Name: _____ ( )

Class: Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL

SIMPLE IN VIRTUE

GOSPEL

STEADFAST IN DUTY

穆 纯 义 坚

Primary 6
Semestral Assessment 1

SCIENCE

BOOKLET A

10 May 2018

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

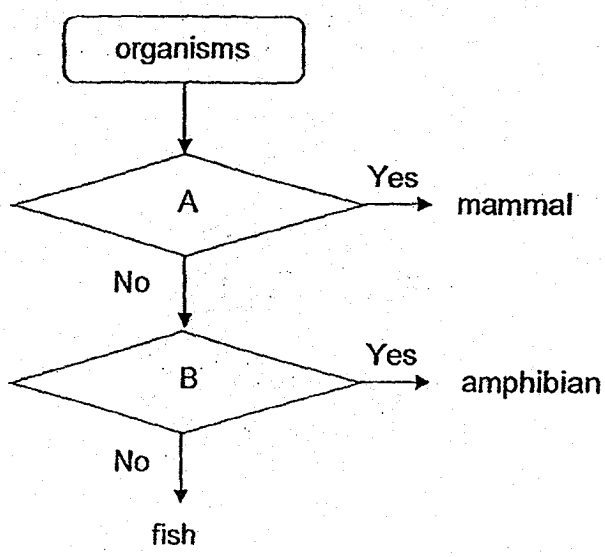
28 questions
56 marks

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

This booklet consists of 19 printed pages.

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. Study the chart below.



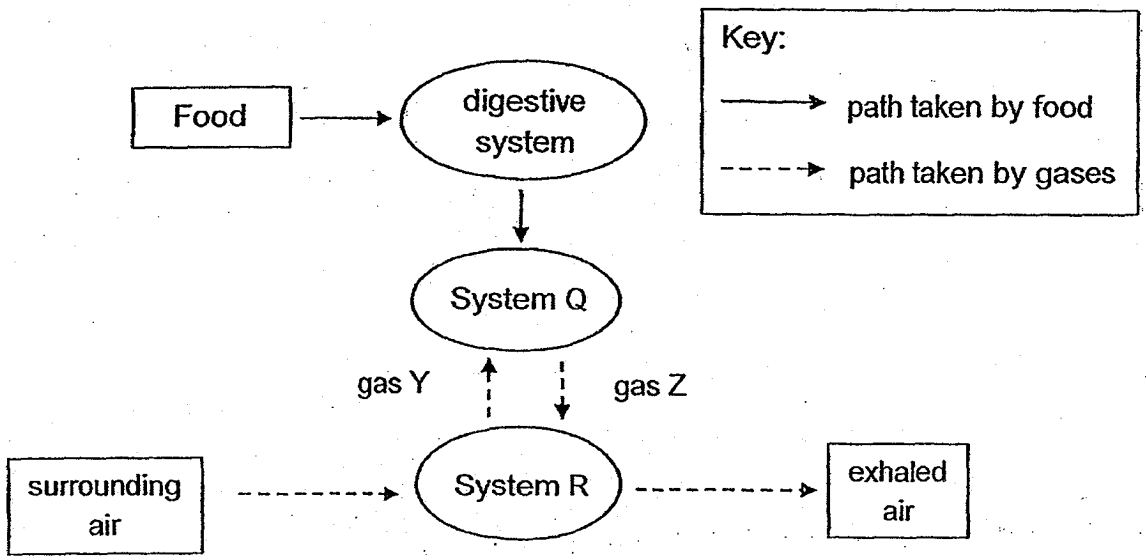
What one of the following correctly represents A and B?

	A	B
(1)	lays eggs	breathes through gills
(2)	gives birth to young	lives on land and in water
(3)	has fur as outer covering	has scales as outer covering
(4)	produces milk for its young	breathes through lungs only

2. Which one of the following shows correctly the characteristics of the cells?

	Leaf Cell	Muscle Cell	Root Hair Cell	Red Blood Cell
(1)	has chloroplast	has nucleus	has no cell wall	has no chloroplast
(2)	has no nucleus	has cell membrane	has chloroplast	has no cell wall
(3)	has cell wall	has no cell wall	has no chloroplast	has no nucleus
(4)	has cell membrane	has no chloroplast	has no cell membrane	has cell wall

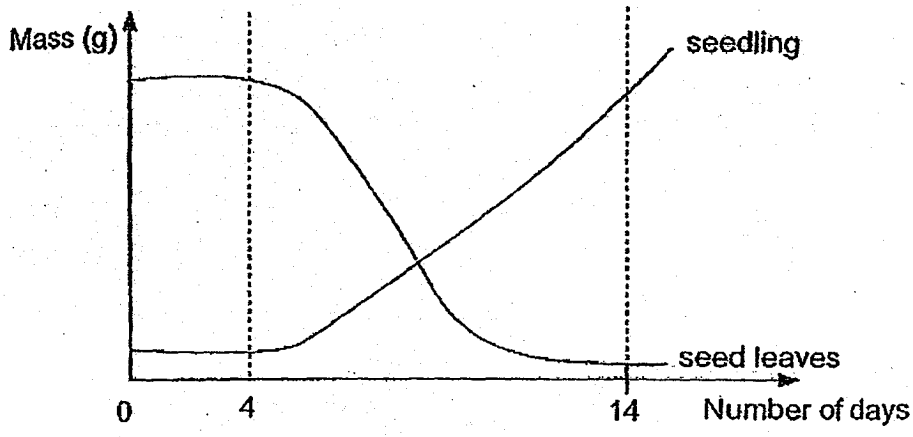
3. The diagram below shows how the human systems work together.



Which systems do Q and R represent and what is gas Y and Z?

	System Q	System R	Gas Y	Gas Z
(1)	circulatory	respiratory	oxygen	carbon dioxide
(2)	circulatory	respiratory	carbon dioxide	oxygen
(3)	respiratory	circulatory	oxygen	carbon dioxide
(4)	respiratory	circulatory	carbon dioxide	oxygen

4. Study the graph below.

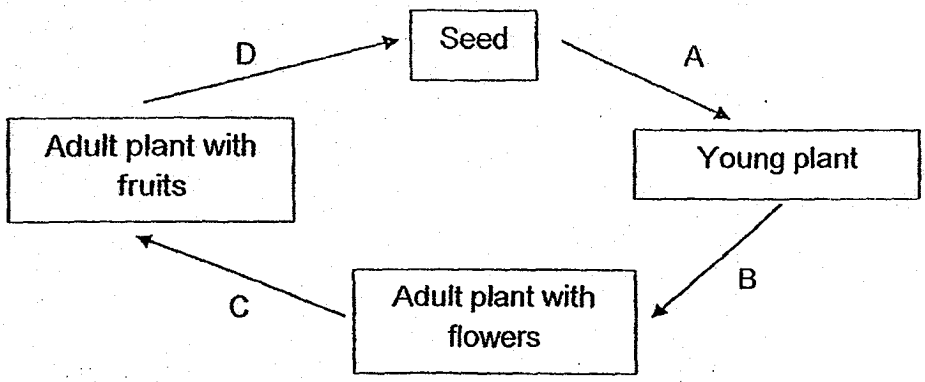


Based on the graph, which of the following statement(s) is / are true?

A At day 4, the seed started germinating.
B At day 4, the seedling was able to make its own food.
C At day 14, the seeding does not depend on the seed leaves for food.

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

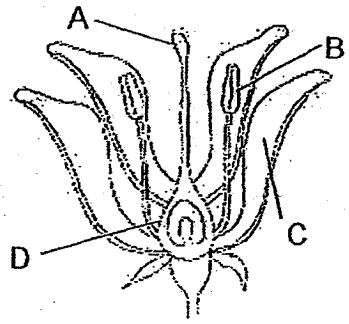
5. The diagram below shows the life cycle of a flowering plant.



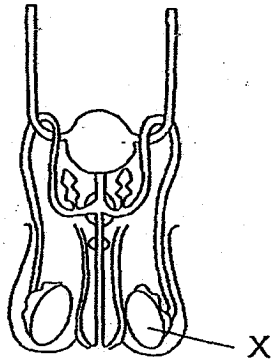
Which letters A, B, C or D correctly represent the processes of dispersal and fertilisation?

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

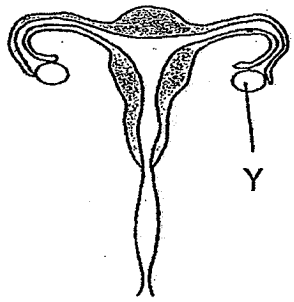
6. The diagram below shows the reproductive systems in plants and humans.



plant reproductive system



male reproductive system



female reproductive system

Which parts A, B, C or D have the same functions as X and Y?

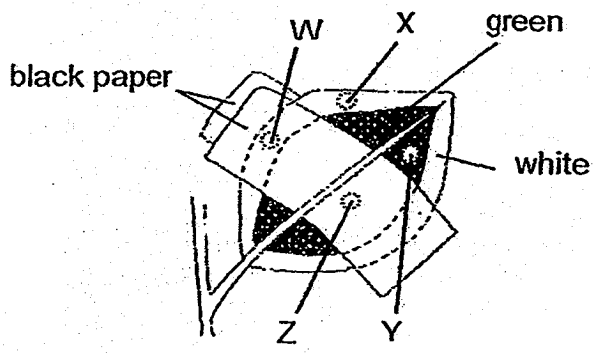
	X	Y
(1)	A	B
(2)	A	C
(3)	B	D
(4)	C	D

7. Which of the following statements are true?

A Plants produce oxygen during photosynthesis.
B Plants produce carbon dioxide during photosynthesis.
C Chlorophyll is needed for photosynthesis to take place.
D Respiration takes place only at night while photosynthesis takes place only in the day.

