



**NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2018
PRIMARY 4**

SCIENCE

BOOKLET A

28 Multiple Choice Questions (56 marks)

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

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

Marks Obtained

Booklet A	/56
Booklet B	/44
Total	/100

Name: _____ () Class: P 4 _____

Date : 3 May 2018

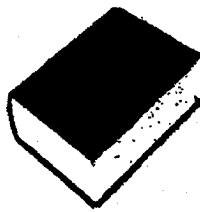
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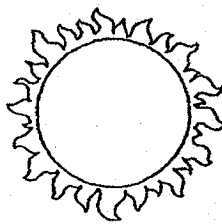
Section A: (28 x 2 marks = 56 marks)

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.

1. Which of the following are sources of light?



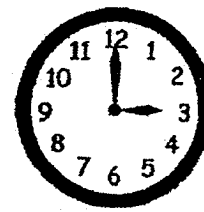
book



sun



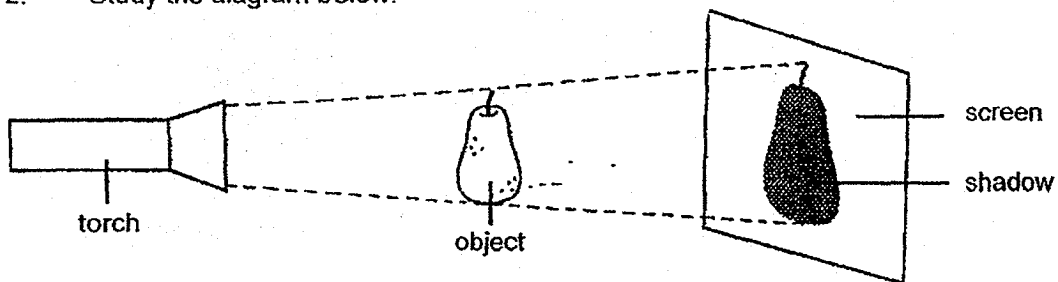
fire



clock

- (1) fire and sun only
- (2) book and sun only
- (3) clock and fire only
- (4) clock and sun only

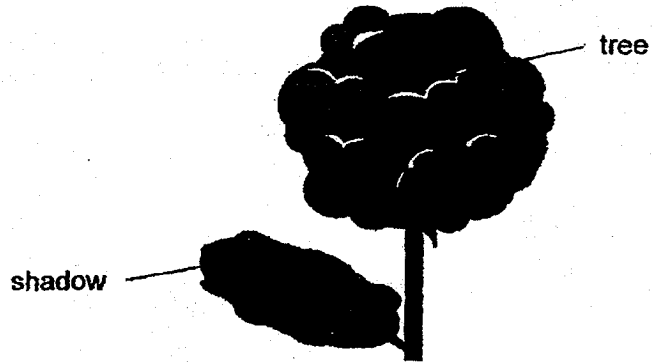
2. Study the diagram below.



What will happen to the shadow if the torch is moved nearer to the object?

- (1) The shadow will disappear.
- (2) The shadow will become bigger.
- (3) The shadow will become smaller.
- (4) The shadow will remain the same.

3. Study the diagram below.



What caused the shadow of the tree to form?

- (1) The tree reflected light.
- (2) The tree absorbed light.
- (3) The light passed through the tree.
- (4) The path of light is blocked by the tree.

4. Which one of the following is a matter?

(1)

(2)

is a matter?



shadow formed by hands

(3)



sound from a man

(4)



wind from a fan

5. The table below shows the properties of three matter.

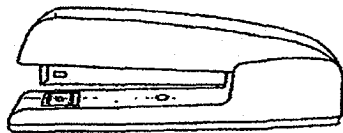
Matter	Definite volume	Definite shape	Can be compressed
A	No	No	Yes
B	Yes	No	No
C	Yes	Yes	No

Which one of the following matter has properties of a solid?

- (1) A
- (2) B
- (3) C
- (4) None of the above

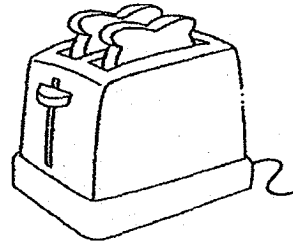
6. Which one of the following is not a source of heat?

(1)



Stapler

(2)



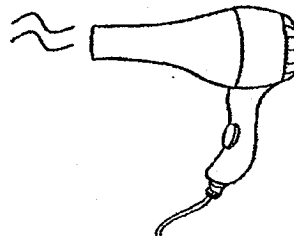
Toaster

(3)



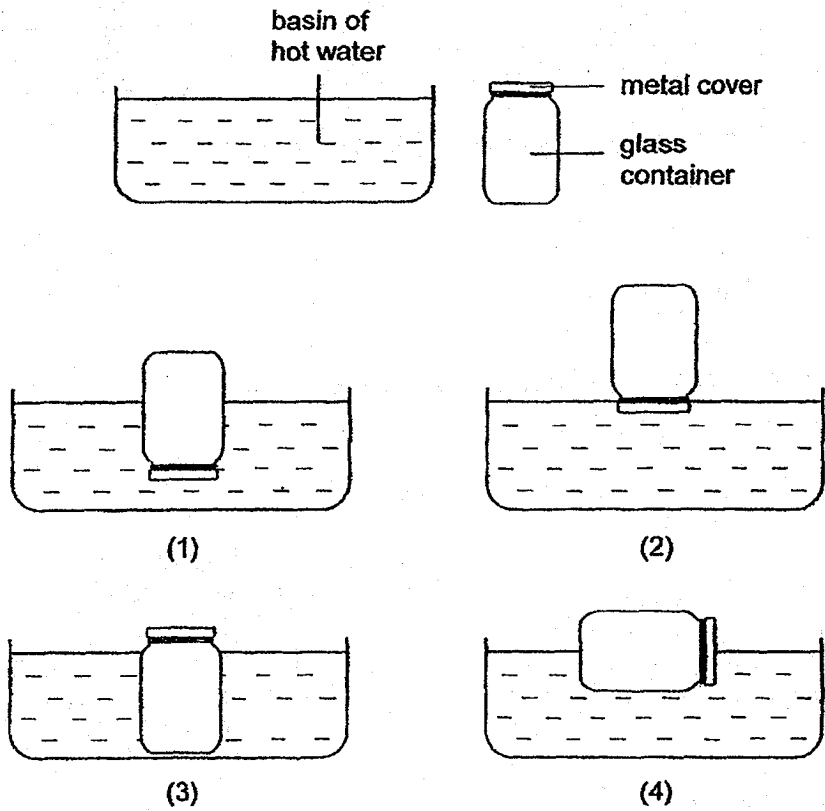
Campfire

(4)

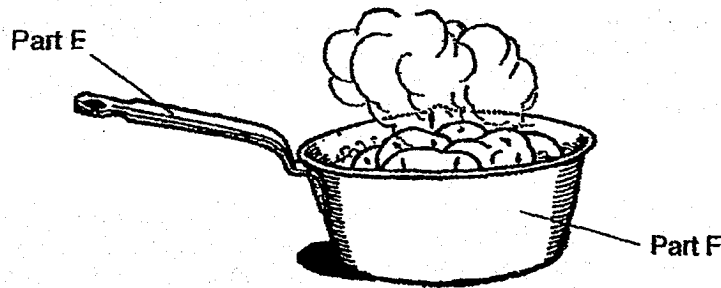


Hair dryer

7. Ted wanted to remove the metal cover that was fitted tightly to the glass container. Using just a basin of hot water, which of the following arrangement would allow Ted to easily remove the metal cover?



