

**METHODIST GIRLS' SCHOOL (PRIMARY)**

**PRIMARY 4**

**END-OF-YEAR EXAMINATION 2007**

**SCIENCE**

**BOOKLET A**

**NAME :** \_\_\_\_\_ ( )

**CLASS :** \_\_\_\_\_

**Total time for Booklets A and B: 1 h 30 min.**

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

**Methodist Girls' School (Primary)**  
**Primary 4 Science**  
**End-of-Year Examination 2007**

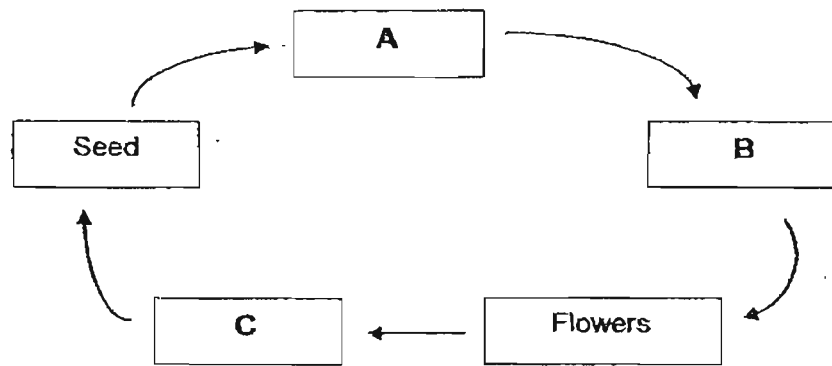
**Section A (30 × 2 = 60 marks)**

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

1. Some animals have lungs yet can live underwater and some animals have gills and can stay alive on land. How do mudskippers breathe and stay alive on land?

- (1) They breathe through gills and have air tubes.
- (2) They breathe through lungs and have air tubes.
- (3) They breathe through lungs and stored oxygen in their muscles.
- (4) They breathe through gills and have a gill chamber to store water.

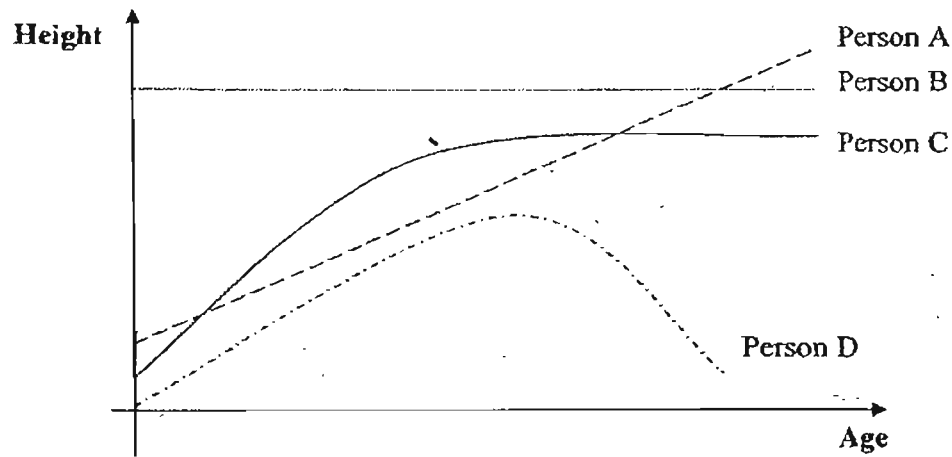
2. Study the life cycle of the string bean plant below.



Which one of the following correctly identifies A, B and C?

	A	B	C
(1)	Adult plant	Fruit	Seedling
(2)	Adult plant	Seedling	Fruit
(3)	Seedling	Fruit	Adult plant
(4)	Seedling	Adult plant	Fruit

3. The graph below shows the relationship of the height and the age of four people.



Which line has correctly represented the relationship?

- (1) Person A
  - (2) Person B
  - (3) Person C
  - (4) Person D
4. Which of the following bone(s) has/have the function(s) of protecting organ(s) in the human body?
- A: Skull
  - B: Ribcage
  - C: Thigh bone
  - D: Ankle bone
- (1) A and D only
  - (2) A and B only
  - (3) A, B and D only
  - (4) All of the above

5. Figure A shows a ring of bark containing phloem removed from a plant. The xylem remained intact.



Figure A

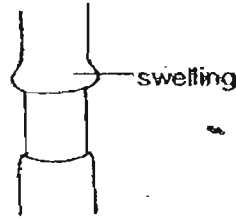
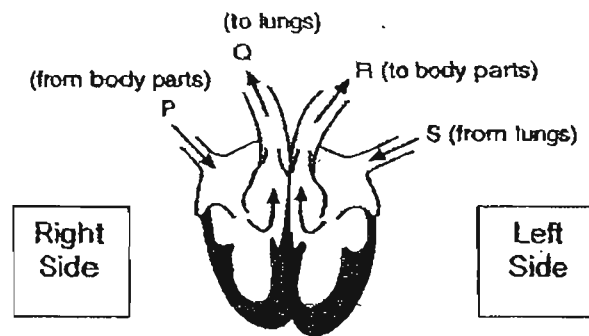


Figure B

Figure B shows appearance of the stem a few weeks later. Which statement best explains the presence of swelling?

- (1) Food travelling up the stem is trapped above the ring.
- (2) Water travelling up the stem is trapped above the ring.
- (3) Food travelling down the stem is trapped above the ring.
- (4) Water travelling down the stem is trapped above the ring.