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

8. Study the diagram below.



The leaf did not contain any starch at the start of the experiment. The white portion of the leaf does not contain any chlorophyll. The plant was then placed under bright sunlight for four hours. Four discs W, X, Y and Z were punched out from the leaf in the positions shown above. The discs were tested for starch using iodine solution.

Key: ● blue-black
○ yellowish-brown

Which one of the following shows the correct colour change observed?

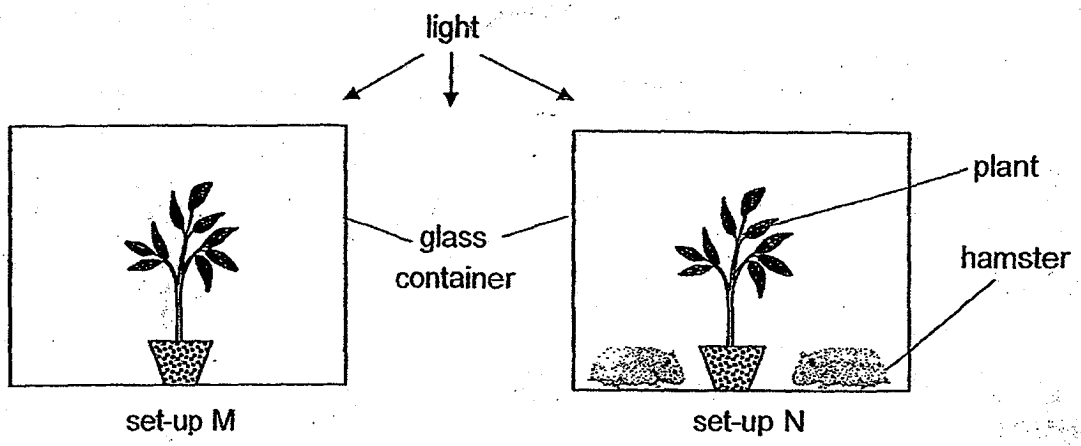
(1) ○ ○ ● ● W X Y Z

(2) ● ● ○ ● W X Y Z

(3) ○ ○ ● ○ W X Y Z

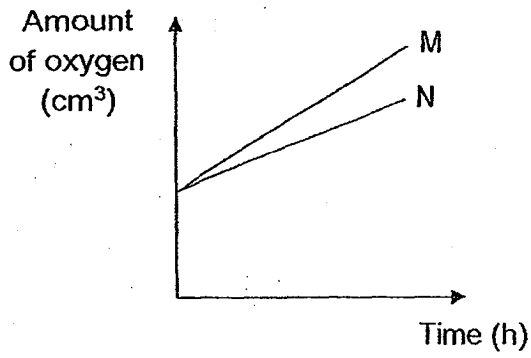
(4) ○ ● ● ○ W X Y Z

9. Study the diagram below.

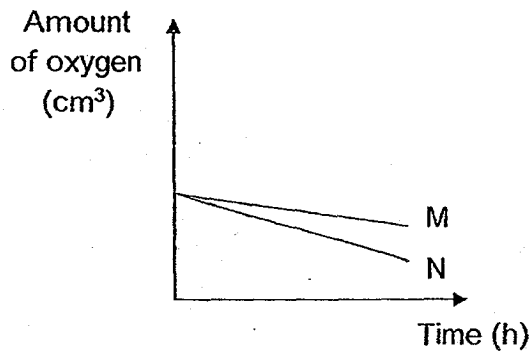


Which of the following graphs shows the changes in the amount of oxygen in the glass containers after 3 hours?

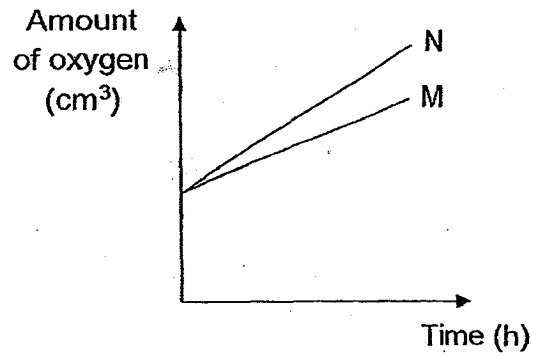
(1)



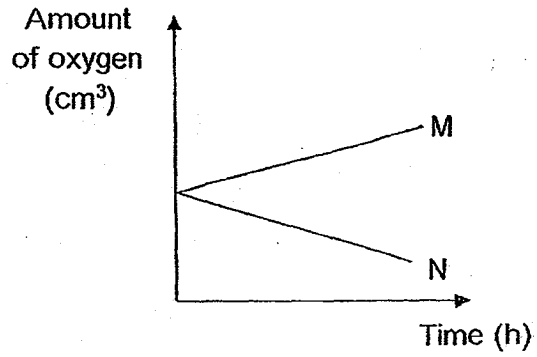
(2)



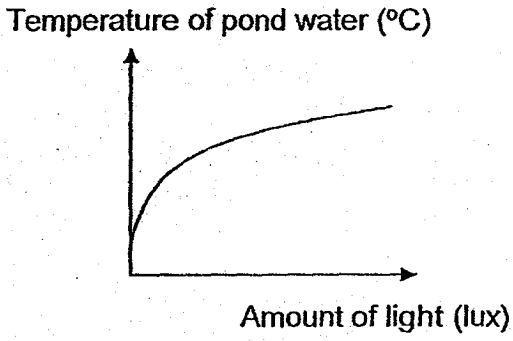
(3)



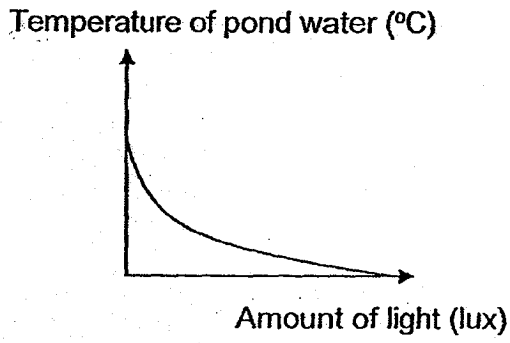
(4)



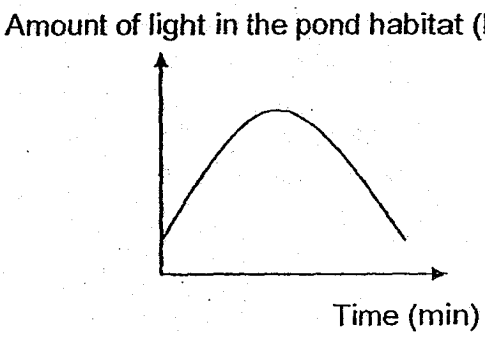
10. Rahim observed a pond habitat from 8 am to 12 pm on a sunny day. Based on his observations, which of the following graph(s) could have been plotted by Rahim?



