object L is not a source of light.
B Only object M is a source of light.
C A person in the dark room would be able to see objects K, L and M.
D The amount of light detected for object K will increase when the light sensor is brought closer to the object.

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

25. Two cubes, P and Q, made of the same material are shown below.

object P

mass: 10 g



object Q

mass: 100 g

Both objects were heated to 200°C and their temperatures were recorded as they were left to cool.

The results are shown in the table below.

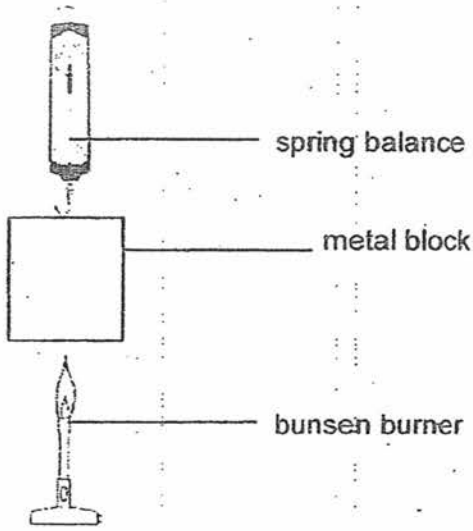
Time (min)	Temperature (°C)	
	Object P	Object Q
0	200	200
2	167	105
4	110	68
6	85	46
8	55	30
10	30	30
12	30	30

Based on the information above, which of the following statements are most likely correct?

A The temperature of the surrounding is 30°C.
B Object P has a smaller exposed surface area than object Q.
C Object P is cooler than object Q at the end of the experiment.
D Object Q has more heat than object P at the start of the experiment.

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

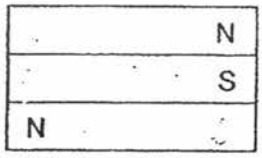
26. A 500 g metal block was hung on a spring balance and heated as shown below.



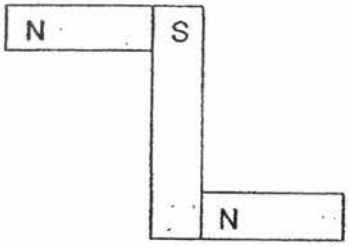
Which option below correctly states the volume of the metal block and the reading on the spring balance after heating?

	Volume of metal block (cm^3)	Reading on the spring balance (g)
(1)	increased	500
(2)	increased	more than 500
(3)	remained the same	500
(4)	remained the same	more than 500

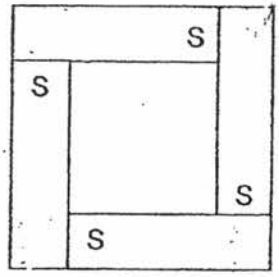
27. The diagram below shows the arrangements of some magnets.



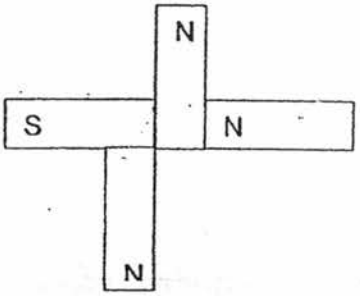
Set-up A



Set-up B



Set-up C

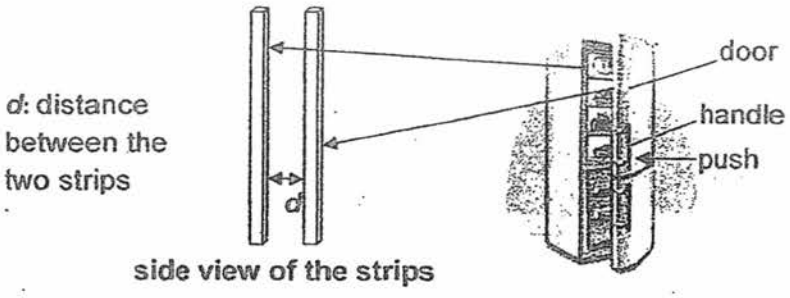


Set-up D

Which of the above arrangements are possible?

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

28. The diagram below shows a refrigerator with its doors opened. There are two strips which are attached onto the edge of the doors.

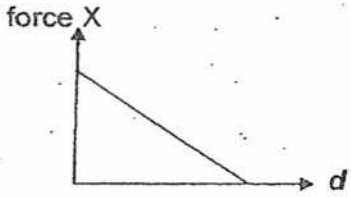


side view of the strips

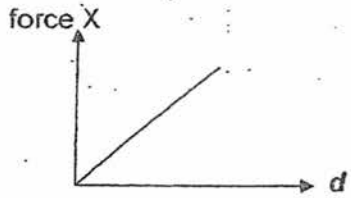
Ramesh applied a push force on the handle of the door and he observed that the two strips on the doors were slowly pulled towards each other and then came into contact due to force X.

Which one of the following graphs correctly states the most likely relationship between *d* and force X?

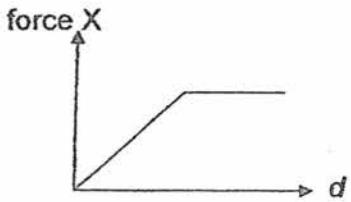
(1)



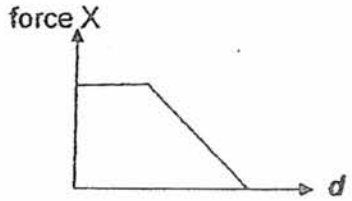
(2)



(3)



(4)



NANYANG PRIMARY SCHOOL

PRIMARY 6 SCIENCE

PRELIMINARY EXAMINATION
2017

BOOKLET B

Date: 25 August 2017

Duration: 1 h 45 min

Name : _____ ( )

Class: Primary 6 ( )

Marks Scored:

Booklet A:		56
Booklet B :		44
Total :		100

Any query on marks awarded should be raised by 14 September 2017. We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.