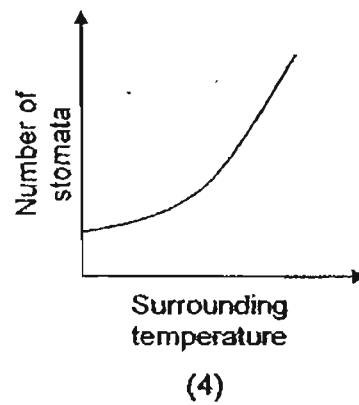
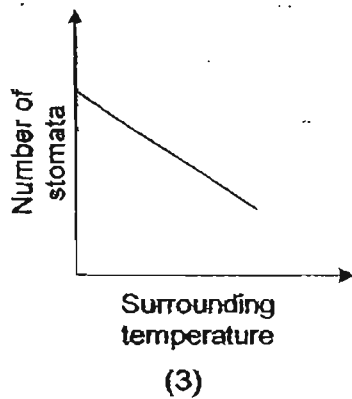
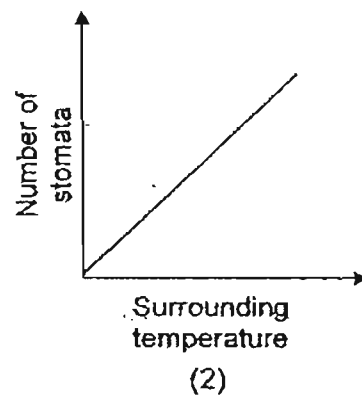
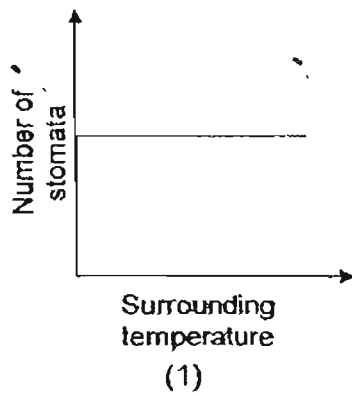
6. Study the diagram below.



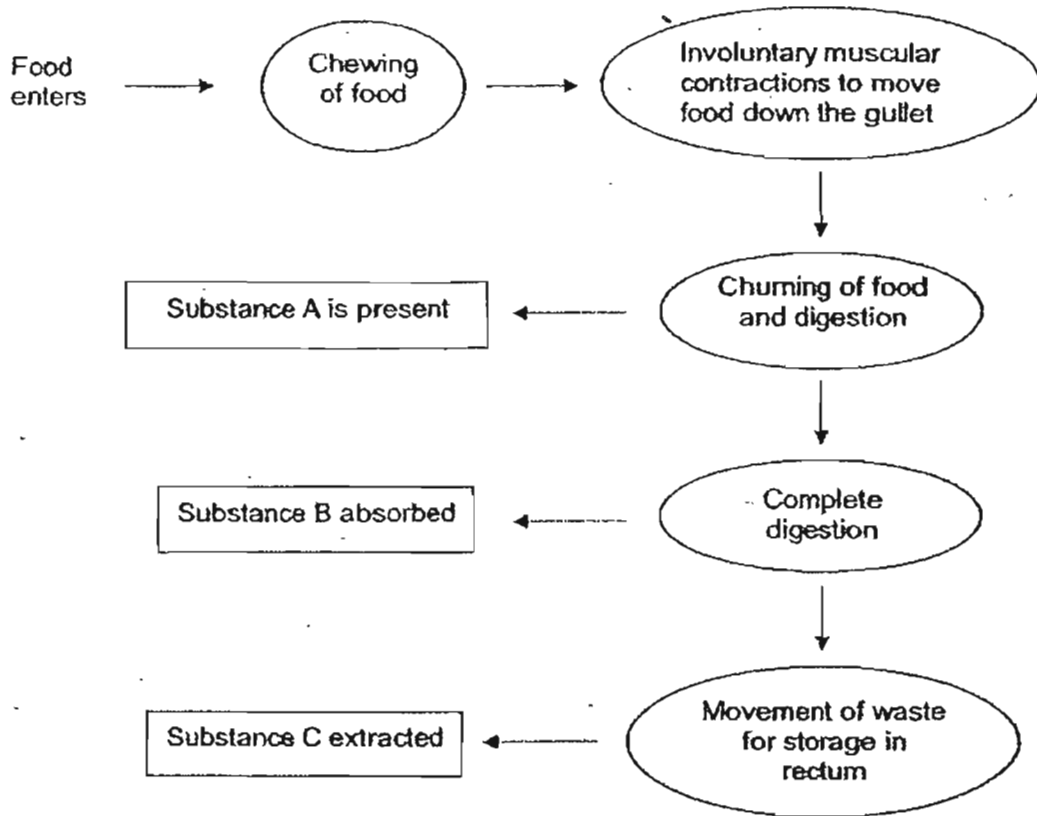
P, Q, R and S are blood vessels that carry blood to or from the heart. Which blood vessels carry blood rich in oxygen and which blood vessels carry blood rich in carbon dioxide?

	Carry blood rich in oxygen	Carry blood rich in carbon dioxide
(1)	P and Q	R and S
(2)	R and S	P and Q
(3)	P and R	Q and S
(4)	Q and R	P and S

7. Which one of the following graphs shows the likely relationship between the number of stomata on the leaves of plants growing in deserts and its surrounding temperature?