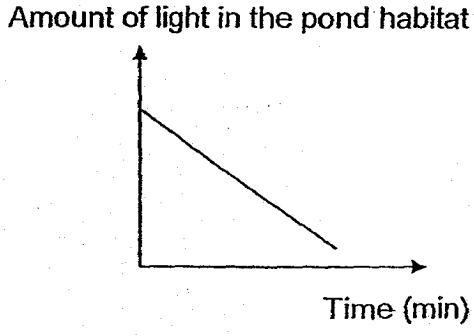
Graph A



Graph B



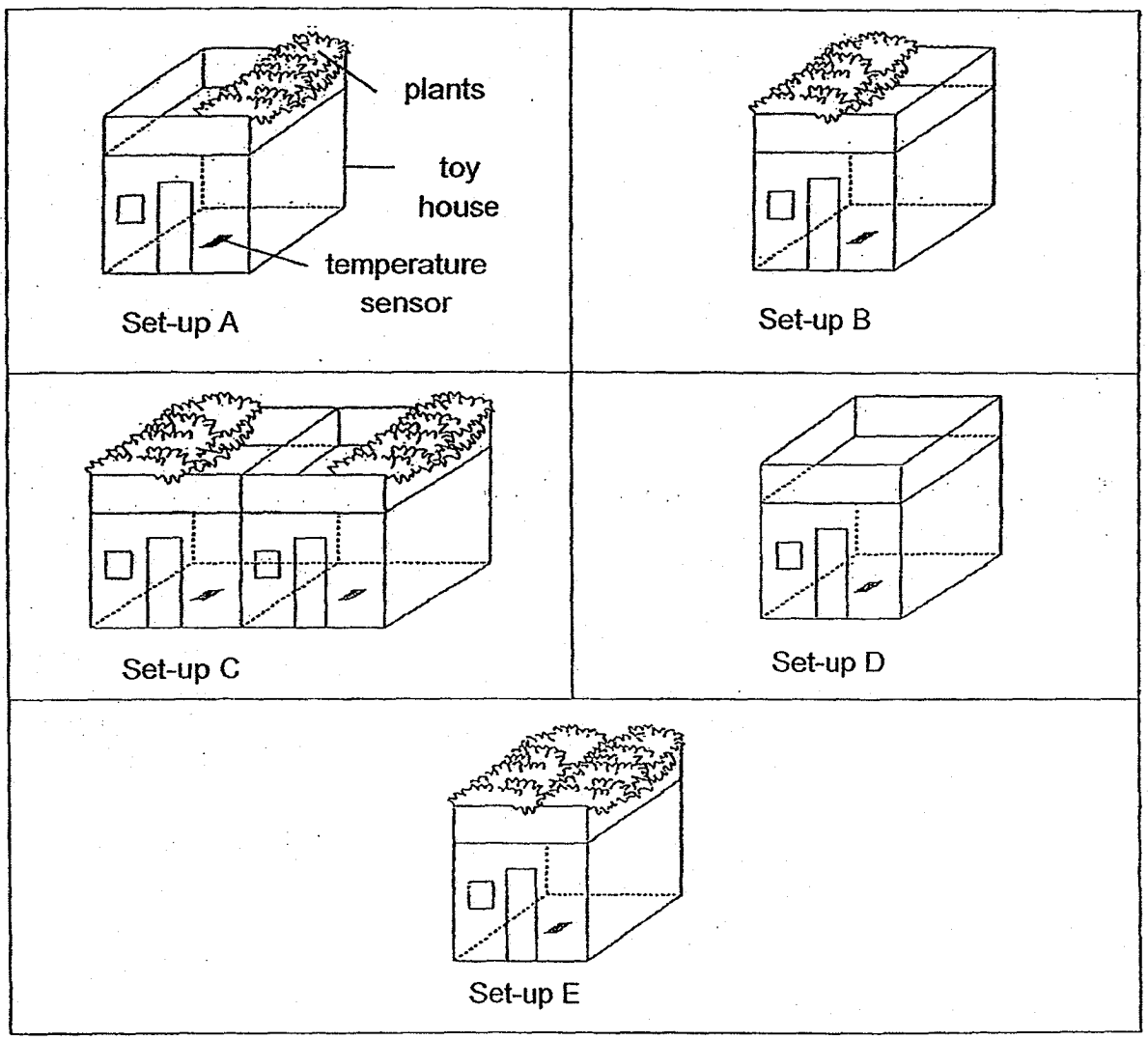
Graph C



Graph D

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

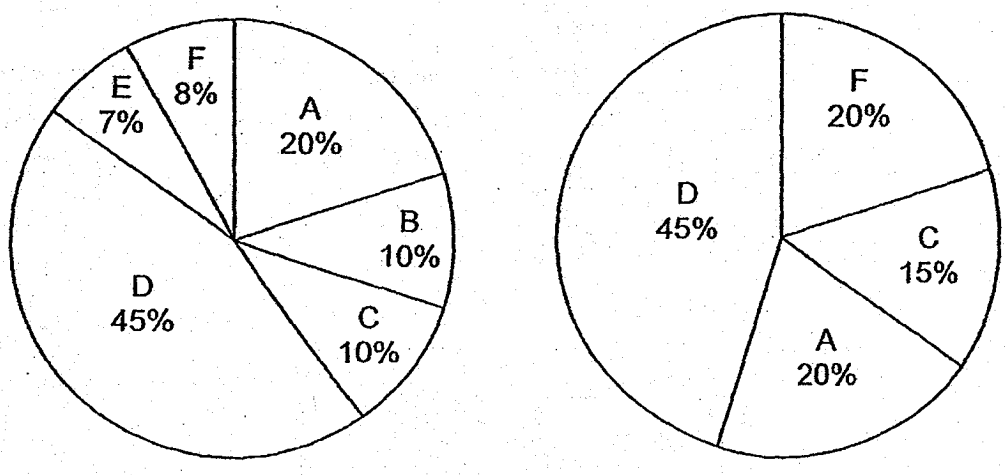
11. Timmy wanted to find out if the presence of plants on the roof top would affect the temperature inside a toy house.



Which two of the above set-ups should he use to conduct the experiment?

(1) Set-ups A and B
(2) Set-ups A and D
(3) Set-ups C and E
(4) Set-ups D and E

12. The pie charts below show the different populations of organisms found in 2 different communities X and Y.



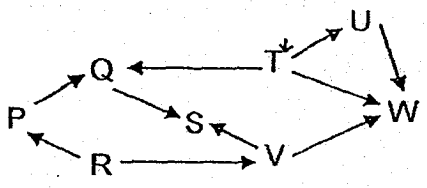
community X community Y

Which of the following statements about communities X and Y are true?

A The number of organism D in both communities are the same.
B The percentage of organism A in both communities are the same.
C There are more populations of organisms in community X than in Y.
D The total number of organisms in community X is greater than in community Y.

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

13. Study the food web below.



Which one of the following is correct?

	Prey	Predator	Both Prey and Predator
(1)	R and T	S and W	P, Q, U and V
(2)	S and W	R and T	P, Q, U and V
(3)	Q, U and V	R and T	P
(4)	P, U and V	S and W	Q

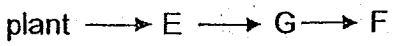
14. Meena carried out four experiments to find out the food relationships between a plant and organisms E, F and G. After 5 days, the results of her experiment are shown in the table below.

Experiment	Organisms placed together	No. of organisms	
		at the start	at the end
1	plant	30	5
	E	20	20
	G	10	5
2	plant	30	30
	G	10	5
3	plant	30	5
	E	20	10
	F	10	10
4	plant	30	20
	F	10	5
	G	10	10

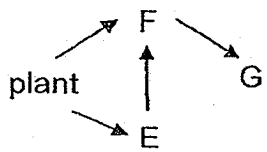
Some dead animal G were found in experiments 1 and 2.

Based on the results of Meena's experiments, which of the following shows the possible food relationships among the organisms in the experiment?

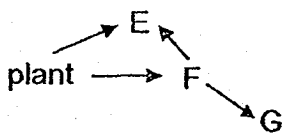
(1)



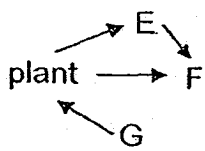
(2)



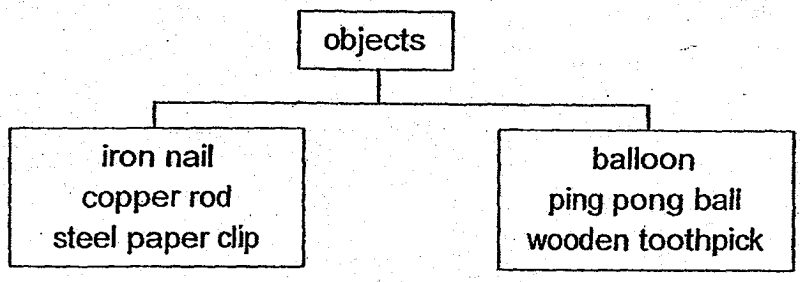
(3)



(4)



15. Study the classification table below.

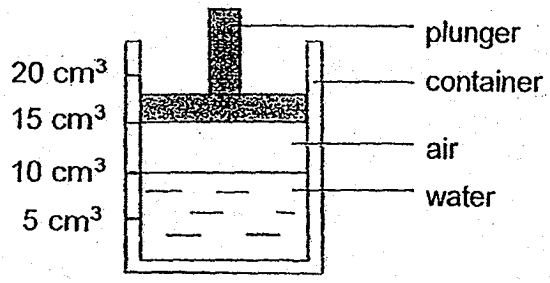


Which of the following properties can be used to classify the objects in the two groups shown above?

A Heat conductivity
B Float or sink in water
C Magnetic or non-magnetic material

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

16. Study the diagram below.

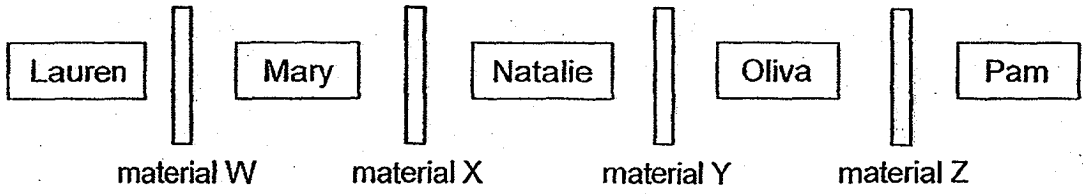


Which of the following statement(s) is/are **false** about what would be observed when the plunger was pushed downwards as far as possible without any air or water escaping?

A The volume of air would be lesser than 5 cm^3.
B The total volume of air and water will be 15 cm^3.
C The volume of water would remain the same at 10 cm^3.
D All the air will dissolve in the water and the plunger will be at the 10 cm^3 mark.

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

17. Five girls, Lauren, Mary, Natalie, Oliva and Pam, were each standing at the positions shown below. They were separated by materials W, X, Y and Z.