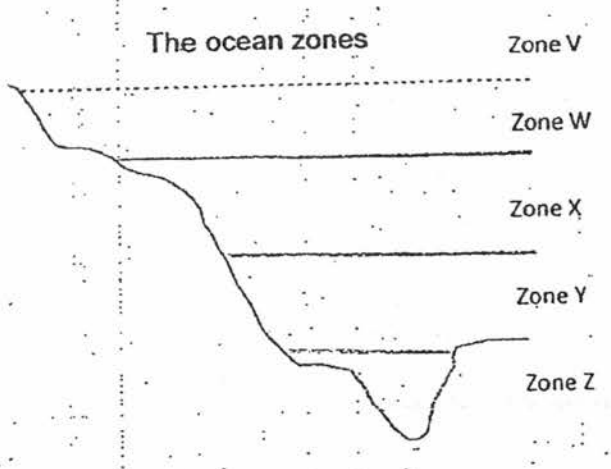
Parent's signature: .....

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

Booklet B consists of 21 printed pages including this cover page.

Section B (44 marks)
Write your answers to questions 29 to 41 in the spaces provided.

29. Ecologists classify ocean habitats and the organisms that live there according to the depth and light levels. The diagram below shows the five zones that the ocean is divided into.



The table below provides information on the physical factors of each ocean zones and populations of organisms living in the zones.

Zone	Depth (m)	Amount of light	Average temperature (°C)	General colour of organisms
V	0-200	most	17	blue and white
W	200-1000	little	9	blue and white
X	1000-4000	no	4	red or black
Y	4000-6000	no	2	(a i) _____
Z	6000-11000	no	(a ii) _____	red or black

Adapted from Source: National Oceanic and Atmospheric Administration, USA

Organisms that live in the respective zones have adapted to the conditions in each zone.

(a) (i) Fill in the general colour of organisms living in zone Y in the table above.
(ii) Fill in the average temperature of zone Z in the table above.

[1]

Plant S provides food and shelter for the organisms in a certain zone.

(b) Based on the information given, which zone would plant S grow best in? Give a reason for your choice. [1]

_____

_____

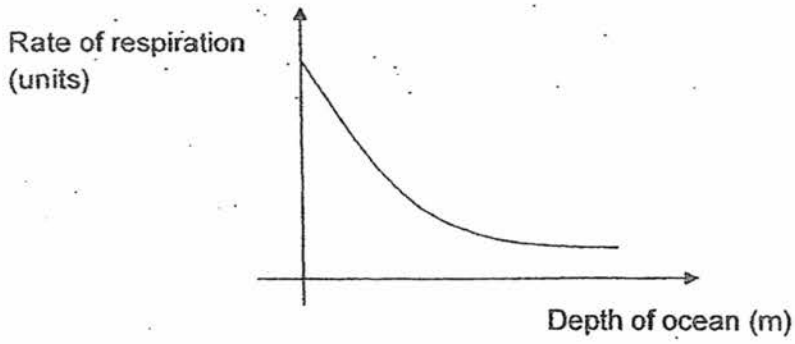
Organism D was observed to have the following characteristics:

- Black in colour
- Found in areas around 1000m in the ocean
- Has a light producing organ to attract its prey

(c) Which zone would Organism D most likely be found? [1]

_____

The diagram below shows the relationship between the depth of the ocean and the rate of respiration of some organisms living in the ocean.



(d) Based on the information above, explain how the amount of light affects the rate of respiration of an organism living in zone Z. [2]

_____

_____

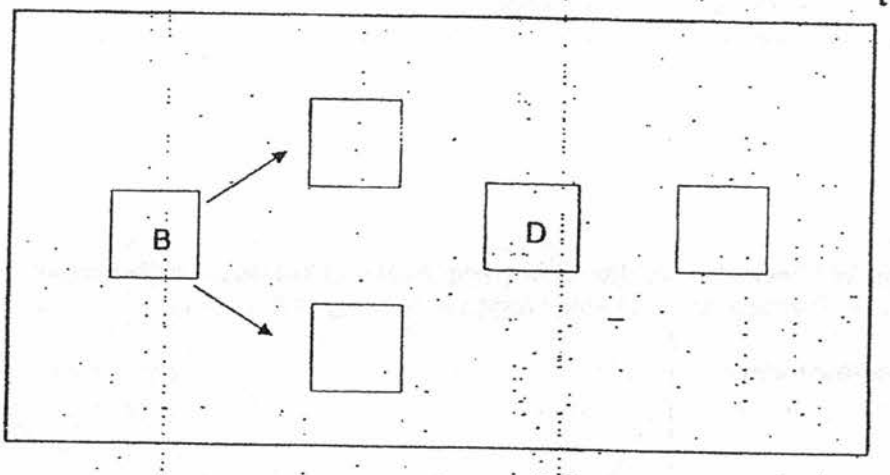
_____

_____

30. Roshan observed a pond community. There were five populations of organisms A, B, C, D and E in the pond. Roshan kept some of the organisms together in containers over a period of time. The table below shows the outcome of his experiment.