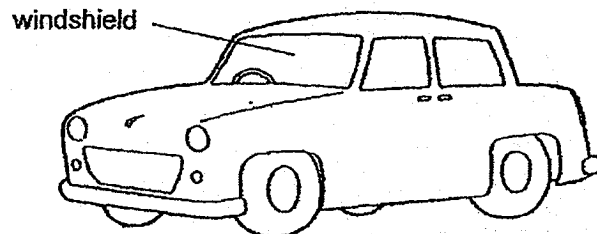
8. The diagram below shows a cooking pot with hot potatoes in it.



What properties of the materials are suitable for making part E and part F of the cooking pot?

	Part E	Part F
(1)	good conductor of heat	good conductor of heat
(2)	poor conductor of heat	good conductor of heat
(3)	good conductor of heat	poor conductor of heat
(4)	poor conductor of heat	poor conductor of heat

9. The windshield of a car allows the driver to see the road ahead clearly when driving under any conditions.

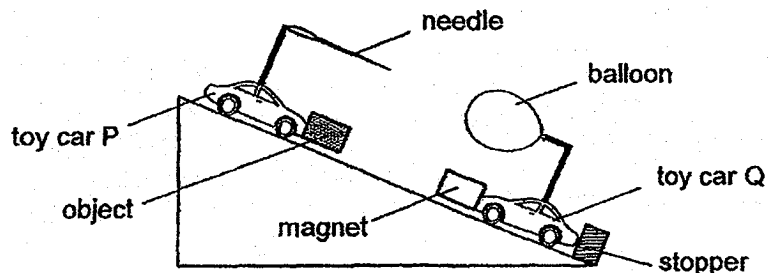


What properties of the windshield allow the driver to drive on rainy days?

- (1) strong and flexible
- (2) strong and translucent
- (3) waterproof and flexible
- (4) waterproof and transparent

10. Which one of the following statements about magnets is true?
- (1) The magnetic strength of a magnet is strongest in the middle.
 - (2) A temporary magnet can only be formed by the electrical method.
 - (3) Magnets will lose their magnetism when heated over a strong flame.
 - (4) A freely suspended bar magnet will come to rest in the East-West direction.

11. Danny set up an experiment as shown below. He had four different objects and wanted to find out which object when placed in front of toy car P would not be able to prevent the balloon from bursting. After attaching the object in front of toy car P, he released it at the same position and observed what happened.



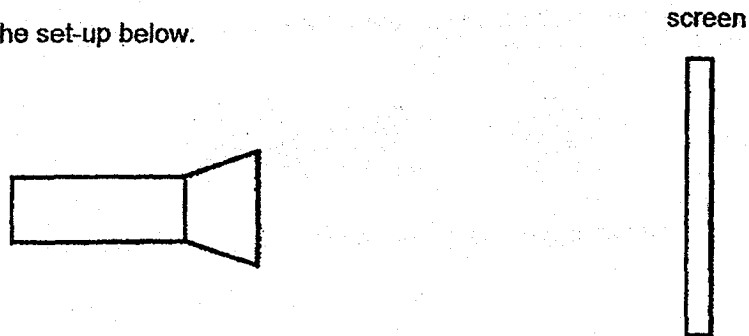
The objects were:

	Object
A	Magnet
B	Steel
C	Plastic
D	Rubber

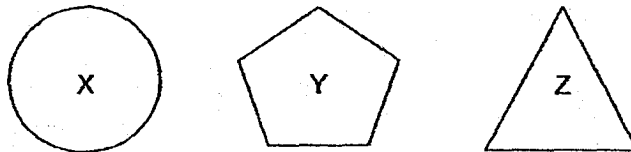
Which of the four objects above would not be able to prevent the balloon from bursting?

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

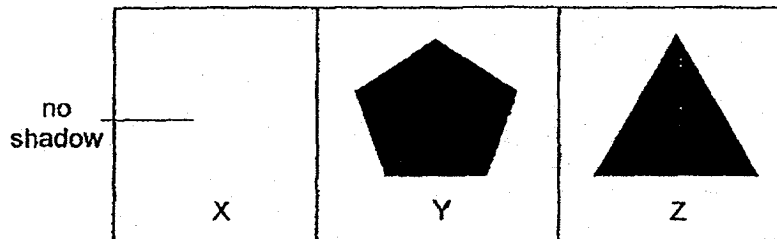
12. Study the set-up below.



Objects X, Y and Z were placed in between the light source and the screen one at a time.



The following shadows were formed on the screen.



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

- A Object X blocked the most light.
- B Object Y allowed most light to pass through.
- C Object Z did not allow any light to pass through.
- D The path of light was blocked by at least one of the objects.

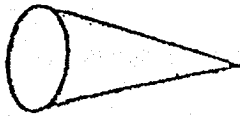
- (1) A and C only
- (2) A and D only
- (3) B and D only
- (4) C and D only

13. Annie used a torch to shine on an object. She discovered that the object could cast both the shadows shown below.



Which of the following was the object which Annie had shone the torch on?

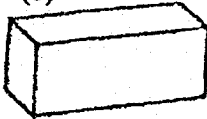
(1)



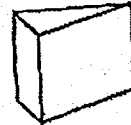
(2)



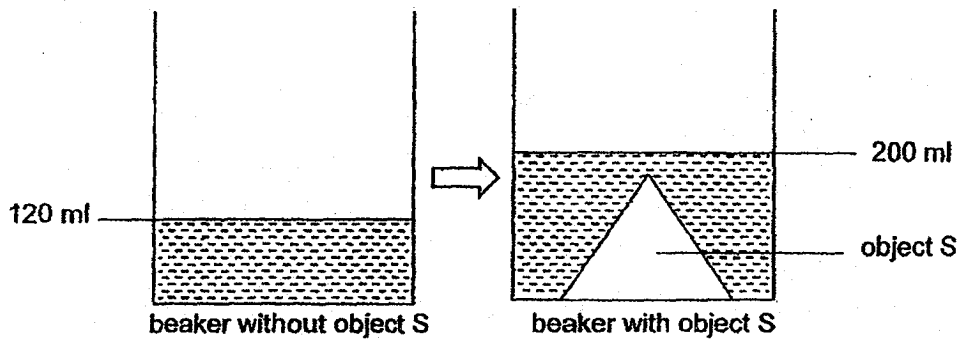
(3)



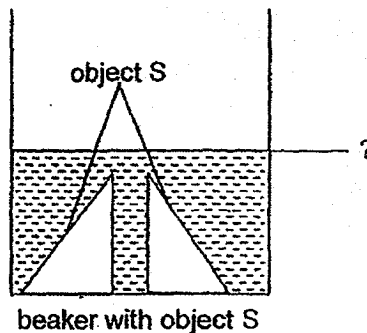
(4)



14. Arthur placed object S in a beaker that was filled with 120 ml of water and the water level rose to 200 ml.



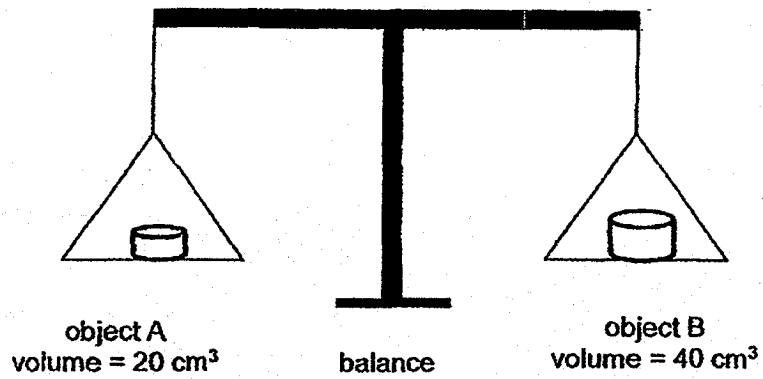
He took out object S and cut it into two halves. He then placed the two halves back into the beaker with 120 ml of water.