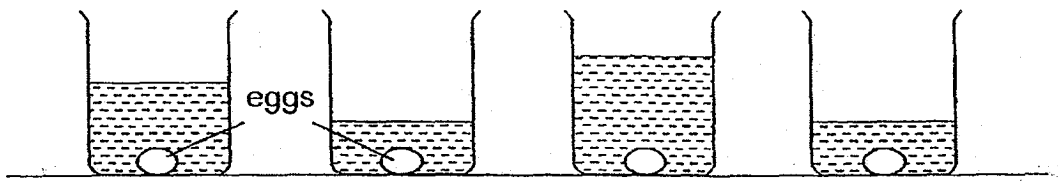
The girls made the following statements:

Pam: I can only see Oliva clearly.
Natalie: Both Mary and Lauren looks blurry to me.
Oliva: I cannot see Natalie at all but I can see Pam clearly.
Mary: I can see Lauren clearly but Natalie looks blurry to me.
Lauren: Mary can be clearly seen but Natalie looks blurry to me.

Which one of the following statements about the materials is most likely **false**?

(1) Material Y does not allow light to pass through.
(2) Material W allows more light to pass through than Z.
(3) Material Z allows more light to pass through than Material X.
(4) Material X allows lesser light to pass through than material W.

18. Four similar eggs were placed into four identical beakers containing different amounts of water at different temperatures as shown below. All the eggs were taken out from the beakers after 5 minutes and cracked open to see how well-cooked each egg was.



egg K	egg L	egg M	egg N
150 ml of water at 80 °C	100 ml of water at 50 °C	200 ml of water at 80 °C	100 ml of water at 80 °C

Which one of the following shows the correct arrangement of the eggs from the one that was least cooked to the one that was most cooked?

	Most cooked → **Least cooked**			
(1)	M	K	N	L
(2)	L	N	K	M
(3)	M	N	K	L
(4)	L	M	N	K

19. Ling wanted to find out if the thickness of the walls of cups used would affect the time taken for hot coffee to cool down.

Which one of the following variables should she change in her experiment?

(1) Material of the cups
(2) Amount of coffee in each cup
(3) Thickness of the walls of the cups
(4) Temperature of the coffee at the start of the experiment.

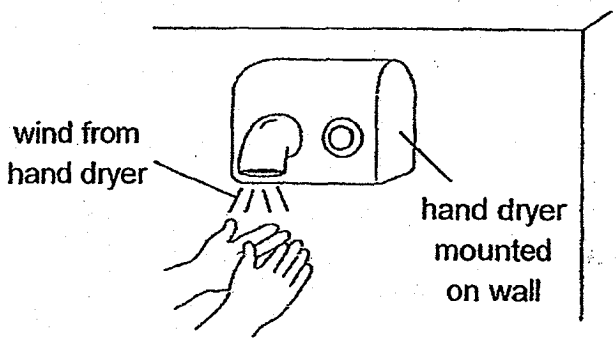
20. The table below shows the melting and boiling points of two substances A and B.

Substance	Melting point (°C)	Boiling Point (°C)
A	63	267
B	15	84

Which one of the following shows the correct state(s) of substances A and B at 90 °C?

	A	B
(1)	solid	liquid
(2)	solid	gas
(3)	liquid	gas
(4)	liquid	liquid

21. Study the diagram below.

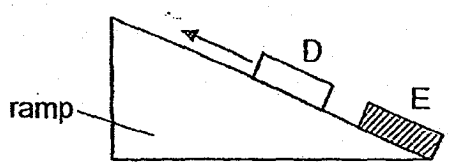


Which of the following action(s) would make the hands dry faster?

A Decrease the speed of the wind.
B Increase the temperature of the wind.
C Increase the exposed surface area of the hands to the hand dryer.
D Shaking off some water from the hands before placing them under the hand dryer.

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

22. Study the diagram below. Magnet E was fixed at the foot of the ramp. When another magnet D was placed on the ramp, it moved up the ramp.

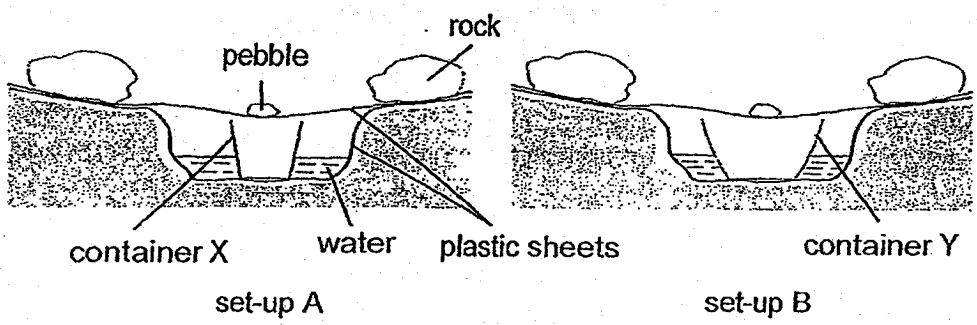


Which forces acted on magnet D when it moved up the ramp?

A frictional force
B magnetic force
C gravitational force

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

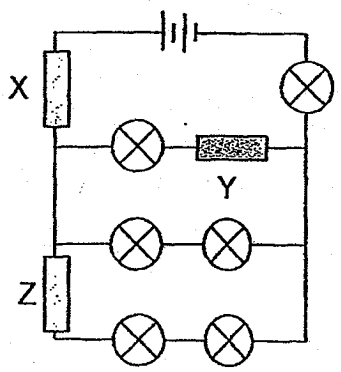
23. Ken dug two holes of similar sizes in the ground during the day and set up the following experiments as shown below. He used similar rocks and pebbles and poured the same amount of water into the 2 holes.



Which one of the following best describes and explains what Ken would observe after five hours?

	Observation	Explanation
(1)	The amount of water collected in container X is lesser than container Y.	More condensation will occur in set-up Y as container Y is bigger.
(2)	The amount of water collected in container X is greater than container Y.	More condensation will occur in set-up X as there is more surface area for evaporation of water to occur.
(3)	The amount of water collected in both containers will be the same.	The amount of water in the hole is the same so the rate of evaporation and condensation will be the same.
(4)	There will be no water collected in both containers.	No condensation can occur as the surrounding temperature is too high.

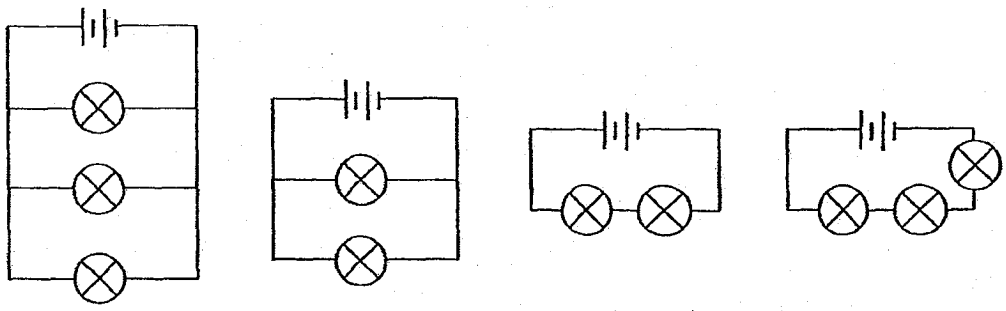
24. Three rods X, Y and Z made of different materials were connected in a circuit shown below.



It was observed that only three bulbs lit up. Which of the following could be possible materials of X, Y and Z?

	X	Y	Z
(1)	wood	steel	glass
(2)	glass	iron	steel
(3)	steel	iron	wood
(4)	steel	glass	wood

25. The diagram below shows four electrical circuits.

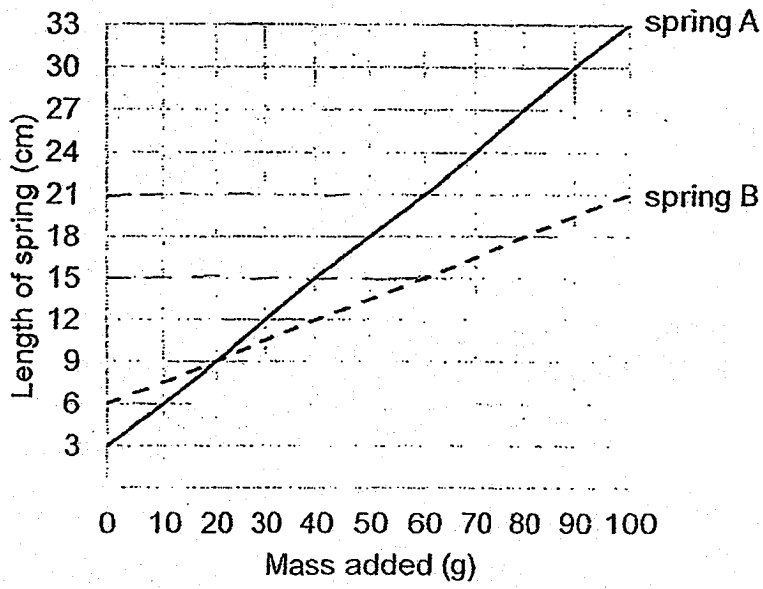


circuit A circuit B circuit C circuit D

In which circuits would the bulbs light up with equal brightness?

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

26. The graph below shows the changes in the length of spring A and B when different amount of masses are added.



Based on the above results, which of the following statements correctly describe spring A and B?