Organisms kept together	Outcome of the experiment
A, B and C	A and C remaining
D and E	E remaining
A, C and D	D remaining

(a) Based on the outcome of his experiment, construct a possible food web to show the relationships between the five organisms in the space provided below. [1]



In Roshan's hometown, the period of daylight during the months from July to December is shorter than the first half of the year.

(b) Explain how this will affect the size of population of organism A in the food web. [1]

_____

_____

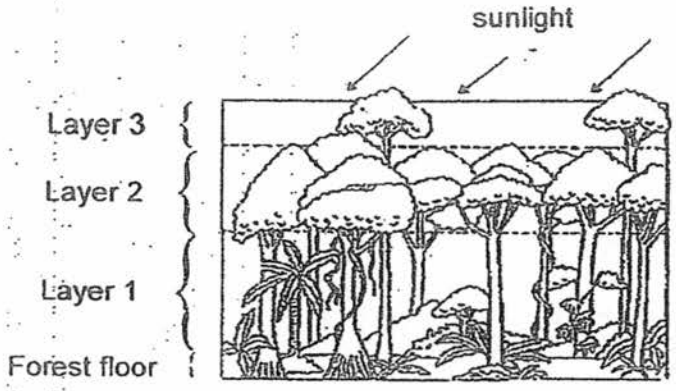
Roshan noticed that the plant population in the pond had been decreasing over the past few months.

(c) Without adding more plants, which one of the organisms A, B, C, D or E should Roshan add, to increase the plant population? Explain your answer. [1]

_____

_____

31. The diagram below shows the four different layers in a rainforest. The top layer of the rainforest receives a lot of sunlight, rain as well as strong winds. Many plants and animals have adapted to survive in the various layers of the rainforest.



Plant B grows in the rainforest. It grows tall very quickly.

(a) How does this adaptation help it to survive in the rainforest? [1]

The forest floor of the rainforest is covered with wet and dead leaves. Many fungi are found there.

(b) Explain how the presence of fungi is important to the plants in the rainforest. [1]

The diagram below shows Bird V. It has feathers all over its body except for its head and legs. When the weather is hot, bird V was often observed releasing liquid waste matter onto its own legs.

Bird V

(c) Explain how this behaviour could help bird V to cope with living in the hot rainforest. [1]

_____

_____

There are many plants and trees growing in the rainforest. The plant growth is thick and dense. Many smaller plant-eating animals live among the trees. Animal J and L are both animal-eaters found in the rainforest.

The table below describes the size of the animals.

Organism	Weight (kg)	Length (cm)
Animal J	100	175
Animal L	189	290

(d) Based only on the information given above, which animal-eater, J or L, would more likely be found in the rainforest? Give a reason for your choice. [1]

_____

_____

32. A group of pupils discovered a new type of plant and studied it for a few months. It only bloomed for a short period of time. They named it Flower S. They also discovered that a type of fly, X, was attracted to flower S.

Flower S	Fly X
• male and female parts were found on different flowers • produced the smell of rotting meat • produced fruits which were sweet and fleshy	• fed on nectar • the young fed on rotting meat

(a)i) State the process which will happen to Flower S when fly X visits it. [1]

_____

(a)ii) Explain how fly X helps in the process stated in part (i). [1]

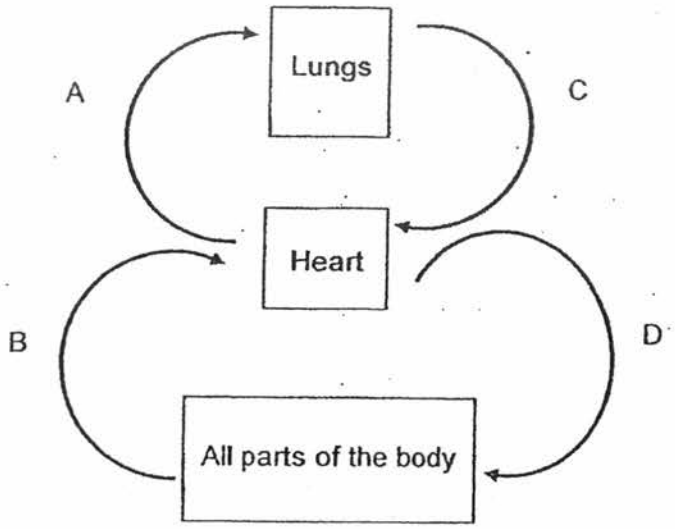
_____

_____

(b) Based on the information provided, suggest a method of dispersal for the seeds of flower S. [1]

_____

33. The diagram below represents how the blood travels in the body.



(a) State a difference between the amount of oxygen in the blood in part C compared to that in part A. [1]