8. The flow chart below shows the processes involved in the human digestive system.



Based on the flow chart above, what are the substances A, B and C respectively?

	<b>A</b>	<b>B</b>	<b>C</b>
(1)	Saliva	Nutrients	Water
(2)	Saliva	Water	Waste
(3)	Digestive juice	Nutrients	Water
(4)	Digestive juice	Water	Waste

9. A live plant and an artificial plant were each placed into identical containers filled with  $300 \text{ cm}^3$  of water. A layer of oil was poured into each container to prevent the water from evaporating.



Live plant in  
Container A

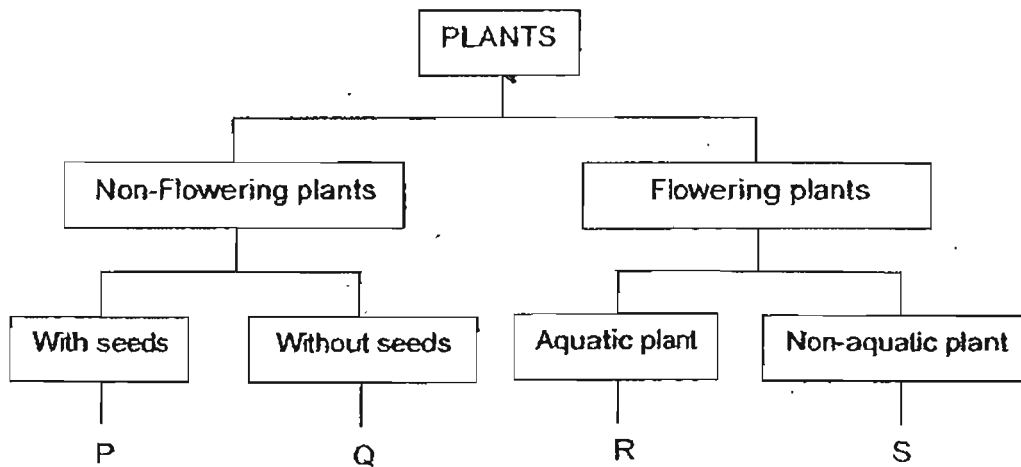


Artificial plant  
in Container B

The volume of the water in each container was measured after a week. Which of the following shows the correct amount of water in the respective containers?

	Volume of water ( $\text{cm}^3$ ) after a week	
	Container A	Container B
(1)	275	300
(2)	275	285
(3)	285	275
(4)	300	300

10. The following chart shows the classification of plants.



Which one of the following plants is Q?

- (1) Pine
- (2) Pong pong
- (3) Morning glory
- (4) Birds' nest fern

11. Objects around us are usually classified as *living things* and *non-living things*. Look at the table below and identify the objects that are **incorrectly** classified.

Objects around us		
Living Things	Non-living Things	
	Once Alive	Never Alive
Human Being Flower Cat	Synthetic sponge Plastic toy duck Mutton	Safety pin Scissors Cloud

- ~~(1) Flower and Cloud only~~
- ~~(2) Cat and Synthetic sponge only~~
- (3) Mutton and Plastic toy duck only
- (4) Plastic toy duck and Synthetic sponge only



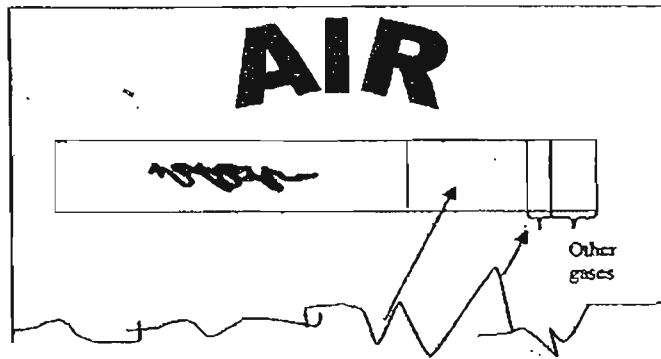
12. The table below shows the freezing points and boiling points of four unknown substances, E, F, G and H.

Substance	Freezing point ( $^{\circ}\text{C}$ )	Boiling point ( $^{\circ}\text{C}$ )
E	0	100
F	8	120
G	23	79
H	39	90

Which one of the following statements is true?

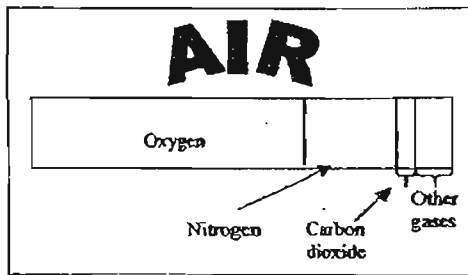
- (1) Substance E is a solid at  $8^{\circ}\text{C}$ .  
 (2) Substance F is a liquid at  $7^{\circ}\text{C}$ .  
 (3) Substance G will change its state at  $79^{\circ}\text{C}$ .  
 (4) Substance H is the only substance at liquid state at  $90^{\circ}\text{C}$ .
13. Whenever the soup is too hot, our mothers would always advise us to blow at the surface of the soup before sipping it. How does blowing help to cool the soup?
- (1) Blowing takes away the hot air above the soup.  
(2) When we blow, our cooler saliva will mix with the hot soup to make it cooler.  
(3) Blowing helps to decrease the rate of heat loss from the soup to the surrounding.  
(4) When we blow, we will feel cooler, thus the soup entering our mouth will feel cooler.
14. Shawn filled a bottle with water to the brim and placed it in the freezer. Two hours later, he observed that the water had frozen and the bottle had cracked. Which statement has correctly explained what had happened?
- (1) The bottle is not able to withstand the low temperature, thus it cracked.  
 (2) Water expands during freezing, it pushes outwards and causes the bottle to crack.  
 (3) Water contracts during freezing, it pushes outwards and causes the bottle to crack.  
 (4) When water freezes to ice, it gets heavier and the bottle could not withstand the weight, thus the bottle cracked.