What is the reading of the water level when two halves of object S are placed into the beaker?

- (1) 80 ml
- (2) 120 ml
- (3) 200 ml
- (4) 320 ml

15. Study the diagram below.

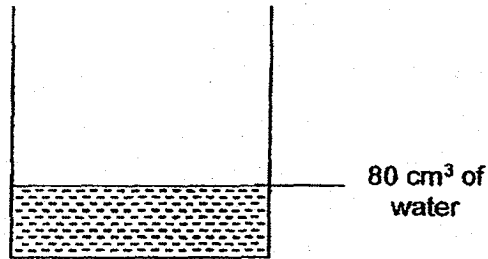


Which of the following statements about objects A and B are correct?

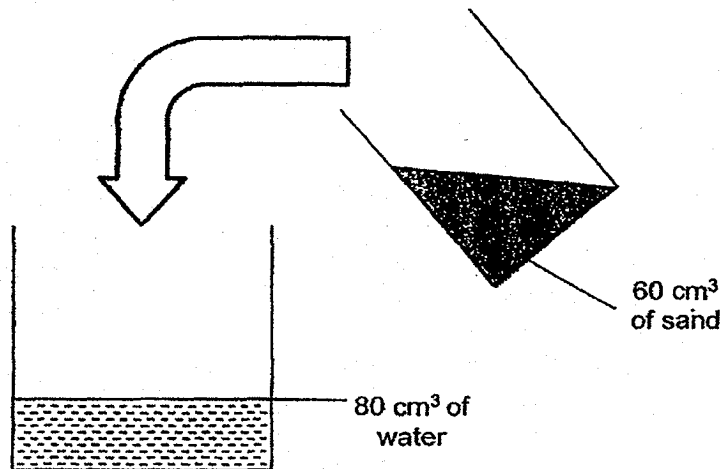
- A Both objects have different mass.
- B Both objects have the same mass.
- C Both objects have different volume.
- D Both objects have the same volume.

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

16. Ben poured 80 cm^3 of water into a container as shown in the diagram below.



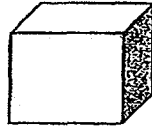
He then poured 60 cm^3 of sand into the container.



Why was the water level below 140 cm^3 ?

- (1) The sand can be compressed.
- (2) The water can be compressed.
- (3) The air trapped between the sand particles was compressed.
- (4) Some water occupied the air spaces in between the sand particles.

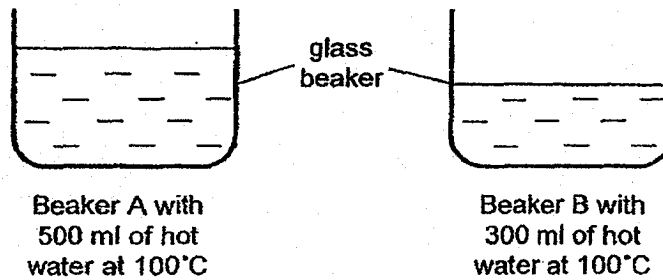
17. The diagram below shows a metal block.



What happened to the metal block after it was heated?

	Shape	Mass	Volume
(1)	Changed	Same	Increased
(2)	Same	Increased	Increased
(3)	Same	Decreased	Decreased
(4)	Same	Same	Increased

18. During a science fair, an experiment was set up as shown below.



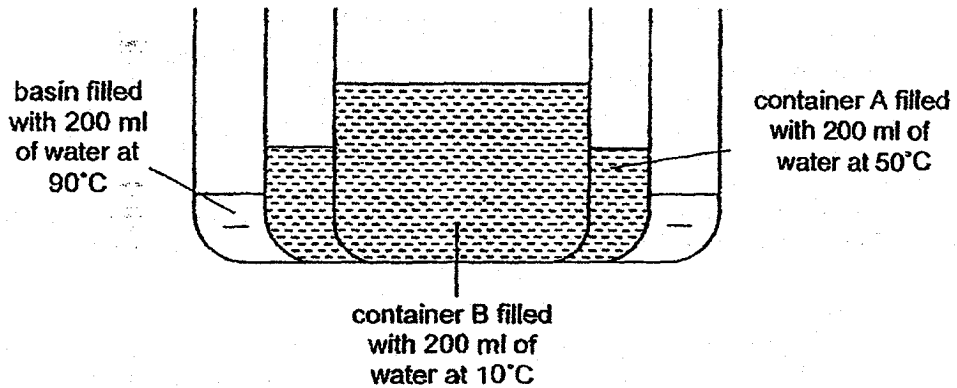
Four students came along and made the following comments:

Student	Comments
Ashton	The water in both beakers will eventually reach room temperature.
Berinda	The water in beaker A has more heat than the water in beaker B.
Caili	Temperature of water in beaker B will decrease faster than that in beaker A.
David	Since the water in both beakers have the same temperature, they have the same amount of heat.

Which of the comments made is/are true?

- (1) Ashton only
- (2) Ashton and David only
- (3) Berinda and Caili only
- (4) Ashton, Berinda and Caili only

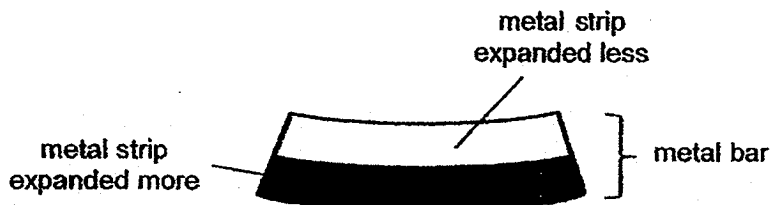
19. Two containers, A and B, were immersed into a basin of hot water at 90°C as shown in the diagram below.



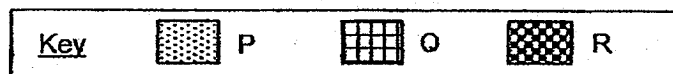
If the whole set-up was placed in a room at a temperature of 23°C for 9 hours, which of the following correctly shows the temperature of the water found in the two containers and the basin?

	Basin	Container A	Container B
(1)	90°C	50°C	10°C
(2)	50°C	50°C	50°C
(3)	23°C	23°C	23°C
(4)	50°C	23°C	23°C

20. A metal bar was formed by joining two metal strips together. After being heated for a short period of time, one metal strip expanded more than the other causing the metal bar to bend as shown below.