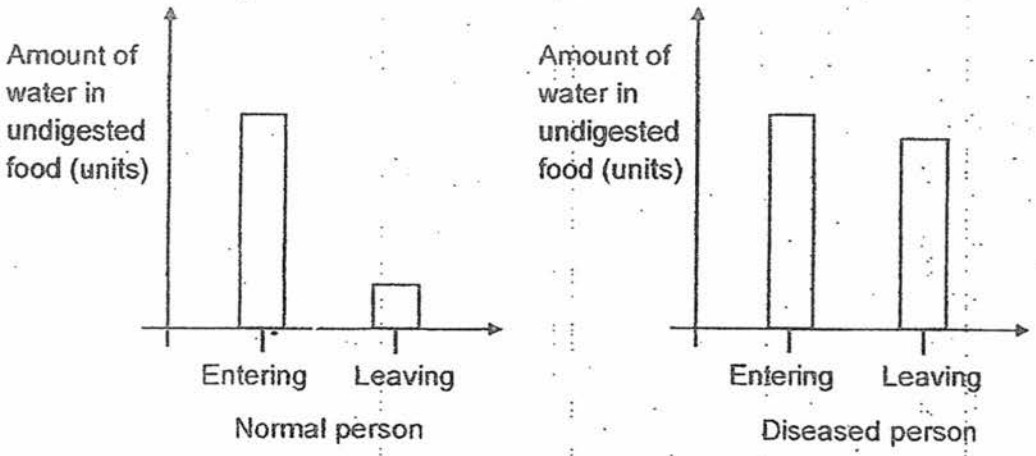
_____

_____

(b) Which part (A, B, C or D) would contain blood which has the highest amount of carbon dioxide? [1]

_____

34. Anna is suffering from a disease that affects organ X of her digestive system. The graphs below show the amount of water in the undigested food entering and leaving organ X for a normal person and a diseased person.



(a) Describe the difference in the amount of water found in the undigested food leaving organ X between a normal person and the diseased person. [1]

_____

_____

(b) Based on the graphs above, identify organ X and explain the effect of the disease on its function. [2]

Organ X: _____

_____

_____

35. Diagram 1 shows a metal cube sliding down a slope after it was released by John at point A. The cube stops moving at point B.

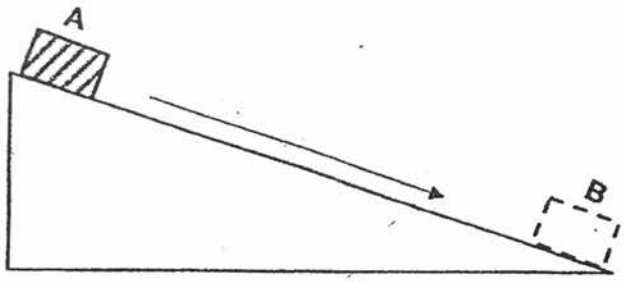
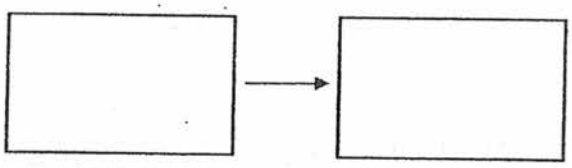


Diagram 1

(a) State the main energy conversion that takes place when the cube moves from point A until it reaches point B. [2]



At point A (Before sliding from point A)

Point A to point B (Sliding down the slope)

(b) State the form of energy which John possessed before releasing the metal cube down the slope. [1]

_____

(c). The height of the slope was increased as shown in diagram 2. The cube was then released at point A.

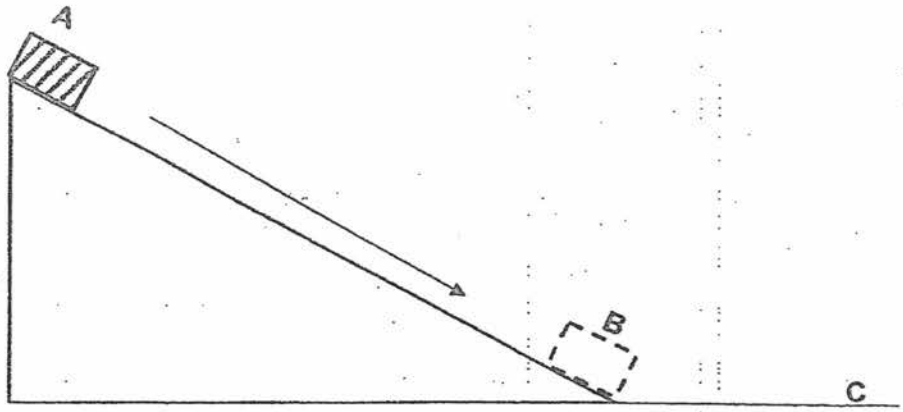


Diagram 2

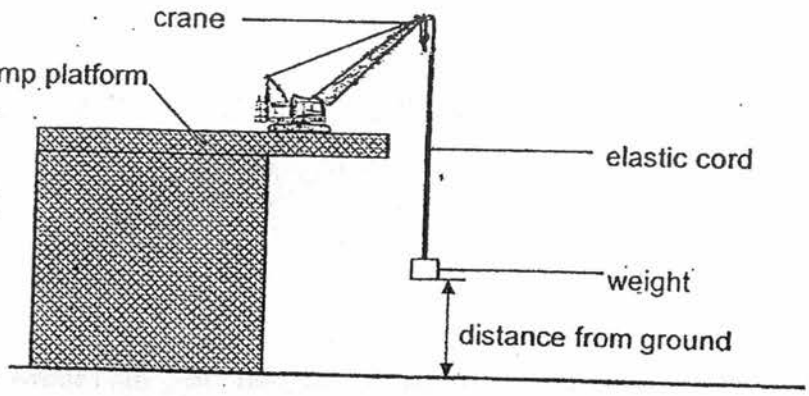
Using the concept of energy conversions, explain for the following observations:

Observation 1: The metal cube was observed to slide down with a greater speed in Diagram 2 than in Diagram 1. [1]

Observation 2: The metal cube stopped moving at point C in Diagram 2. [1]

36. Bungee jumping is an activity where a person is attached to the end of an elastic cord and jumps from a height. The cord will stretch downwards and then bounce upwards several times before stopping in a stretched position.