15. James has found a very old chart that shows the composition of gases that made up air. However, some information on the chart has gone missing.

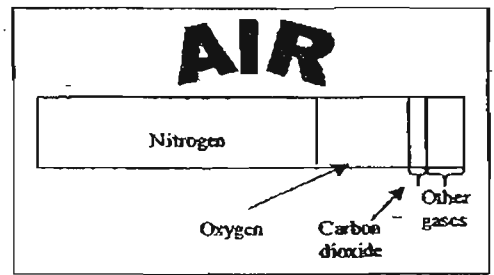


Which chart would most likely be the correct one?

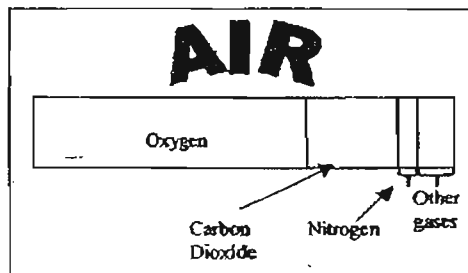
(1)



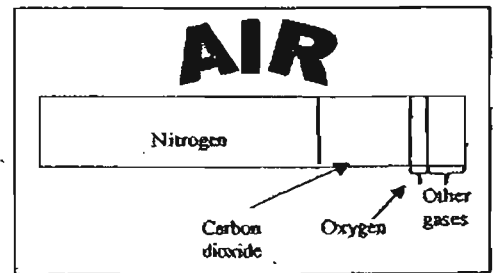
(2)



(3)



(4)



16. The diagram below shows the transfer of energy from the Sun to animals.



Which organisms can X and Y be?

	X	Y
(1)	Rabbit	Deer
(2)	Hen	Zebra
(3)	Caterpillar	Tiger
(4)	Grasshopper	Bird

17. Most of our household electrical appliances give out heat. Some give out useful heat while others do not. Which statements indicate the disadvantages of producing heat when it is not needed?

A: It is a waste of energy.

B: ~~It contributes to global warming.~~ *It increases our body temperature*

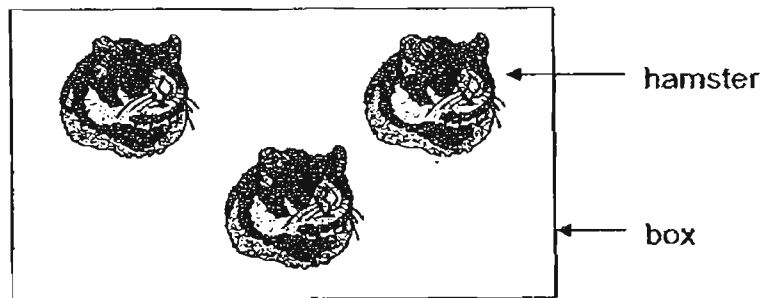
C: It heats up the environment unnecessarily.

- ~~(1) A and B only~~  
~~(2) A and C only~~  
~~(3) B and C only~~  
 (4) All the above

18. Some fabrics are suitable to make umbrella while some are not. Which is/are the more important reason(s) to decide which fabrics are suitable to make umbrella?

- (1) The fabrics must be very cheap.  
 (2) The fabrics must be transparent.  
 (3) The fabrics must have beautiful prints.  
 (4) The fabrics must be waterproof and durable.

19. Three hamsters were trapped inside a box for 30 minutes. There was no fresh air entering the box. Which of the following shows how the amount of gases in the box changed after 30 minutes?



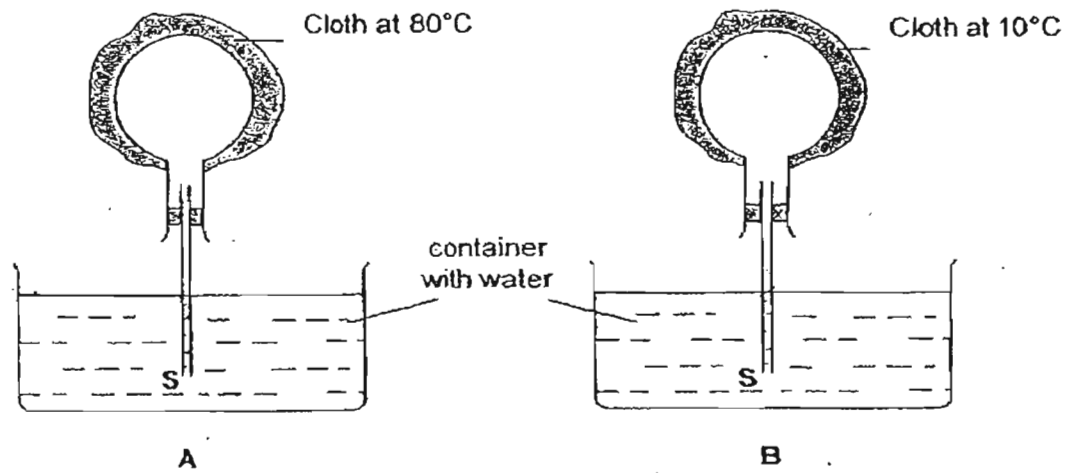
	Oxygen	Carbon dioxide	Water vapour
(1)	decrease	increase	no change
(2)	increase	decrease	no change
(3)	increase	decrease	increase
(4)	decrease	increase	increase