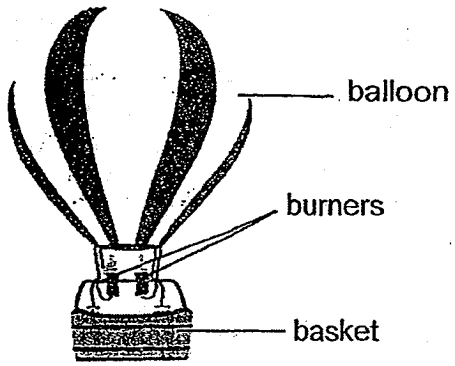
A Spring A has a greater elastic limit than spring B.
B Spring B is longer than spring A when no mass is added.
C Both springs extended by 9 cm when a mass of 20 g was added.
D Spring A extended more than spring B when the same load was added.

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

27. Which one of the following statements about energy is **false**?

(1) Coal, oil, natural gas and wood are examples of fuels.
(2) A compressed spring possesses elastic potential energy.
(3) Sun, wind, running water and fuels are sources of energy.
(4) Solar panels convert heat energy from the Sun into electrical energy.

28. The diagram below shows a hot air balloon floating in the air after the burners were turned on.



Which of the following best represents the main energy conversion that took place from the time the burners were turned on?

(1) heat energy → gravitational potential energy → kinetic energy

(2) heat energy → elastic potential energy → gravitational potential energy

(3) chemical potential energy → kinetic energy → heat energy → gravitational potential energy

(4) chemical potential energy → heat energy → kinetic energy → gravitational potential energy

~End of Booklet A~~

Name : _____ ( )

Class : Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL

SIMPLE IN VIRTUE

STEADFAST IN DUTY

德 纯 义 坚

Primary 6
Semestral Assessment 1

SCIENCE

BOOKLET B

10 May 2018

Booklet A	56
Booklet B	44
Total	100

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

13 questions
44 marks

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

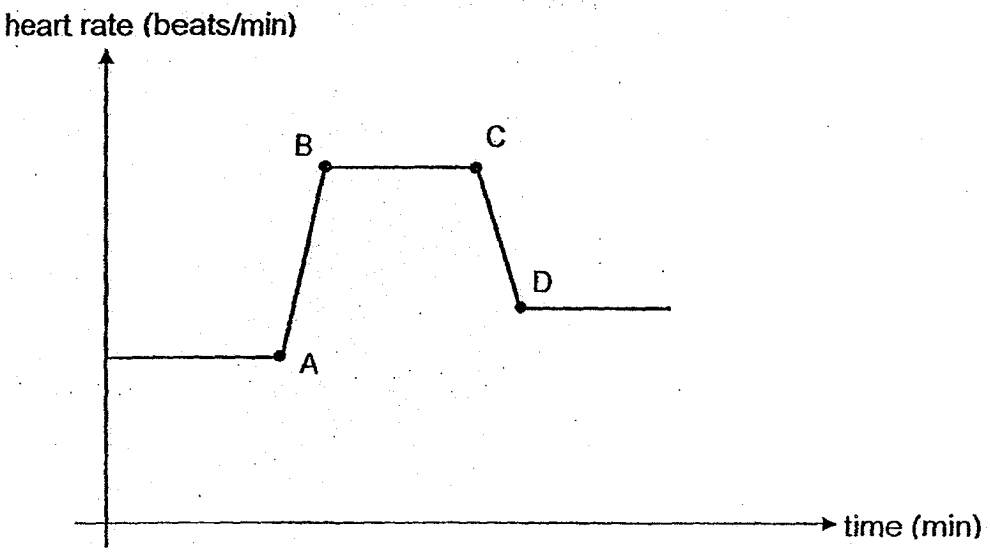
This paper consists of 17 printed pages.

_____

Parent's Signature/Date

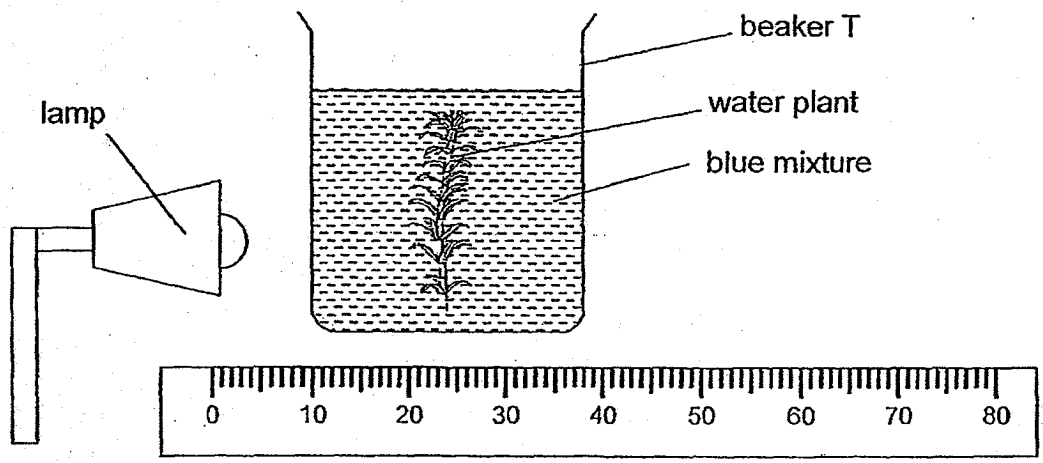
Section B (44 marks)
For questions 29 to 41, write your answers in this booklet.
The number of marks available is shown in the brackets at the end of each question or part question.

29. The graph below show Jac's heart rate during different activities.



At which point A, B, C or D did Jac start exercising? Explain your choice [2]

30. Study the diagram below. A blue liquid was added to the water in beaker T. The blue mixture turned green to indicate that photosynthesis had taken place. Jannah recorded the time taken for the blue mixture to turn green. She repeated the experiment with beaker U and V, each containing different number of water plants.



The results were recorded in the table below.

Beakers	Distance from lamp (units)	Time taken for blue mixture to turn green (s)
T	10	8
U	10	30
V	10	17

(a) Based on the results above, which beaker has the most number of water plants? Explain why. [1]

_____

_____

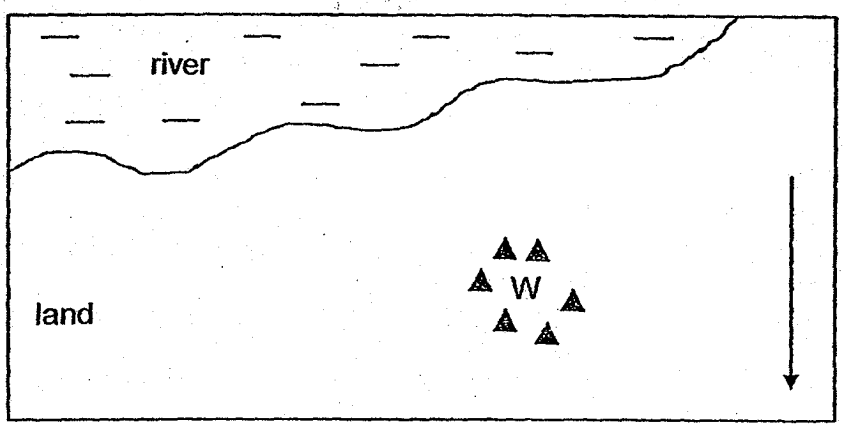
(b) Besides using the blue liquid, state another method to measure the rate of photosynthesis in each of the beakers. [1]

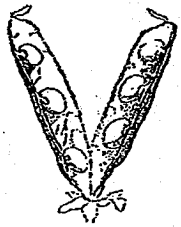
_____

(c) Jannah wanted to find out how the amount of light would affect the rate of photosynthesis. List one change she should make to the set-up above. [1]

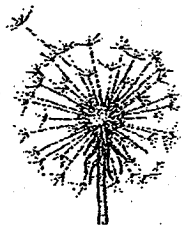
_____

31. Study the diagram below.





fruit X



fruit Y

(a) Which fruit X or Y is from plant W? Give a reason for your answer. [1]

_____

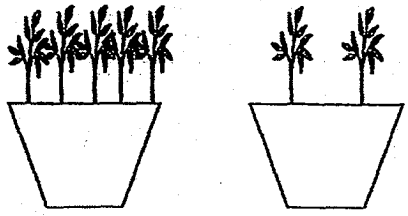
_____

(b) Malcom says that it is a disadvantage for seeds to be dispersed near the parent plant. Do you agree? Why? [1]

_____

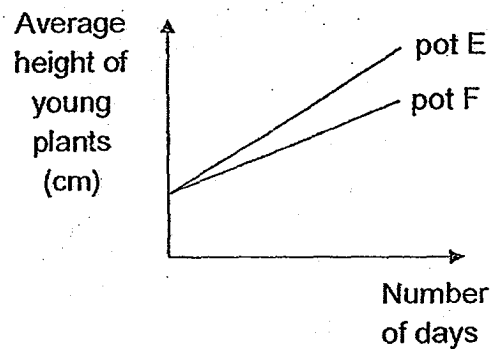
_____

Malcom wants to find out how the distance between young plants affect their growth. He prepared two similar pots with an equal amount of soil as shown in the diagram below. Both pots were placed near the window and given the same amount of water daily.