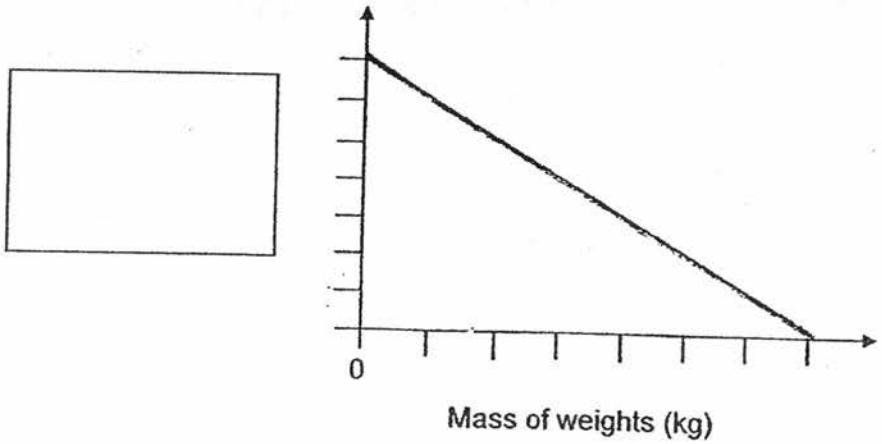
The elastic cord of a bungee jump is tested by adding weights to the cord and measuring the minimum distance reached when released from a platform as shown below.



The results are shown in the table below.

Mass of weight (kg)	Minimum distance from ground reached (m)
0	28
20	24
40	20
60	16
80	12
100	8
120	4
140	0

(a) Based on the information above, draw a line graph and label the graph in the box below. [2]

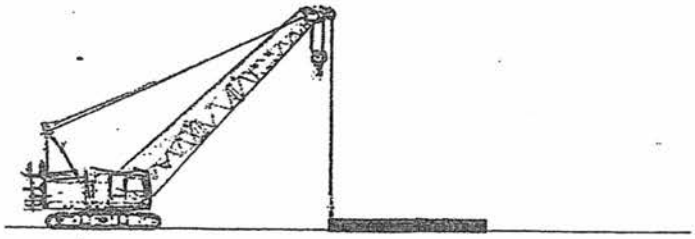


(b) State the weight which is unsafe for a person to use the elastic cord for a jump? Give a reason for your answer. [1]

_____

_____

The weights were removed and the elastic cord is laid to rest on the platform as shown below.



platform

elastic cord

(c) Draw and label the force acting on the elastic cord in the diagram above. [1]

37. Giorgia wanted to find out if three bars, X, Y and Z, made of different materials, conduct electricity. The items used for the investigation are listed below.

Items	Symbol	
bars X, Y and Z	bar	
4 batteries	battery	
3 light bulbs	light bulb	
electrical wires	electrical wire	

(a) Giorgia wanted to conduct the investigation on all 3 bars **at the same time** using **only one** circuit. Using all the items above, draw the circuit diagram for the investigation in the space below and label the three bars. [2]

The results of the investigation are shown in the table below.

Bar	Observation
X	bulb lit up dimly
Y	bulb lit up brightly
Z	bulb did not light up at all

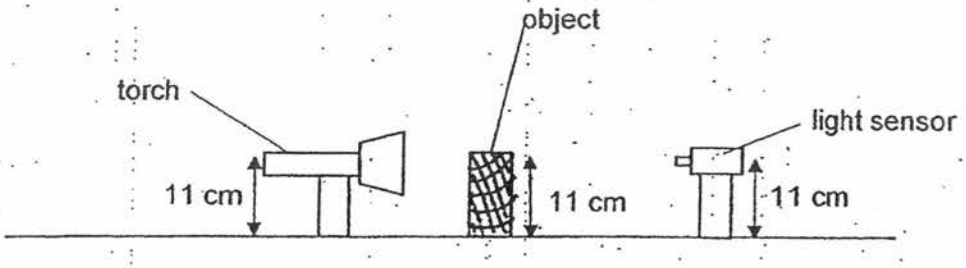
The material for one of the bars will be used to make the covering of an electrical wire as shown below.

(b) Based on the result of the investigation, which material of the bars would be most suitable for the covering of the wire? Give a reason for your answer. [1]

_____

_____

38. Some pupils conducted an experiment to measure the amount of light passing through three similar objects, X, Y and Z. The objects were made of different materials. The set-up was shown below.



The results are shown in the table below.

Object	Amount of light detected (units)
None	320
X	270
Y	45
Z	42

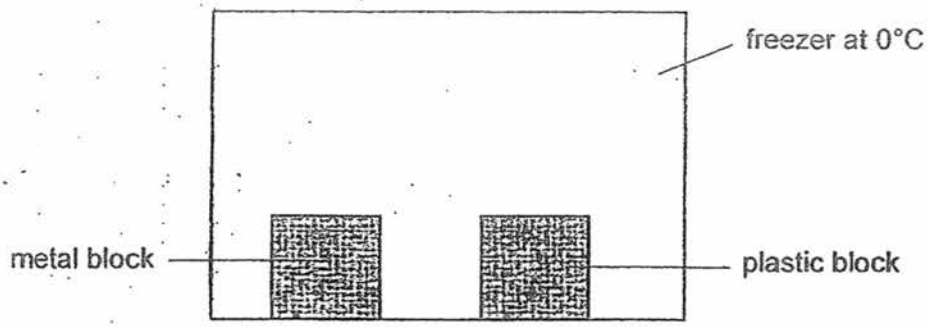
The pupils were told that at least one of the objects did not allow any light to pass through. However, the results showed readings by the light sensor for all the objects.