20. A certain matter has mass and a fixed volume. It can flow and is a good conductor of heat. It is \_\_\_\_\_.
- iron  
 mercury  
 water vapour  
 carbon dioxide

21. Cecilia enjoys playing tennis in the day. She wonders where the energy comes from whenever she swings her racket to hit the ball.
- (1) The energy comes from the pull of gravity below her.  
 (2) The energy comes from the sun which is shining at her.  
 (3) Whenever she runs, her body will create energy within her.  
 (4) The energy comes from the food and drinks that she consumed.

22. Study set-ups A and B below.

Which one of the following could be observed two minutes after the cloth was placed on the flasks, A and B?



	Observation for A	Observation for B
(1)	Water rises up the tube	Water rises up the tube
(2)	Water rises up the tube	Bubbles escape from tube at S
(3)	Bubbles escape from tube at S	Water rises up the tube
(4)	Bubbles escape from tube at S	Bubbles escape from tube at S

23. Which material(s) is/are good conductor(s) of heat?

- Metal                       Rubber  
 Glass                         Plastic  
 Clay                          Wood

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

24. How do we know when pure water boils?

A: The smell changes.

B: The temperature reaches  $100^{\circ}\text{C}$ .

C: There are large bubbles of steam in the water.

D: There are small bubbles of water droplets in the water:

~~(1) A and B only~~

~~(2) B and C only~~

~~(3) B and D only~~

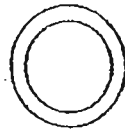
~~(4) B, C and D only~~

25. The diagram below shows a shadow formed on a screen.



Which one of the following objects could not have formed the shadow shown above?

(1)



A metal ring

(2)



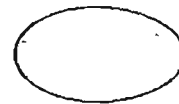
A vase

(3)



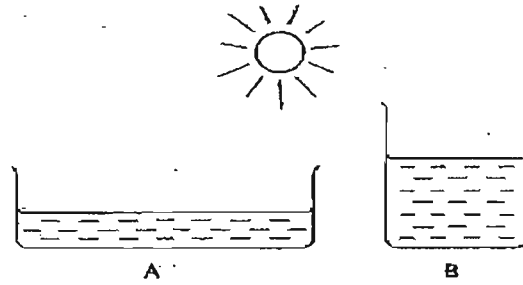
A cone

(4)

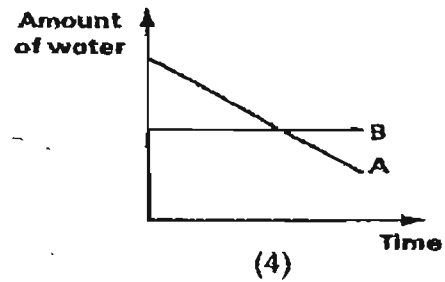
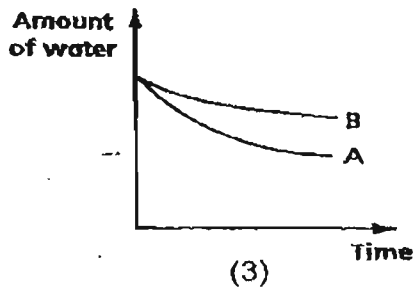
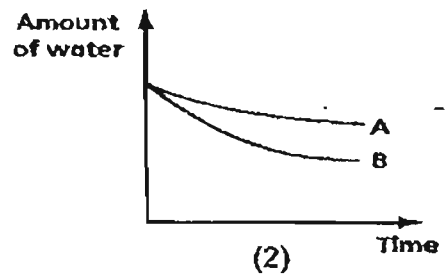
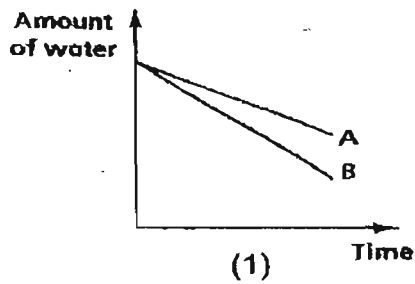


An egg

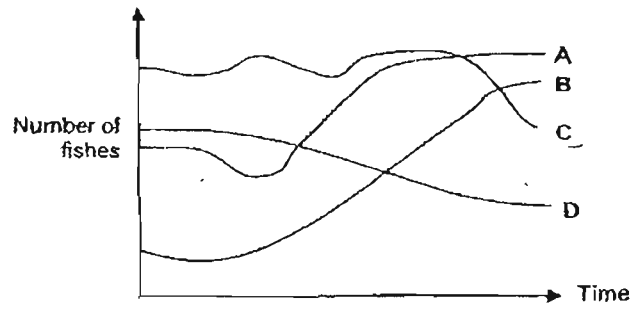
26. Candy placed two containers of water in the sun as shown below. Each container contained the same amount of water. She measured the change in the amount of water in the containers as time passes.