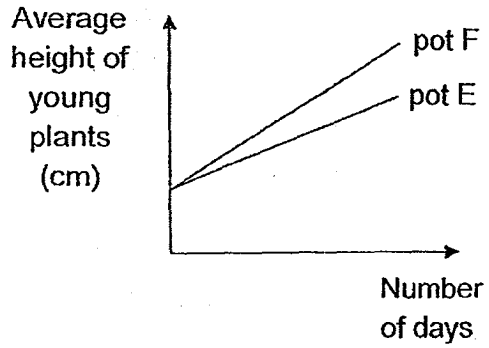


(c) Which one of the following graphs K or L would show the results of the experiment? Explain your answer. [2]

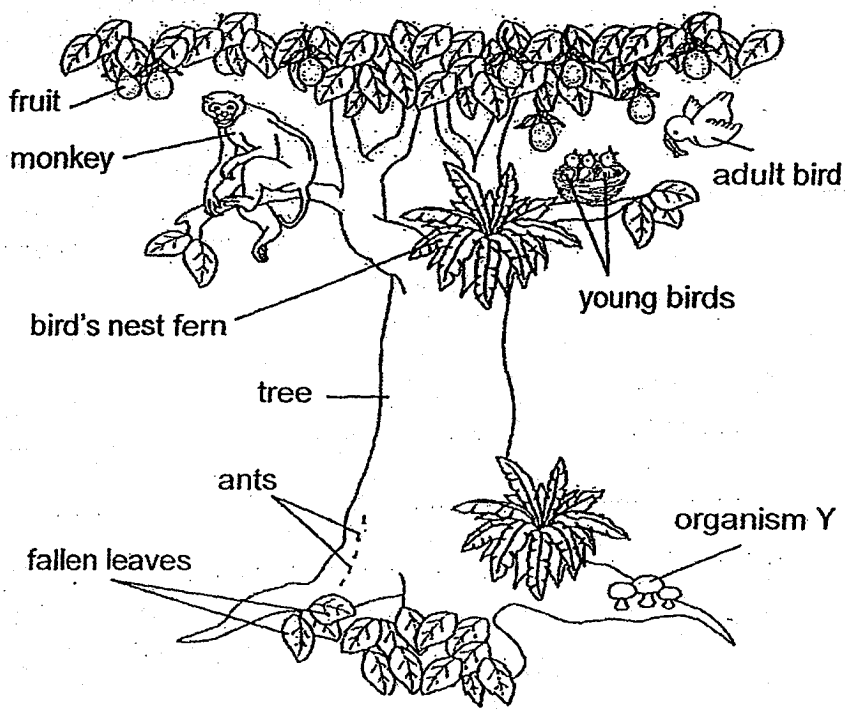
graph K



graph L



32. Study the diagram below.



(a) Based on the diagram above, name the habitat. [1]

_____

(b) Describe the role of organism Y in the habitat. [1]

_____

_____

Peter made a record of all the different populations of living things in the habitat shown above.

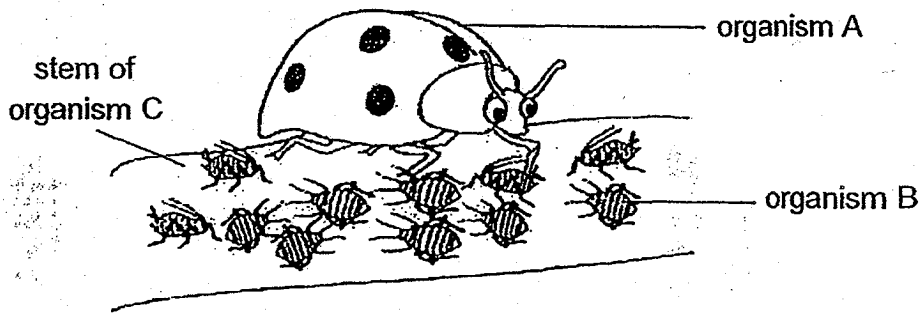
Type of organism	Population size
ants	5
birds	4
organism Y	3
fallen leaves	14
bird's nest fern	2

(c) Do you agree with Peter's observations? Explain your answer. [1]

_____

_____

33. The diagram below shows organism A feeding on organism B in a garden. Organism B feeds on the stem of organism C.



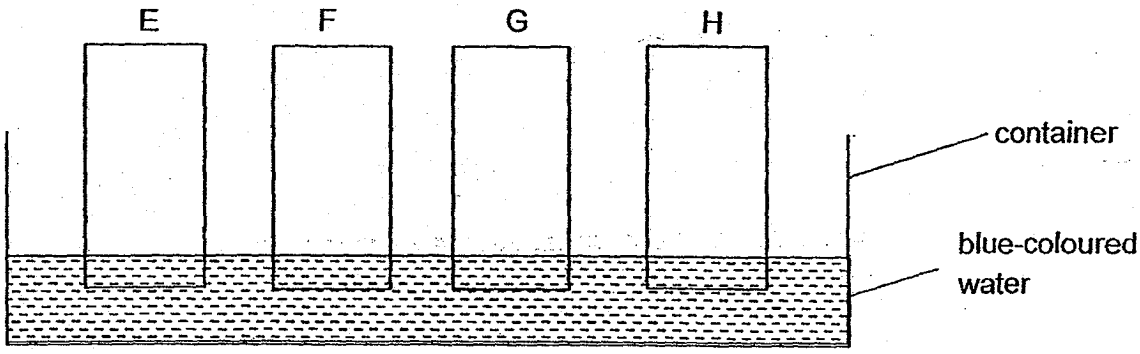
(a) Based on the information above, complete the food chain below. [1]

(b) Other than showing the food relationship between the organisms above, what else does the food chain in (a) show? [1]

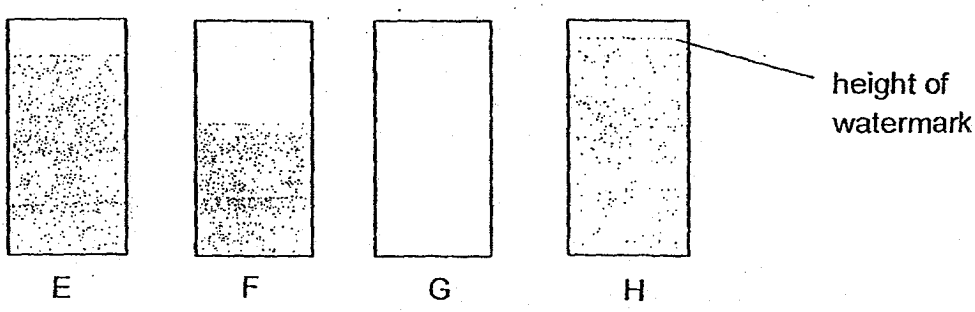
(c) Organism T feeds on organism A. Explain how introducing some organism T into the garden might affect the population of organism C. [2]

(d) Organism T also feeds on another organism S that can also be found in the same garden. Organism S feeds on the nectar found in the flowers of organism C. Explain why the introduction of organism T into the garden might affect the reproduction of organism C. [1]

34. Four strips of the same size, made of different materials E, F, G and H were placed into a container of blue-coloured water as shown below.



After 30 minutes, the strips were taken out and the height of the watermark on each of the four strips is shown in the diagram below.



Based on the results shown above, which material E, F, G or H is most suitable to be made into a raincoat? Explain your answer. [2]

35. Lucas filled a 500 ml container with large identical balls as shown in diagram A below.

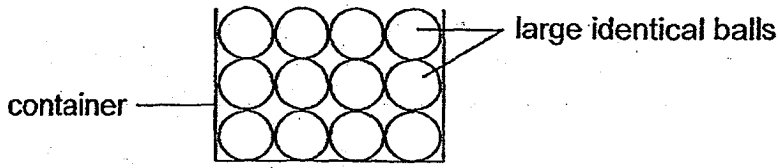


diagram A

(a) He noted that he was only able to pour 40 ml of water into the container filled with balls without the water overflowing. Give a reason for his observation. [2]

(b) He then repeated his experiment using the same 500 ml container but with balls of different sizes as shown in diagrams B and C below.