(a) Using only the materials used in the set-up above, suggest how the experimental set-up could be improved and explain why. [2]

A shadow puppet is formed by placing cut-out figures between light source and a screen.

(b) Based on the results in the table above, which object is the least suitable to make a shadow puppet? Explain using the information above. [1]

39. Two similar blocks, a metal block and a plastic block, were placed into a freezer of temperature 0°C for one week as shown below.



After one week, the temperature of the metal block was measured and recorded as 0°C.

(a)(i) State the temperature of the plastic block in the freezer after one week. [1]

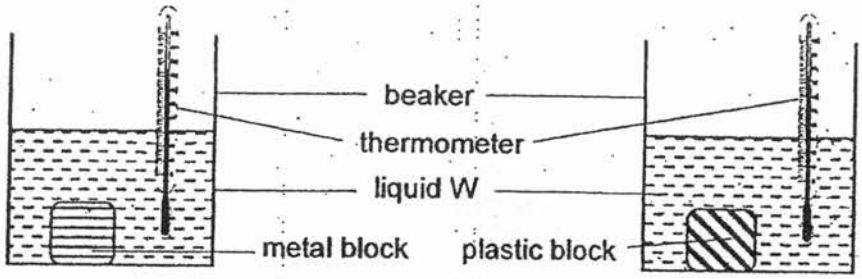
Plastic block: _____ °C

(a)(ii) Give a reason for your answer to (a)(i). [1]

_____

_____

Both blocks were then separately added to liquid W to investigate their ability to cool the liquid down. The temperature of both blocks and the temperature of liquid W in both the set-ups at the start of the experiment were the same.

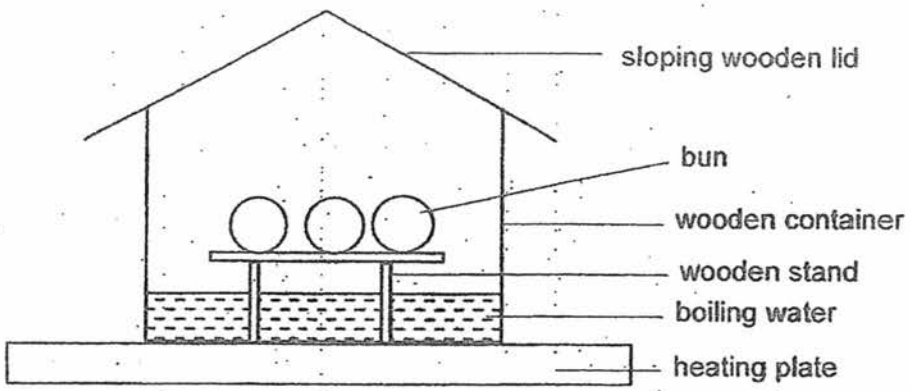


The temperature of liquid W was taken and the results were shown in the table below.

Time (min)	Temperature of liquid W (°C)	
	Using metal block	Using plastic block
0	30	30
2	20	26
4	18	23
6	16	21
8	13	20
10	12	19
12	12	19

(b) Using the properties of the materials of the two blocks, explain the results above. [2]

40. A few buns were heated by placing them in a covered wooden container of boiling water for 5 minutes as shown below:



The wood used to make the lid and container absorbs moisture and prevents water from appearing on the sloping wooden lid and container.

The table below shows the average measurements taken of the buns before and after steaming.

Time	Mass (g)	Volume (cm^3)	Temperature (°C)
Before steaming	100.0	50.0	30
After steaming	102.9	51.7	76

(a) Explain how the buns could be heated up using this set-up. [1]

(b) Explain why there is an increase in the mass and volume of the buns after heating. [1]

41. Diagram 1 below shows how three bar magnets, X, Y and Z are arranged. Magnet Y is placed at equal distances from magnets X and Z and is free to rotate. Magnets X and Z are then pushed towards magnet Y as indicated by the arrows.