Which one of the following graphs correctly shows the changes in the amount of water in containers A and B?



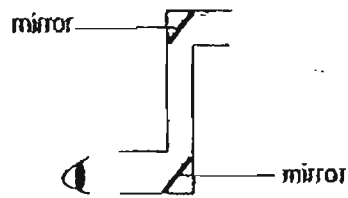
27. The following graph shows the number of fish in rivers A, B, C and D over a period of time.



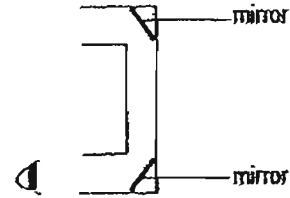
Which rivers are likely to be polluted?

- (1) A and B only  
 (2) A and C only  
 (3) B and D only  
 (4) C and D only
28. Mary made 4 viewing scopes below. Which one of the following allows her to view the objects behind her?

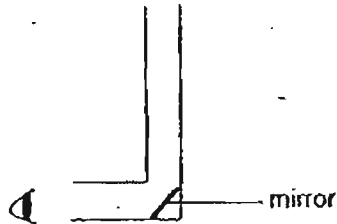
(1)



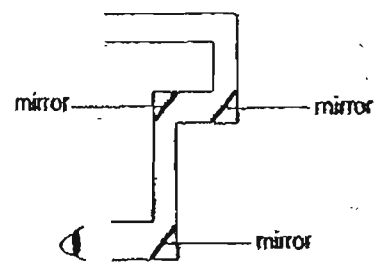
(2)



(3)

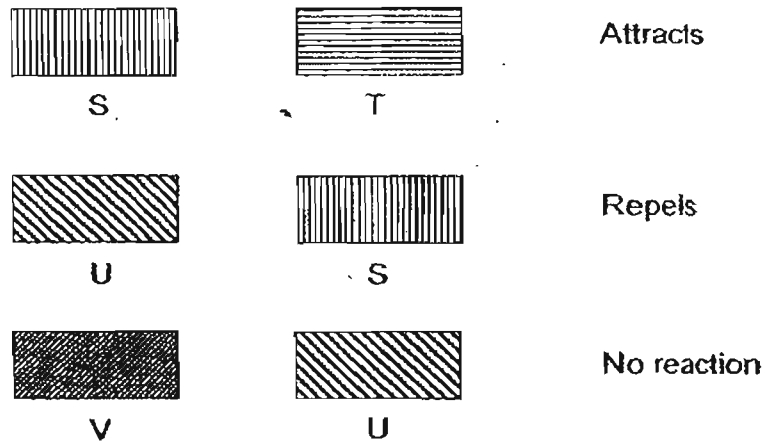


(4)





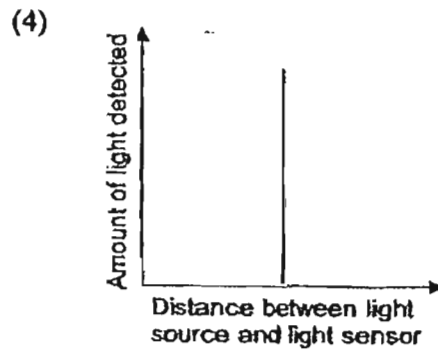
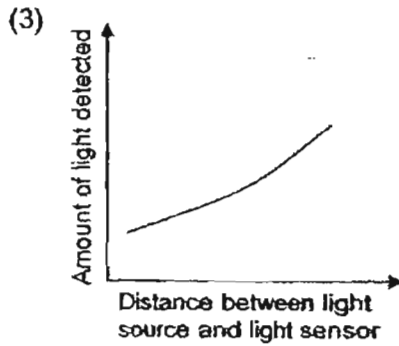
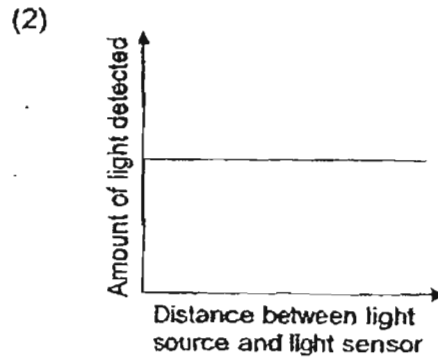
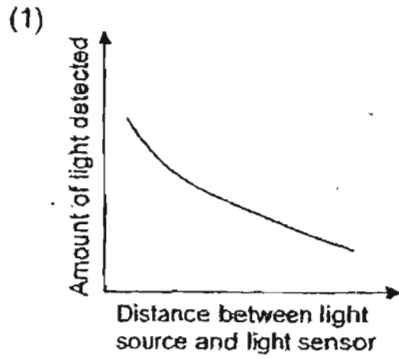
29. 4 objects, S, T, U and V are put close to each other to test if they are magnets. The results are shown below.



Which of the following classification is **definitely true**?

	Magnets	Non-Magnetic Material
(1)	S, T	V
(2)	U, S	V, T
(3)	S, T, U	V
(4)	U, S	V

30. A light sensor in a data logger measures the amount of light that it is exposed to. Which of the following graphs shows how the reading of the data logger changes as the light source is moving towards the light sensor?