In another experiment, three metal bars, 1, 2 and 3, were heated for two minutes each and the results were shown in the diagram below.



metal bar 1



metal bar 2

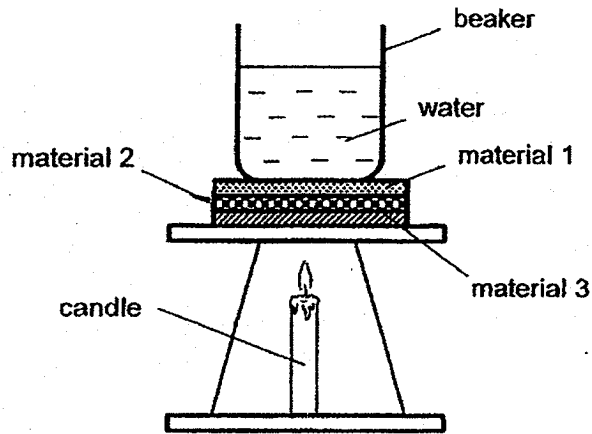


metal bar 3

Which one of the following correctly showed the arrangement of metals starting from the metal that expands the most to the metal that expands the least when heated?

	expands most	→	expands least
(1)	R	,	Q , P
(2)	Q	,	R , P
(3)	P	,	Q , R
(4)	Q	,	P , R

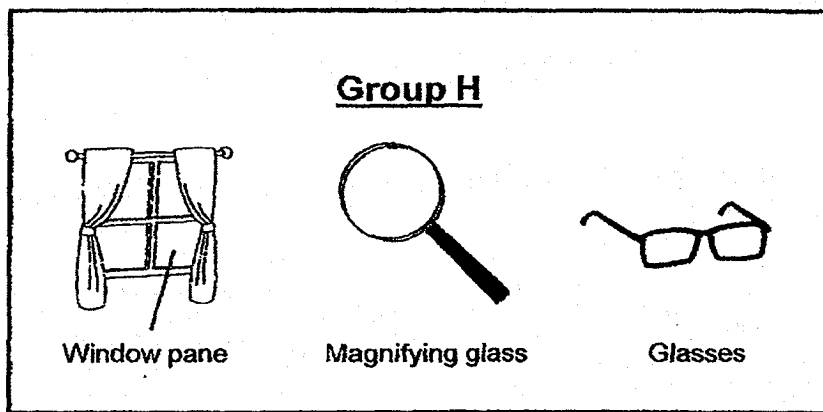
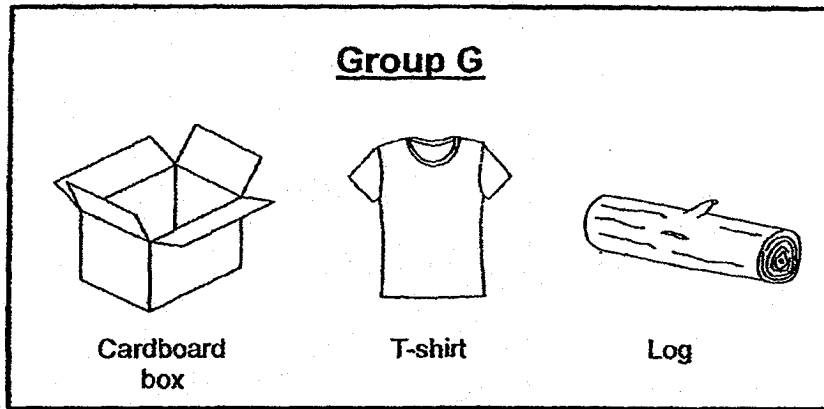
21. A beaker of water was placed on top of three different materials, and a candle was placed below to heat the water up as shown in the diagram below.



Which of the following combination of materials would allow the beaker of water to heat up the fastest?

	Material 1	Material 2	Material 3
(1)	Steel	Wood	Plastic
(2)	Iron	Steel	Wood
(3)	Plastic	Copper	Steel
(4)	Copper	Steel	Iron

22. Study the 2 groups of objects below.

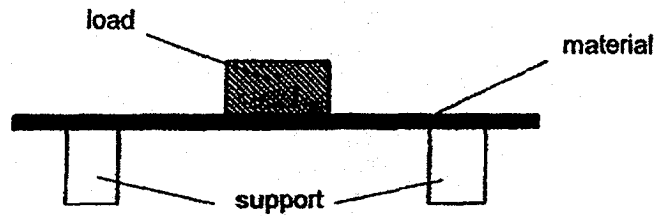


Which one of the following are possible headings for Group G and Group H?

	Group G	Group H
A	Strong	Not Strong
B	Not flexible	Flexible
C	Not waterproof	Waterproof
D	Not transparent	Transparent

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

23. Mingwei conducted an experiment with three materials, X, Y and Z. He added load of different masses to each material as show in the diagram below.



His observations were shown in the table below.

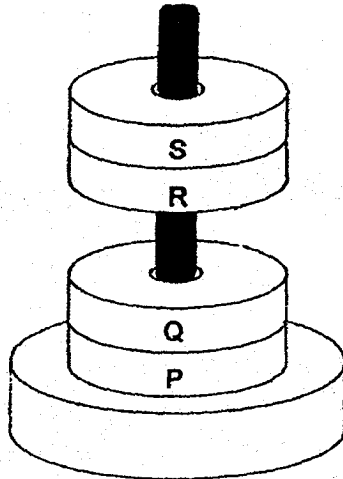
Material	Did the material break when the load was added?		
	5-kg	10-kg	
X	no	no	no
Y	no	no	yes
Z	no	yes	yes

Which of the following statements about materials X, Y and Z is/are true?

A	Material X is the strongest.
B	Material Y is weaker than material Z
C	Material Z is more flexible than material X
D	Material Y can support a heavier load than material Z.

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

24. The set-up below is made up of four rings, P, Q, R and S.



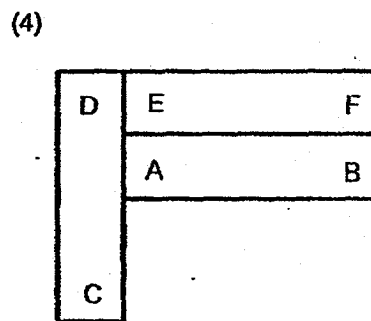
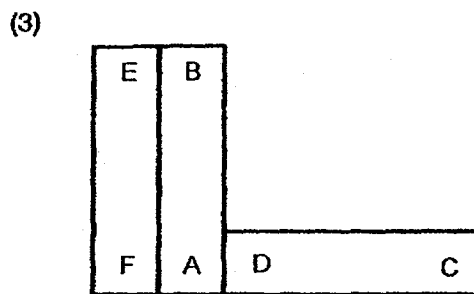
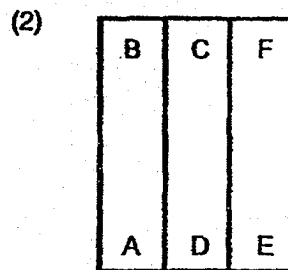
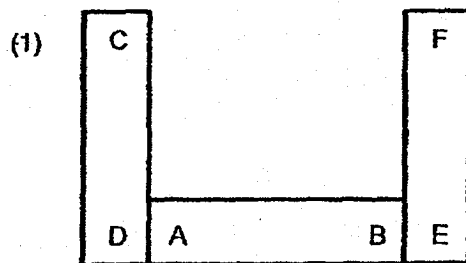
Based on the diagram above, which of the following could objects P, Q, R and S be?

	P	Q	R	S
(1)	plastic ring	magnet	magnet	steel ring
(2)	magnet	steel ring	magnet	plastic ring
(3)	plastic ring	magnet	steel ring	magnet
(4)	steel ring	magnet	plastic ring	magnet

25. Three bar magnets, AB, CD and EF, can be arranged as shown below.



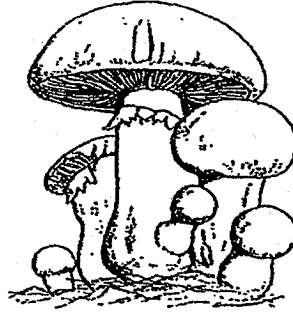
Which one of the following arrangements of the magnets is not possible?