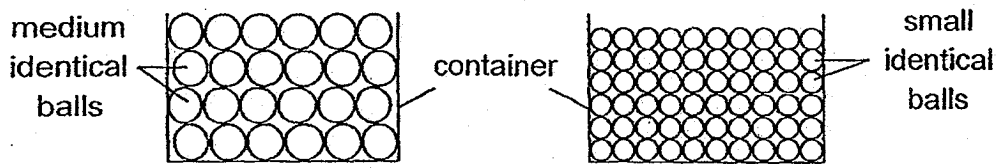
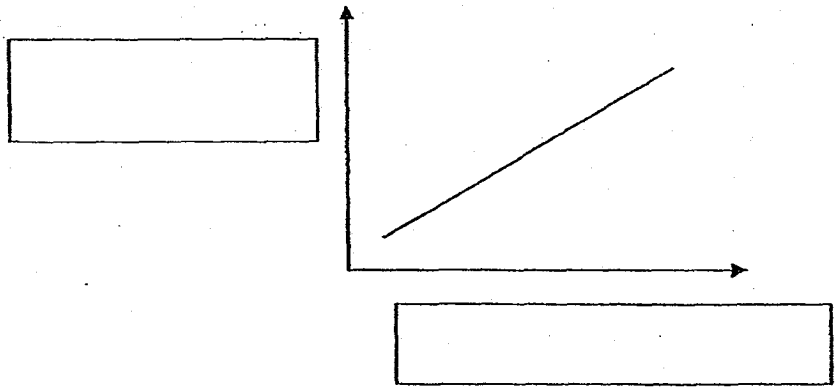


diagram B diagram C

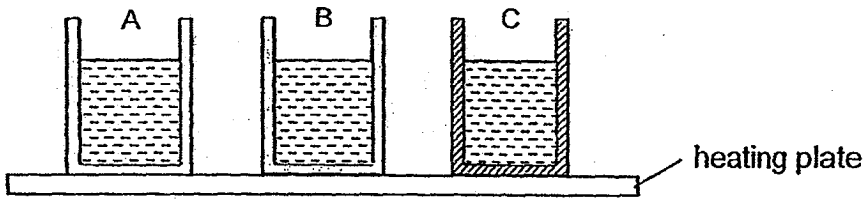
His results are recorded in the table below.

Size of balls	Maximum amount of water added (ml)
Large	40
Medium	30
small	20

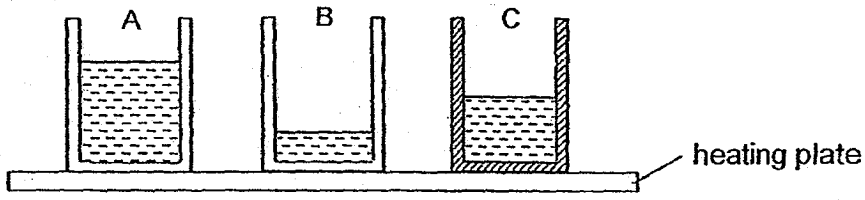
The line graph below shows the relationship between the **size of the ball** and the **maximum amount of water that can be added** into the container. Label the axes in the boxes provided. [1]



36. The diagram below shows three containers of the same size made of different materials A, B and C. Each container has the same amount of water. The containers are placed on a heating plate.



After 10 minutes, the amount of water left in the containers was observed.

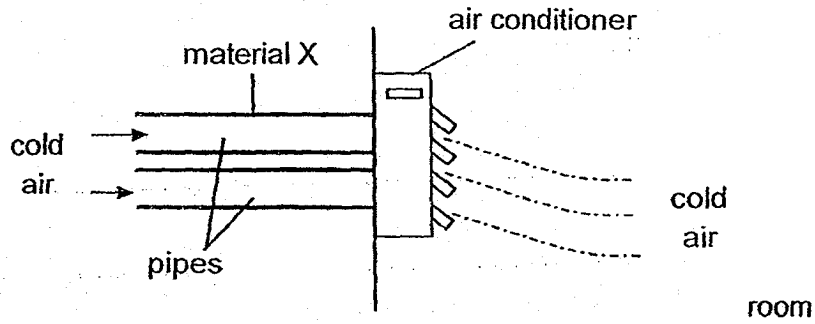


(a) Which container is the best conductor of heat? Explain your answer. [1]

_____

_____

Cold air from huge air conditioners in a building is circulated into a room using pipes. The pipes are covered with a layer of material X.

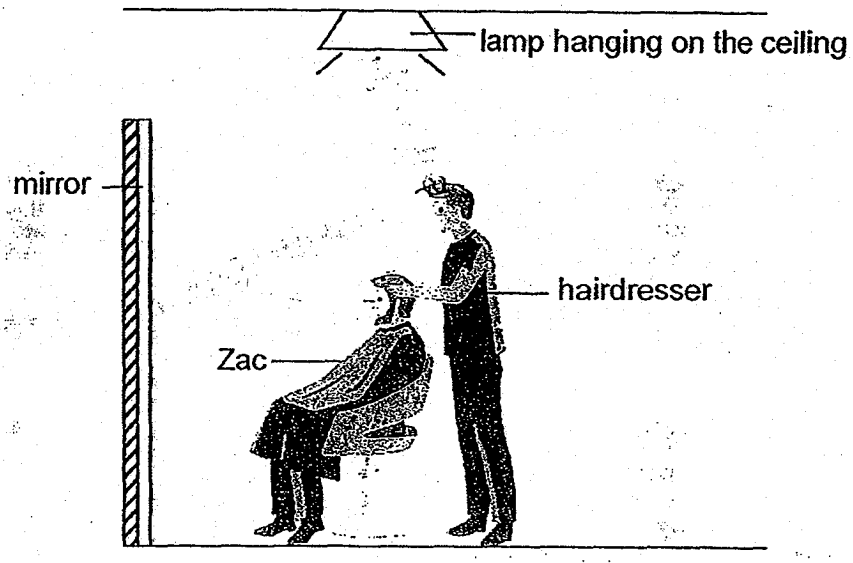


(b) Which material A, B or C should be used as material X to cover the pipes? [2]
Explain your answer.

_____

_____

37. Study the diagram below.

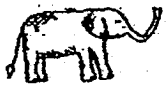


(a) Draw light rays in the diagram above to show how Zac is able to see the face of the hairdresser without turning his head around. [1]

(b) State the property of light that enables Zac to see the hairdresser without turning his head around. [1]

(c) "Shadows can only be formed during the day but not during the night."
Do you agree with this statement? Explain why. [1]

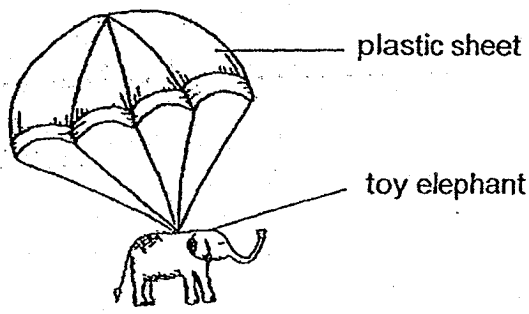
38. A toy elephant shown below was dropped from a height of 2 m. It took 2 seconds to land on the ground.


toy elephant

(a) What is / are the force(s) acting on the toy elephant as it was dropped? [1]

_____

A plastic sheet of 100 cm^2 was then attached to the toy elephant as shown in the diagram below. The toy was then dropped from the same height. It took 5 seconds for the toy to land on the ground.



The experiment was repeated using plastic sheets of different sizes and the results were recorded in the table below.

Size of plastic sheet (cm^2)	Time taken to land (s)
100	5
225	8
400	12

(b) What is the relationship between the size of plastic sheet and the time taken for the toy to land on the ground? [1]

_____

_____

(c) Why did the toy elephant take a longer time to land on the ground when a plastic sheet was attached to it? [1]

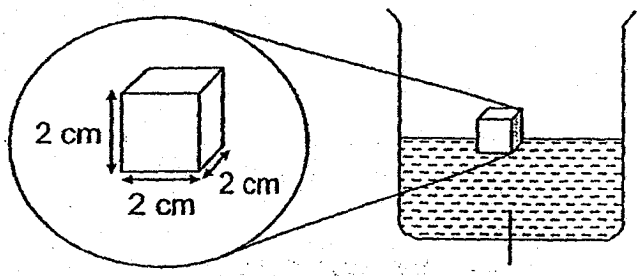
_____

_____

(d) Will the time taken for the toy to land be faster, slower or remain the same, when some holes were made onto the plastic sheets? Explain your answer. [1]

(e) What changes can be made to the above set-up to find out how the mass of the toy affects the time taken for the toy to land on the ground? [1]

39. Sumitra placed ice cube A into a beaker of hot water.



enlarged view of ice cube A

beaker of hot water

She recorded the time it took for ice cube A to melt completely. She then repeated the experiment with three ice cubes of different sizes B, C and D. The table below shows her results.

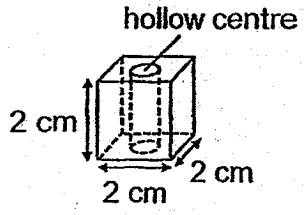
Ice cube	Size of ice cube (cm^3)	Time taken for ice cube to melt completely (s)
A	2 cm x 2 cm x 2 cm	60
B	3 cm x 3 cm x 3 cm	120
C	4 cm x 4 cm x 4 cm	180
D	5 cm x 5 cm x 5 cm	240

(a) What was Sumitra trying to find out? [1]

(b) Other than the amount of water used in the **beaker**, state another variable that Sumitra must keep constant to ensure a fair test. [1]

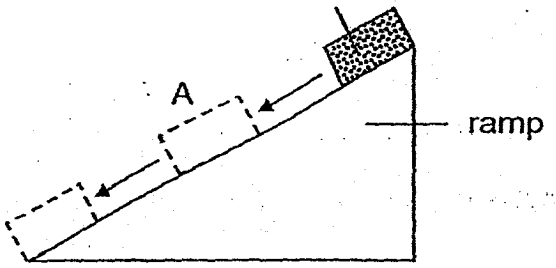
(c) What can Sumitra do to improve the reliability of her results? [1]

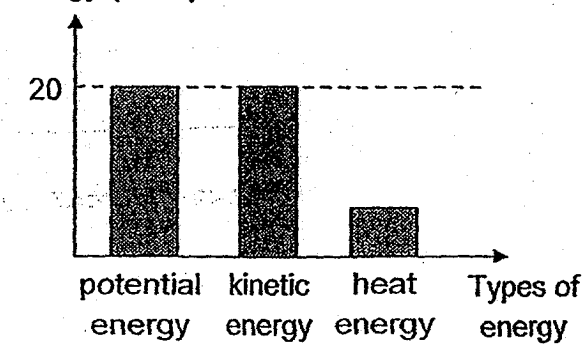
Sumitra decided to use ice cube E shown below to conduct her experiment.