**METHODIST GIRLS' SCHOOL (PRIMARY)**

**PRIMARY 4**

**END-OF-YEAR EXAMINATION 2007**

**SCIENCE**

**BOOKLET B1**

<b>SECTION</b>	<b>MARKS</b>
<b>A</b>	<b>60</b>
<b>B1</b>	<b>14</b>
<b>B2</b>	<b>26</b>
<b>TOTAL</b>	<b>100</b>

**NAME :** \_\_\_\_\_ (      )

**CLASS :** \_\_\_\_\_

**Total time for Booklets A and B: 1 h 30 min.**

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**Section B1: Open-ended (6 questions = 14 marks)**

Read each question carefully and fill in the blanks with the correct answer.

31. All objects on earth are classified as living things or non-living things. One group of living things is called animals which have certain characteristics as shown in Table A.

Animal	Characteristics of animals					
	Warm-blooded	Have feelers	Have scales	Have young alive	Have wings	Have gills
M		✓			✓	
N	✓				✓	
O	✓			✓		
P			✓			✓

Table A

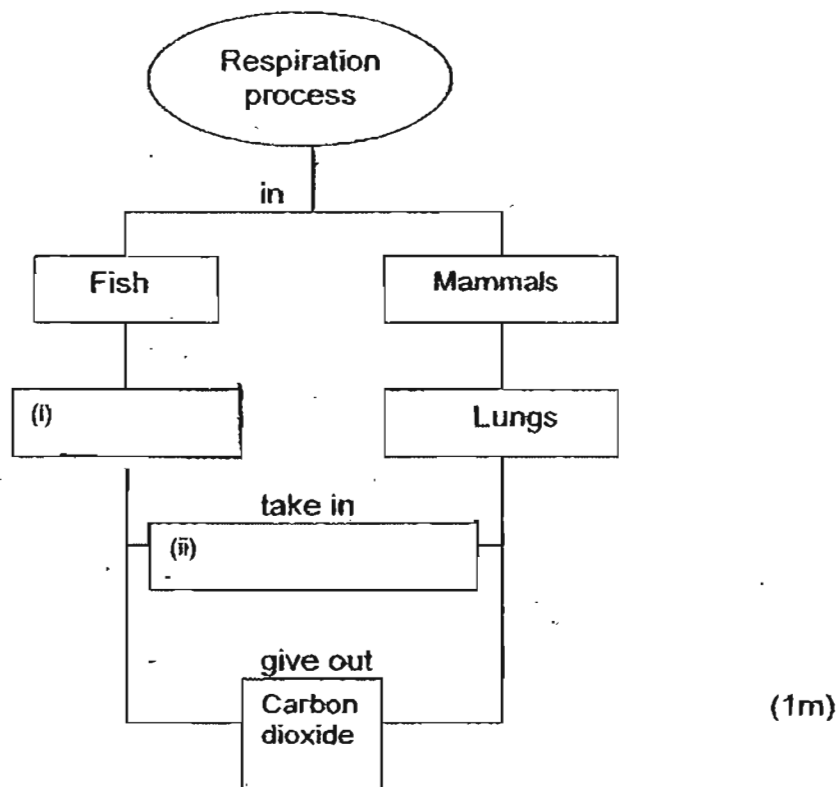
Animals can further be classified into sub-groups. In Table B, identify which sub-groups the animals N and P belong to. For each type of animal, give an appropriate example. The sub-group must not be repeated. (2m)

Animal	Sub-group	Example
M	<i>Insect</i>	<i>Housefly</i>
N		
O	<i>Mammal</i>	<i>Tiger</i>
P		

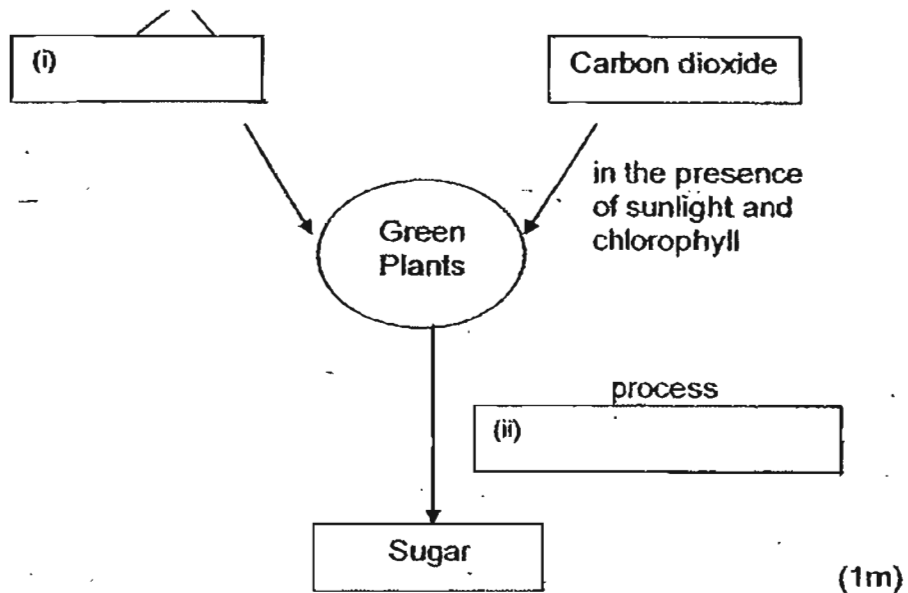
Table B

32. Study the concept maps below and fill in the blanks appropriately.

(a)



(b)



33. The diagram below shows a plant.



(a) What is 'S'? (1m)

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(b) What will 'S' develop into? (1m)

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34. One day, while Wei Lin was cutting some vegetables, she accidentally cut her finger and she could see blood flowing out from the wound. However, Wei Lin's mother told her not to worry and that the bleeding will stop after a while. The trickle of blood on Wei Lin's finger slows down after a while and thickens. The bleeding eventually stops.