26. Study the two pictures below.



tomato plant

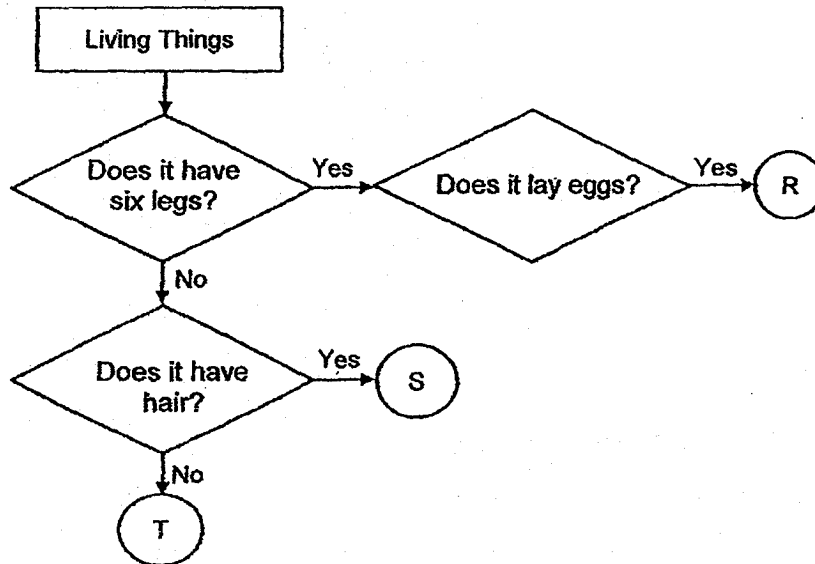


mushrooms

Which one of the following statements correctly describes both living things?

- (1) Both reproduce from spores.
- (2) Both are non-flowering plants.
- (3) Both can make their own food.
- (4) Both can respond to changes around them.

27. Study the flow chart below.



What animals could R, S and T be?

	R	S	T
(1)	Chicken	Cow	Mosquito
(2)	Mosquito	Cow	Chicken
(3)	Cow	Mosquito	Chicken
(4)	Mosquito	Chicken	Cow

28. The pictures below show a monkey and a hamster.



monkey



hamster

They are similar because they _____

- (1) lay eggs
- (2) have feelers
- (3) are covered with feathers
- (4) feed their young with milk



NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2018
PRIMARY 4

SCIENCE

BOOKLET B

12 Open-ended questions (44 marks)

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

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

Marks Obtained

Section B

	/ 44
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Name: _____ () Class: P 4 _____

Date: 3 May 2018

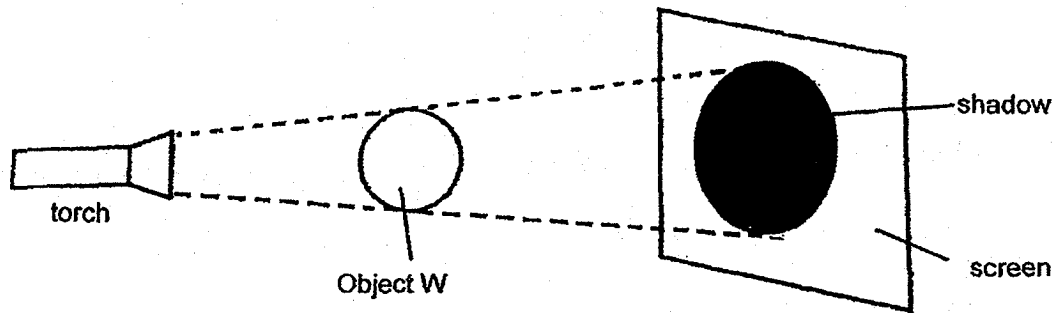
Parent's Signature: _____

Section B: (44 marks)

Write your answers to questions 29 to 40.

The number of marks available is shown in brackets [] at the end of each question or part question.

29. Lena set up an experiment as shown below.



(a) Without moving the screen, suggest two ways that will enable Lena to obtain a bigger shadow of object W on the screen. [2]

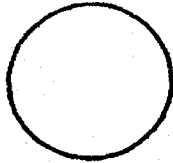
(i) _____

(ii) _____

(b) Lena replaced object W with another round object made of a different material. She saw a darker shadow being formed on the screen. Why is it so? [1]

Score	3
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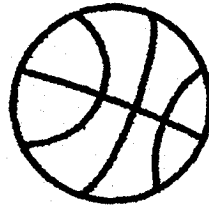
30. Sam and Sue were given three balls of different sizes and masses as shown below.



polystyrene ball



metal ball



basketball

- (a) What instrument can they use to measure the masses of the balls? [1]

- (b) Based on the diagrams above, which object has the largest volume? [1]

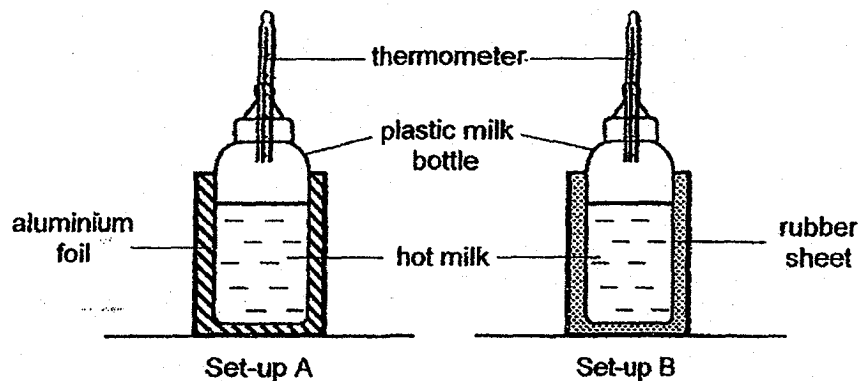
The mass of each ball is shown below.

Object	polystyrene ball	metal ball	basketball
Mass (g)	350	1200	1100

- (c) Sam concluded that the larger the volume of the ball, the larger the mass. Do you agree with Sam? Explain. [2]

Score	4
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31. Martha conducted an experiment using set-ups A and B as shown below. She wrapped the plastic milk bottle in Set-up A with aluminium foil and another identical plastic milk bottle in Set-up B with a rubber sheet. She filled both bottles with the same amount of hot milk at 60°C.

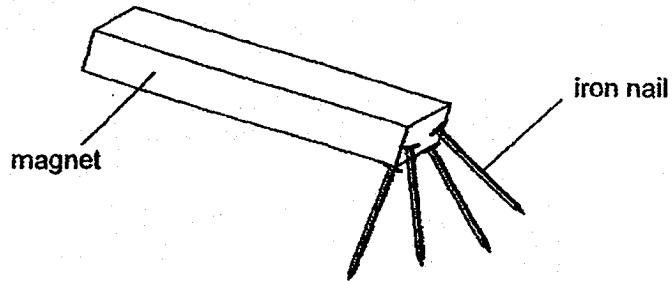


- (a) What would happen to the temperature of the milk in the bottles after some time? [1]
-
- (b) Give a reason for your answer in part (a). [1]
-
- (c) Martha placed set-ups A and B in a room at 30°C. What could be the temperature of the milk in the bottles after 5 minutes? Write your answers in the table given below. [2]

	Temperature of the milk at the start	Temperature of the milk after 5 minutes
Set-up A	60°C	
Set-up B	60°C	

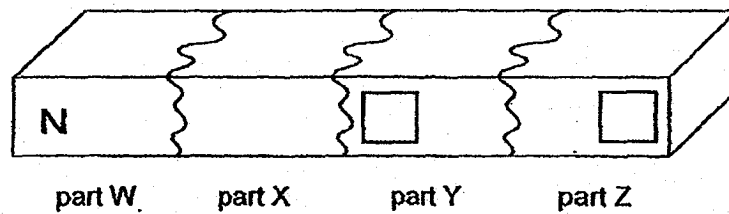
Score	4
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32. When Jenny brought a piece of bar magnet near a box of iron nails, it attracted some nails to it as shown in the diagram below.