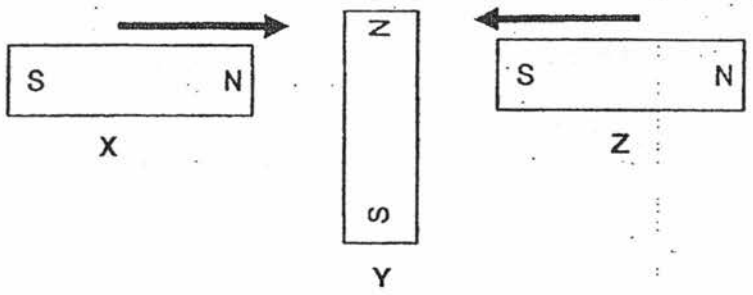
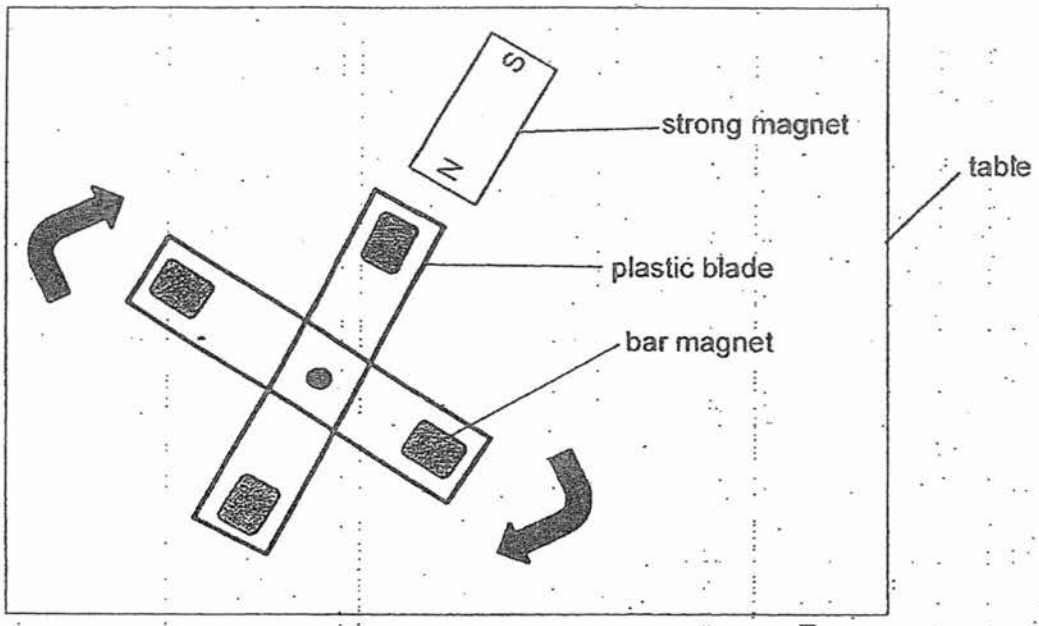


Diagram 1

(a) In diagram 2 below, draw magnet Y's most likely position when magnets X and Z were moved towards it. [1]

Diagram 2

Tim created a toy as shown below. The toy was fixed to the table but it is free to rotate. It is made up of four plastic blades. Each blade has a bar magnet attached to it. Tim brought a strong magnet near one blade and the blades immediately rotated in the direction as indicated by the arrows.



Top view

(b) Using the concept of forces, explain why the blades started to rotate when the strong magnet was brought near to the bar magnet. [2]

~ End of Paper ~

P6 NANYANG PRIMARY SCHOOL 2017
PRELIMINARY EXAMINATION

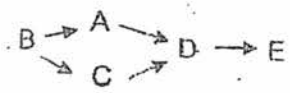
Answer Key

Section A

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

29ai). Either red or black, red and black
29aii) -2 < or equal (a) < 2
29b. Zone V. V has the most amount of sunlight for plant S to photosynthesize. Or V has more amount of light than the rest of the zones to photosynthesise / make food.
29c. Zone X.
29d. Zone Z is at a great depth where there is no light for plants to photosynthesize. Thus, there is little oxygen and the rate of respiration would be lower.

30a.



30b. Less sunlight for plant to photosynthesize / less photosynthesis, so population of B (plant) will decrease. Since A depends on B for food/ A eats B, population of A will decrease.

30c. D.
When D increases, D will feed on A and C.
Less A and C to feed on B.

31a. It grows upwards to obtain more/ most/ maximum sunlight for photosynthesis.
31b. They decompose/ break down the dead leaves into simple substances / mineral salts which are taken in /absorbed by the plants as mineral salts / returned to the soil as nutrients / fertilizers to be used by the plants.
(2nd part - need to link the use of the nutrients / fertilizers to be used by the plants)
31c. This behaviour helps Bird V to cool down as it loses heat to the water/liquid waste in the urine when the water evaporates. OR
Water in the urine gains heat from the bird V to evaporate so bird V loses heat and cools down.
Bird V loses more heat* to the water/liquid waste.
31d. J. It is lighter/ weighs less, and shorter/ smaller than L so that it can maneuver / squeeze/ fit itself better in the rainforest to hunt/ escape.
Or lighter as the branches can withstand its weight without breaking.
L. It has greater length so it is able to feed on animals on high trees.

L has a larger exposed surface area to lose more heat.

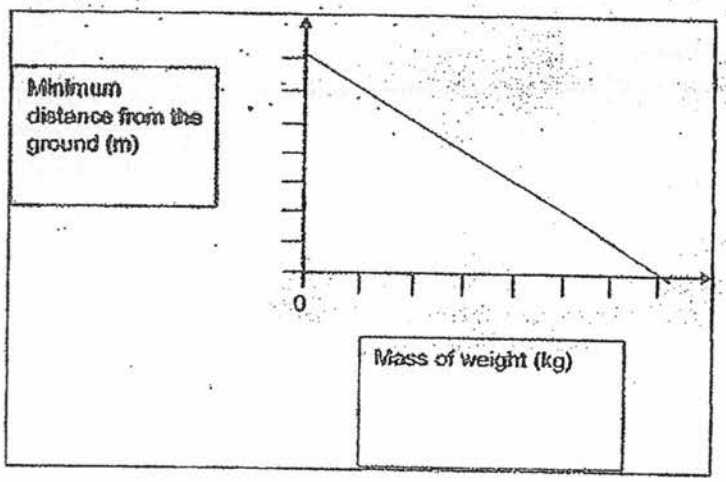
32(ai)Pollination
aii) Fly X will have pollen grains being transferred when it visits a male flower and some of them will drop onto the stigma of the female flower to pollinate it.
32(b) By animals / by birds.