(d) Would ice cube E take a shorter, longer or the same amount of time to melt completely as **compared** to ice cube A? Give a reason for your answer. [1]

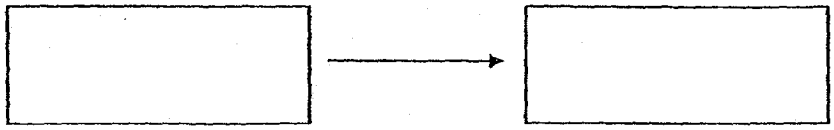
40. A metal block was allowed to slide down a ramp after it was released at the top of the ramp as shown below. Graph 1 below shows the amount of different types of energy the block had at point A.





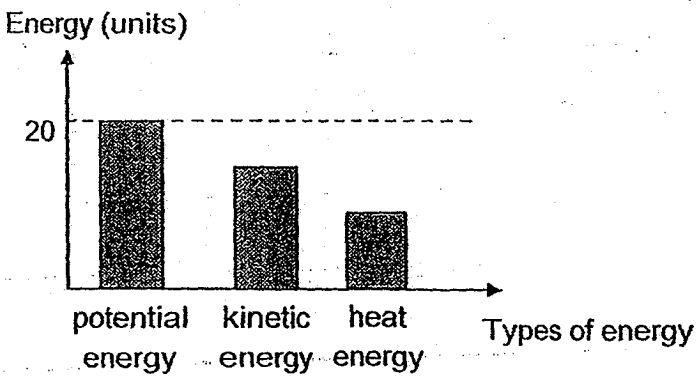
graph 1

(a) State the main energy conversion that occurs when the metal block was sliding down the ramp. [1]



at the top of the ramp block sliding down

(b) The experiment was repeated using a ramp which has a rougher surface. Graph 2 below shows the results of the experiment.



graph 2

Comparing graphs 1 and 2, what can be concluded about the speed of the block when it was sliding down the rougher ramp? [1]

_____

_____

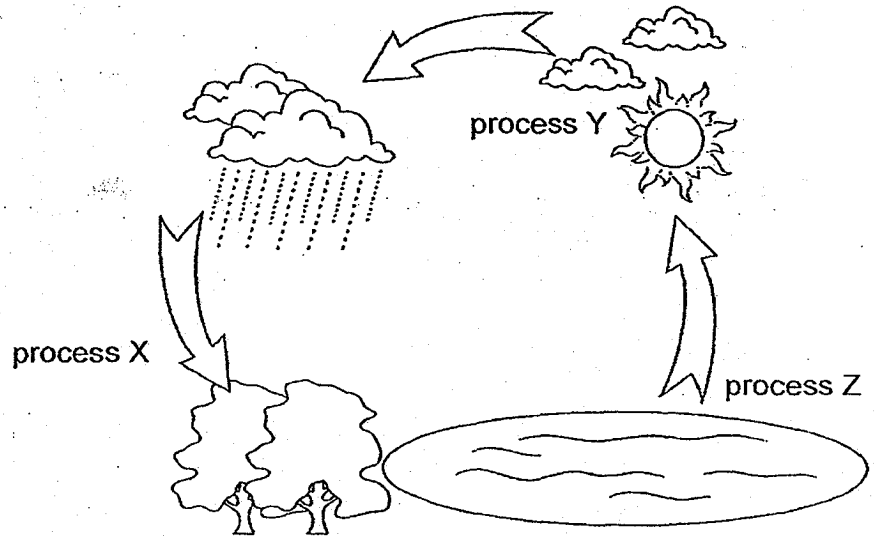
(c) Why was there a greater amount of heat energy at point A when the block was sliding down the rougher ramp? [1]

_____

_____

_____

41. The diagram below shows the continuous movement of water in the water cycle.



(a) Name processes Y and Z. [2]

Process Y : _____

Process Z : _____

(b) Why is the formation of clouds important in the water cycle? [1]

_____

_____

(c) What energy enables the water cycle to take place? [1]

_____

~ End of Booklet B ~

EXAM PAPER 2018 (P6)

SCHOOL : CHIJ

SUBJECT : SCIENCE

TERM : SA1

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

29)Point A. From the graph, at point A, his heart rate starts to increase. So his heart pumps faster to transport more blood with digested food and oxygen to all parts of his body for more respiration.

30)a)Beaker T. The blue mixture in beaker T turned green the fastest, thus showing that the rate of photosynthesis taken place in beaker T was the highest.

b)Count the number of bubbles produced by the water plant in a fixed time.

c)Change the distance of the lamp and the beaker.

31)a)Fruit X. The seeds are scattered near so they are dispersed by splitting.

b)Yes, I agree. Seeds dispersed near the parent plant may allow overcrowding and competition for sunlight, water, space and nutrients with the parent plant.

31)c)Graph K. As the plants in pot E are crowded together, they will have to compete for sunlight, water, space and nutrients. Thus, they grow thinner and taller to receive more sunlight. Where as the plants in pot F do not have to compete, so they will grow thicker and healthier.

32)a)Tree habitat.

b)Organism Y helps in decomposition by breaking down dead animals into simple substances to be returned to the soil as nutrients for plants.

c)No, I do not agree. The fallen leaves are not a population as they come from the tree and they are already dead.

33)a)Stem of organism →Organism B →Organism A

b)The food chain shows the transfer of energy from one organism to another.

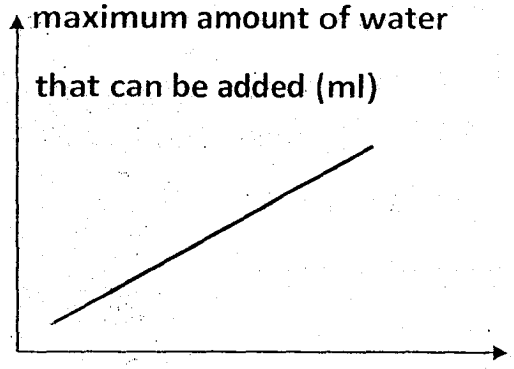
c)When some organism I are introduced, they will feed on organism A, thus, the population of organism A will decrease. As the population of organism A decreases, there will be lesser organism A to eat organism B, thus, the population of organism B increases. As the population of organism B increases, there will be more organism B to eat the stem of organism C. Without the stem, organism C will die and thus decreases.

d)When some organism T are introduced, they will also feed on organism S, thus organism S's population decreases. Lesser organism S will help in the pollination of organism C. Thus, the reproduction of organism C might be affected.

34)Material G. It is waterproof as it did not absorb any blue-coloured water. The raincoat needs to be waterproof so that when it rains, the person wearing it will be dry.

35)a)The balls took up some space in the container. Hence, water was only able to occupy the remaining space inside the container.

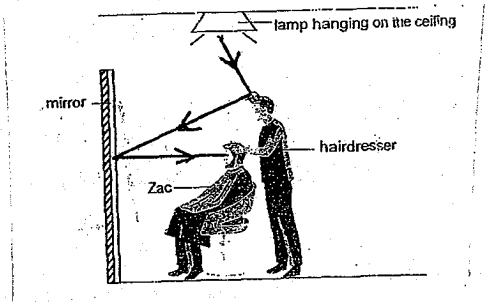
35)b)



36)a)B. It has the least amount of water left in the container which shows that water in B gain the most heat from the heating plate, causing the most water to evaporate.

b)Material A. It is the poorest conductor of heat so the cold air in the pipe will gain the least amount of heat.

37)a)



37)b)Light travels in a straight line.

c)No, I do not agree. Shadows can be formed even at night when there is light from lamps or torches or even when there is moonlight from the moon.

38)a)Gravitational force and frictional force.

b)The bigger the plastic sheet, the longer the time taken for the toy to land on the ground.

c)There was more frictional force between the plastic sheet and the air, so the toy took a longer time to land.

d)Faster. Air was able to escape through the holes and there was less air resistance between the air and the plastic sheet from the air to keep the plastic sheet afloat.

e)Two heavier toy elephants but with different masses could be added and make the size of the plastic sheets the same.

39)a)Whether the sizes of the ice cubes affect the time taken for the ice cubes to melt completely.

b)The temperature of the water used.

c)Repeat the experiment a few more times and find the average of the results.

d)Ice cube E would take a shorter time to melt completely, as it has a larger surface area in contact with the hot water and hence it would gain heat faster to melt faster.

40)a)Gravitational potential energy→Kinetic energy

b)The speed of the block decreased when it was sliding down the rougher ramp.

c)There was greater frictional force between the block and the rougher ramp, thus more friction produces more heat.

41)a)Process Y : Condensation

Process Z : Evaporation

b)Clouds enable water to fall as rain so that water can be returned to the earth surface.

c)Heat energy.