- (a) What can she do to enable the same magnet to attract more iron nails? [1]

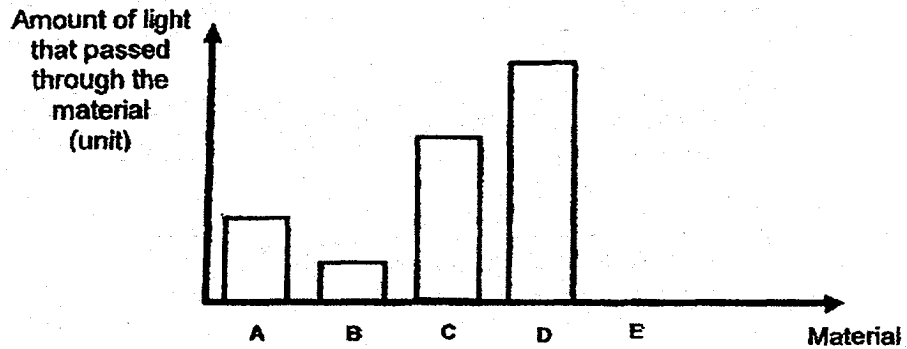
Jenny accidentally dropped the piece of magnet and it was broken into four parts labelled W, X, Y and Z as shown in the diagram below.



- (b) Label the poles of the parts of the broken magnet in the boxes provided above. [2]

Score	3
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33. Leo conducted an experiment to measure the amount of light that can pass through five different materials. The results are shown in the bar chart below.



- (a) Based on the results given in the bar chart above, arrange the materials in order starting from the one that allows the most light to pass through. [2]

Allow most light to pass through



Allow least light to pass through

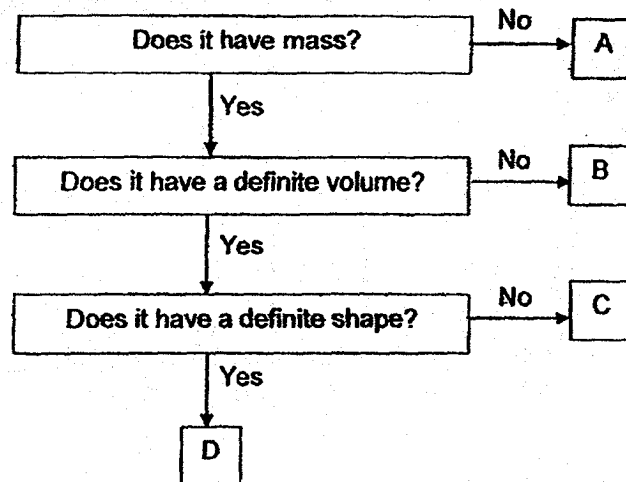
Materials



- (b) Leo wants to choose a material for making a door for the public toilet to ensure privacy. Which material would be the most suitable? Explain. [2]

Score	4
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34. Study the flow chart below.



(a) Based on the flow chart, state two properties of B. [1]

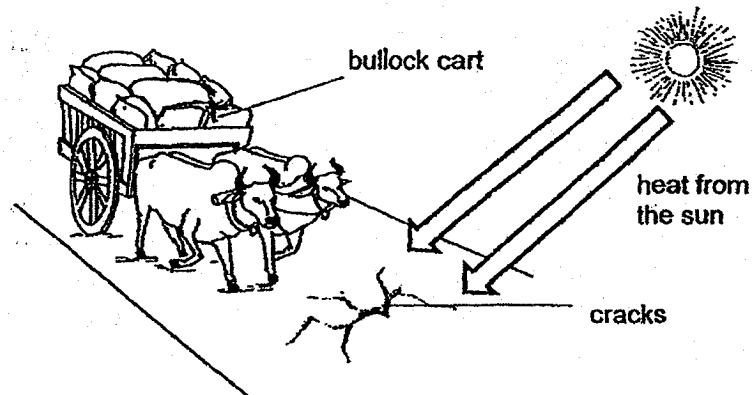
(b) Which state of matter is C in? [1]

(c) Give an example of A. [1]

(d) Based on the flow chart, state one difference between B and D. [1]

Score	4
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35. Benson lives in a very hot part of the world where the temperature at noon can easily reached 35°C . As a result, it is very common to see cracks on the concrete ground because of the heat from the sun as shown in the diagram below.

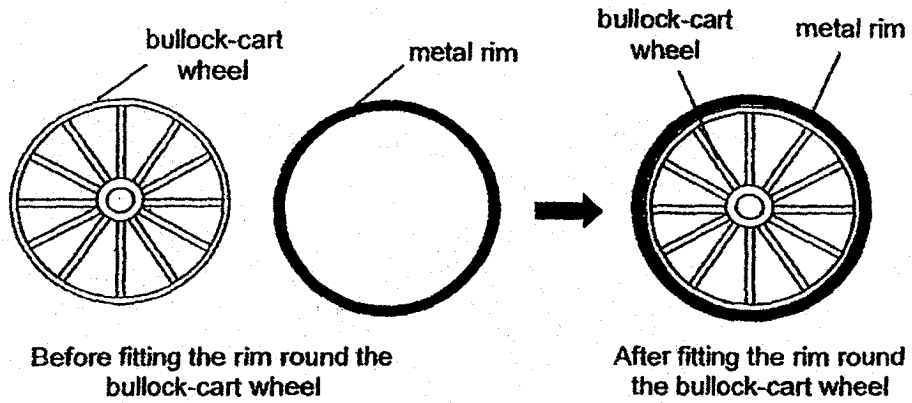


- (a) Explain how would the heat from the sun cause the cracks on the ground to be formed?

[2]

Score	2
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Benson's father instructed him to fit a metal rim tightly around the wheels to protect the wheels from being damaged by the uneven ground, as shown in the diagram below.

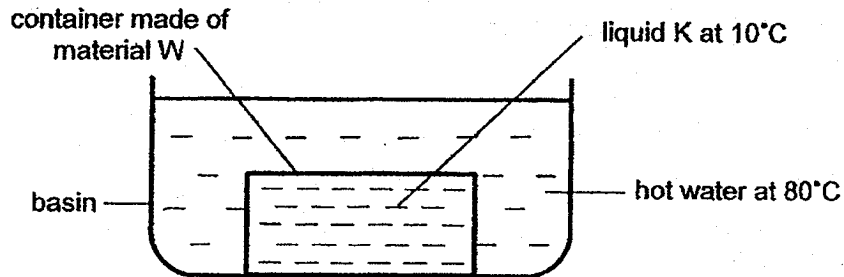


However, the metal rim was not big enough to be fitted around the wheels at room temperature. His father suggested two steps to complete the task.

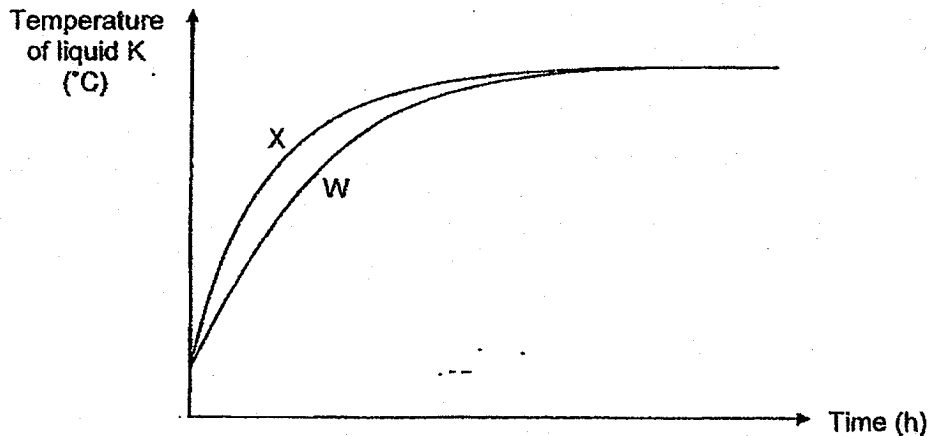
- (b) Using only a bunsen burner, describe what should Benson do to fit the metal rim tightly round the bullock-cart wheels? [2]

Score	2
-------	---

36. Thomas conducted an experiment using the set-up below.



He measured the temperature of liquid K in the container made of material W over a period of time. He repeated the experiment using a container made of material X. His results are shown in the graph below.