33(a) Blood in C has more oxygen than in A.
Blood in C is oxygenated but not in A.
33(b) A

34(a) There is more water found in the undigested food leaving organ X in a diseased person than a normal person.
34(b) Large intestine .
It cannot absorb as much water from undigested food /
It reabsorbs less water from undigested food.

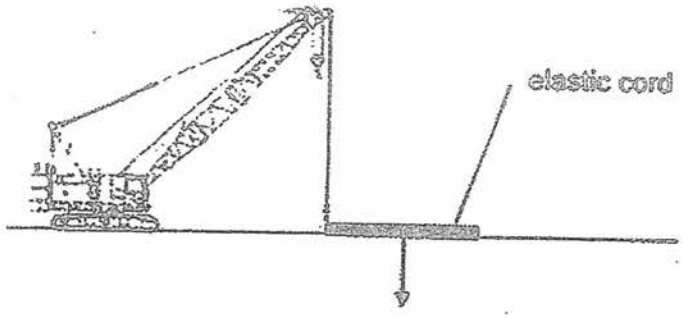
35(a) Gravitational potential energy > kinetic energy(+Gravitational potential energy)
35(b) Chemical potential energy
35(c)i Greater gravitational potential energy is converted to greater kinetic energy
35(c)ii All kinetic energy has been converted to sound energy and heat energy

36 (a)

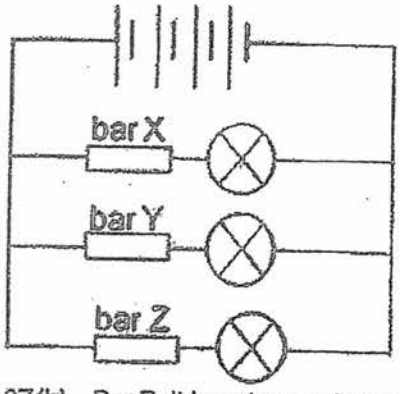


36(b) 140 kg. The person/weight would have reached the ground / cite data (0.5) and would cause head injury / injury.
140 kg.
The weight of the person is 140kg, he would hit the ground as the minimum distance from the ground reached is 0m, so he would have hit the ground / he might be injured.

36(c)



37(a) "G.F." gravitational force



37(b) Bar Z. It is not a conductor of electricity, which would prevent electrocution.

38(a) 1: Conduct experiment in a dark room so that there is no light from other sources detected by the light sensor.

2: Use a narrow light source / place the object on a stand so that all the light from the light source shines on the object only.

3: Place the object directly in front of the light sensor so that light sensor will only detect light passing through the object.

4. Lower the light source and the light sensor so that all the light from the light source shines on the object only.

5. Lower the light source so that all the light from the light source shines on the object only.

6. Lower the light sensor so that less/no light from the light source will be detected .

38(b) Object X as it allows most light to pass through and will not be able to cast the darkest shadow /will cast the lightest or faintest shadow .

39(ai) Plastic: 0°C

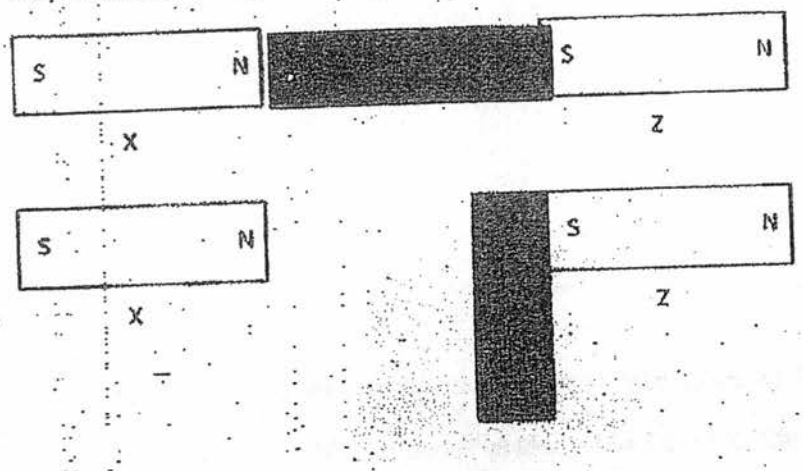
39(aii) The temperature of all objects eventually reach the temperature of their surroundings / As the surrounding air is 0°C, the blocks lose heat to the freezer or the surrounding air till it reaches 0°C. /
The plastic block loses heat to the freezer or the surrounding air until it reaches 0°C.

39(b) The temperature of liquid W decreases faster / more using the metal block than the plastic block showing that the metal block gained heat faster from liquid W than plastic as metal is a better conductor of heat than plastic.

40(a) Water becomes steam / hot water vapour when it boils. The steam comes into contact with and loses heat to the cooler buns, thus heating them up.
Or The boiling water heats up the surrounding air and the buns gain heat from the hot air. / buns gained heat from the hot water vapour.
Or Boiling water transfer heat to the wooden stand and then transfer it to the buns.

(40b) When the steam lose heat to the cooler buns, it condenses to form water droplets on the buns, increasing the mass and adding to the volume of the bun.

41



(b) The north pole of the strong magnet face the north pole of the bar magnet and repel each other ./
Like poles of the magnets are facing each other and repel each other.

END.