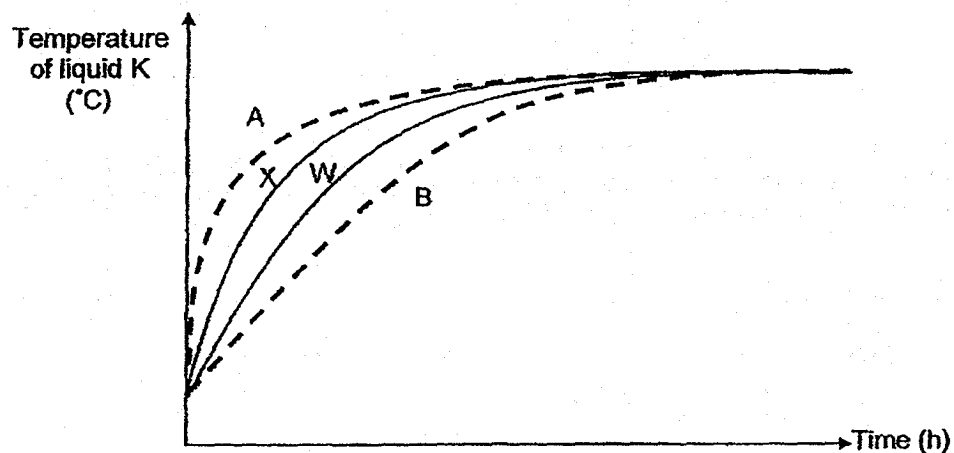


- (a) State one variable in this experiment that must be kept the same to ensure a fair test. [1]

- (b) If Thomas wanted to bring cold drinks for a school trip, which material should he use for the container to keep his cold drinks cold for a longer period of time? Explain your answer. [2]

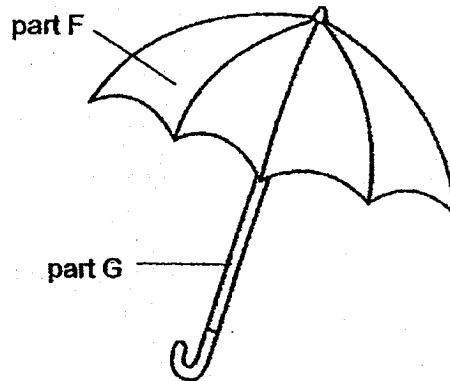
Score	3
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- (c) Thomas managed to find a material Y that is able to keep cold drinks cold for an even longer period of time. Which one of the lines in the graph below, A or B, correctly shows how the temperature of liquid K in a container made of material Y would change over time? [1]



Score	1
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37. The diagram below shows an umbrella.



(a) What material should part F be made of? [1]

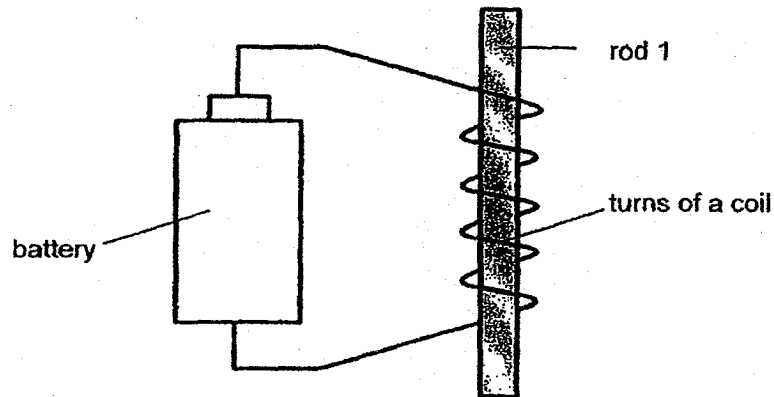
(b) Complete the table below to show how two properties of the material stated in part (a) make an umbrella useful in different conditions. [2]

	Conditions	Property
1.	Sunny day	
2.	Rainy day	

(c) Part G of the umbrella is usually made of metal. Explain why metal is used to make part G instead of plastic. [1]

Score	4
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38. During a science lesson, Kendrick was given two rods and was told to make them into electromagnets. He created the set-up as shown below.



- (a) Name a material that can be used to make an electromagnet. [1]

Kendrick wanted rod 2 to have a greater magnetic strength than rod 1.

- (b) State one change that Kendrick can make to the set-up shown above in order for rod 2 to have a greater magnetic strength. [1]

Score	<hr/>
	2

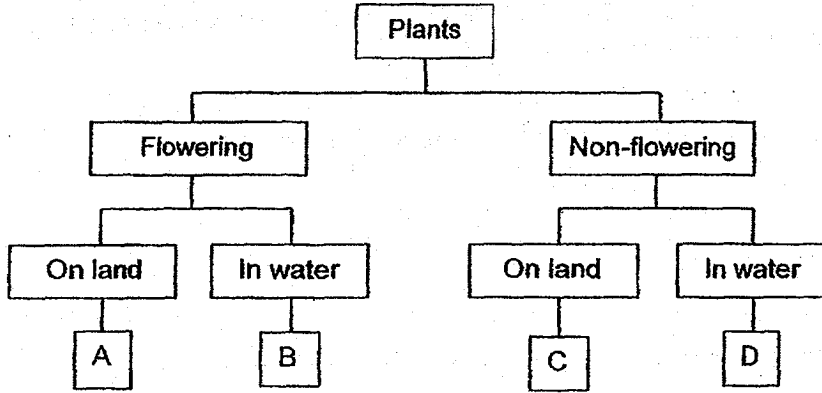
Kendrick was then given a third rod and was asked to bring all three rods near a dish containing similar paper clips. The number of paper clips attracted by each rod were recorded in the table below.

Rod	Number of paper clips attracted
1	5
2	8
3	0

- (c) Give a possible reason why no paper clips was attracted by rod 3. [1]

Score	1
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39. Study the classification chart below.





(a) Based on the chart above, state the characteristics of plants B and D. [2]

Plant B: _____

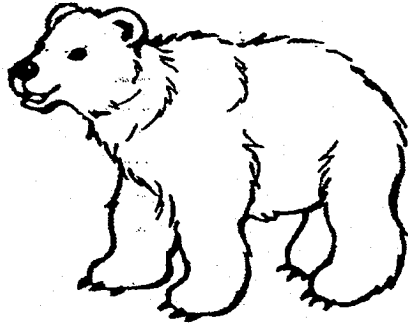
Plant D: _____

(b) Based on the chart above, which group, A, B, C and D, would you classify the following plants? [1]

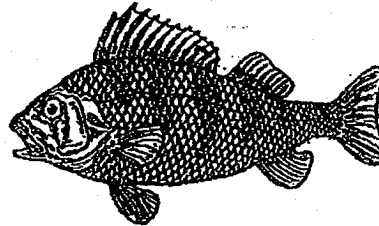
Plant	Group
 <p data-bbox="545 1408 625 1440">Roses</p>	
 <p data-bbox="545 1744 625 1775">Ferns</p>	

Score	3
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40. The pictures below show two animals, X and Y.



Animal X



Animal Y

(a) State the animal group that animal X belong to. [1]

Animal X: _____

(b) Based only on what you can observe from the pictures above, state one difference between animal X and animal Y. (Do not compare their body shape, size and colour.) [1]

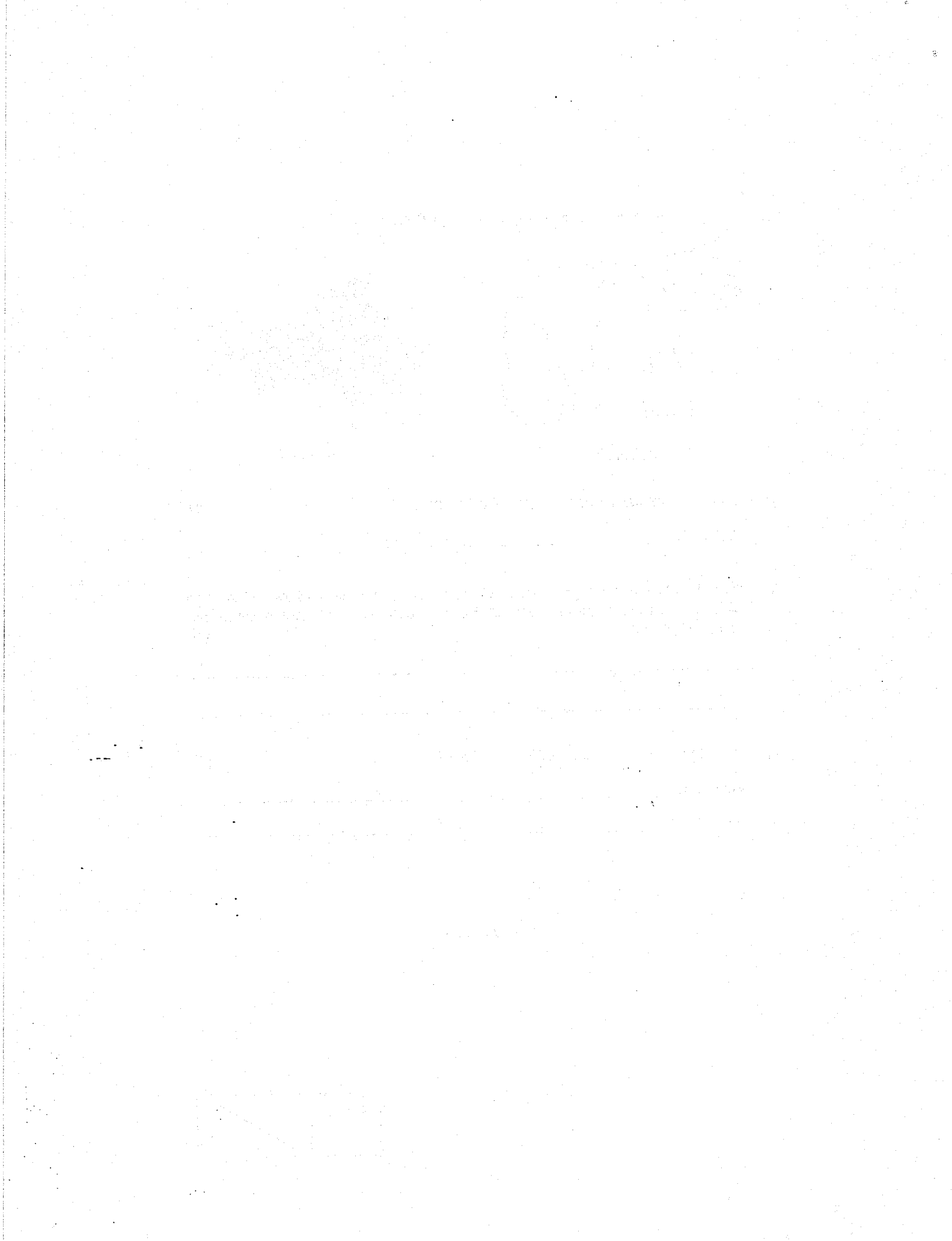
(c) How do animal X and animal Y reproduce? [2]

Animal X: _____

Animal Y: _____

End of Paper

Score	4
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ANSWER KEY

YEAR : 2018
LEVEL : PRIMARY 4
SCHOOL : NAN HUA PRIMARY SCHOOL
SUBJECT : SCIENCE
TERM : SA1

BOOKLET A

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

BOOKLET B

Q29ai) Lena can move the object closer to the torch.

Q29aia) Lena can move the torch closer to the object.

Q29b) She saw a darker shadow as the new round object is made of a material that blocks more light.

Q30a) They can use an electronic balance.

Q30b) The basketball.

Q30c) No. The volume of the ball does not determine the mass of the ball. The basketball has the largest volume but it does not have the largest mass.

Q31a) The temperature will decrease.

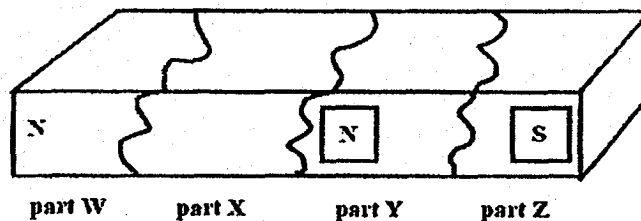
Q31b) The heat from the milk is gradually lost to its surroundings over time.

Q31c)

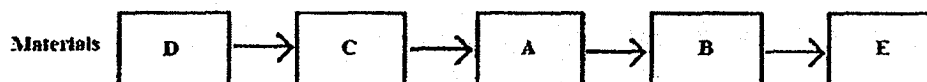
	Temperature of the milk at the start	Temperature of the milk after 5 minutes
Set-up A	60 °C	55 °C
Set-up B	60 °C	57 °C

Q32a) She can use a stronger magnet to stroke the magnet shown in the diagram above.

Q32b)



Q33a)



Q33b) Material E. As it blocks all of the light, it means that it is opaque. When a material is opaque it means that it is not see-through, making it a good choice when privacy is needed.

Q34a) B has mass but does not have a definite volume.

Q34b) C is in the liquid state.

Q34c) A can be sound (or non-matter)

Q34d) D has a definite volume but B does not.

Q35a) As the heat caused the concrete ground to expand, there was no more space for the ground so it cracked.

Q35b) Benson should use the Bunsen burner to heat up the metal rim. Heat will cause the metal rim to expand so that the bullock-cart wheel is able to fit into the metal rim. After which, he has to let the metal rim cool off by removing it from heat. The metal rim will then contract back and fit tightly around the bullock-cart wheel.

Q36a) There must be the same amount of liquid.

Q36b) Material W. Liquid K in the container made of material W gained heat slower from the hot water. Hence, material W is a poor conductor of heat. It means that the cold drinks stored in a container made of material W will be kept cold for longer since the container will gain heat over a longer period of time.

Q36c) B.

Q37a) Part F should be made of plastic which is waterproof and light.

Q37b)

	Conditions	Property
1.	Sunny day	Shady, can block out heat and sunlight.
2.	Rainy day	Waterproof, can prevent a person from getting wet.

Q37c) Metal is stronger than plastic.

Q38a) Nickel/Cobalt/Iron

Q38b) Kendrick can coil rod 2 a greater number of times.

Q38c) Rod 3 cannot be an electromagnet / could not be magnetized.

Q39a) Plant B: Plant B is a flowering plant which lives in water.

Plant D: Plant D is a non-flowering plant which also lives in water.

Q39b) Roses → A

Ferns → C

Q40a) Animal X: Mammals

Q40b) Animal Y has scales while Animal X has hair.

Q40c) Animal X: Give birth to live young

Animal Y: Lays eggs

#

END