(a) Explain why is this so. (1m)

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After a few days, a hard brownish layer appears over the cut area on Wei Lin's finger.

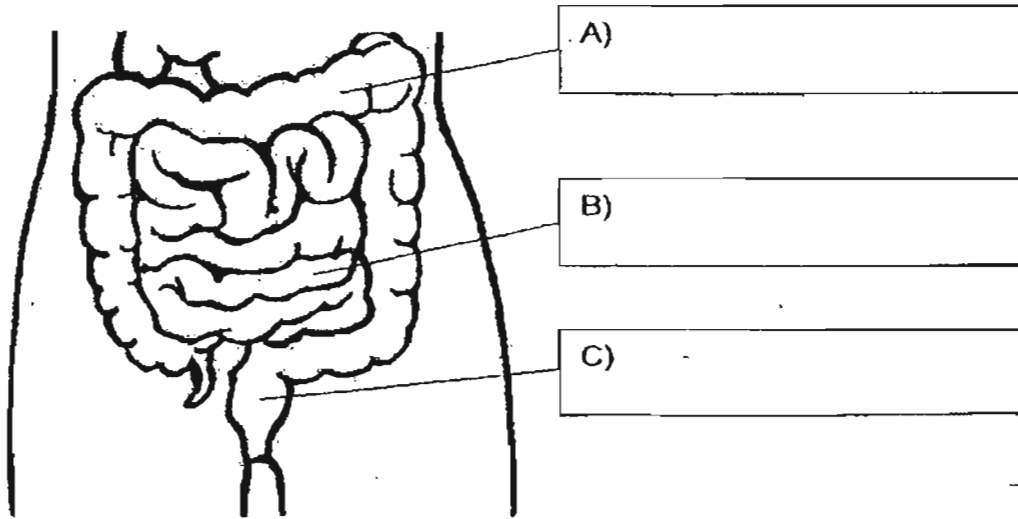
(b) What is the brownish layer known as? ( $\frac{1}{2}$  m)

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35. The diagram below shows a part of our digestive system.

(a) Label the parts A, B and C.

(1½ m)



(b) In which organ of the digestive system is digestion completed? (1m)

---

(c) What is the function of 'A'? (1m)

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36. Tom and Bala wanted to find out whether exercise affects their heartbeat and breathing rate. They performed the following exercises and recorded their results as shown below.

	Mass (kg)	Type of exercise	Duration of exercise (min)	Number of heartbeats per minute	Number of breaths per minute
Tom	60	Skipping	5	120	25
Bala	70	Jogging	10	130	40

- (a) Based on the table, what is the relationship between the number of heartbeats and breathing rate? (1m)

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- (b) Based on the table above, the boys wanted to compare their number of heartbeats. The teacher commented that it is not a fair comparison:

Give two reasons to explain the teacher's comment. (2m)

(i) 

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(ii) 

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- End of paper -



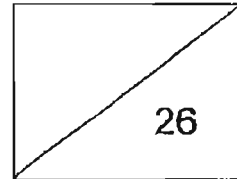
**METHODIST GIRLS' SCHOOL (PRIMARY)**

**PRIMARY 4**

**END-OF-YEAR EXAMINATION 2007**

**SCIENCE**

**BOOKLET B2**



**NAME :** \_\_\_\_\_ (      )

**CLASS :** \_\_\_\_\_

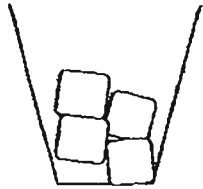
**Total time for Booklets A and B: 1 h 30 min.**

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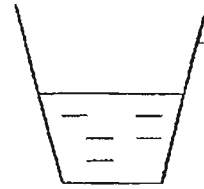
**Section B2: Open-ended (10 questions = 26 marks)**

Read each question carefully and fill in the blanks with the correct answer.

37. An experiment is set up as shown below. One glass contains some ice cubes while the other contains some hot water.



A glass of ice cubes

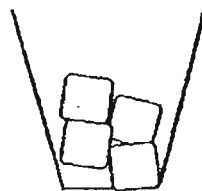


A glass of hot water

- (a) Indicate the changes of states you may expect to observe in each glass after 5 minutes. (2m)


Matter	Changes of state (eg. <u>Gas</u> → <u>Liquid</u> )
i) Ice cubes	_____ → _____
ii) Hot water	_____ → _____

- (b) Some water droplets appeared on the glasses. Draw on the diagram below where the water droplets may appear. (1m)



A glass of ice cubes

38. Below is a simple experiment to show how a hot-air balloon work.

Procedure	Picture
<ol style="list-style-type: none"><li>1. Take a large paper bag and hold it with the mouth of the bag open and downward. Make sure there is no hole in it.</li><li>2. Now blow warm air from a hairdryer into the bag.</li><li>3. Let the hairdryer blow for 2 minutes and then turn it off immediately.</li><li>4. Let go of the bag and observe what happen.</li></ol>	

(a) What will happen to the paper bag when it is released? (1m)

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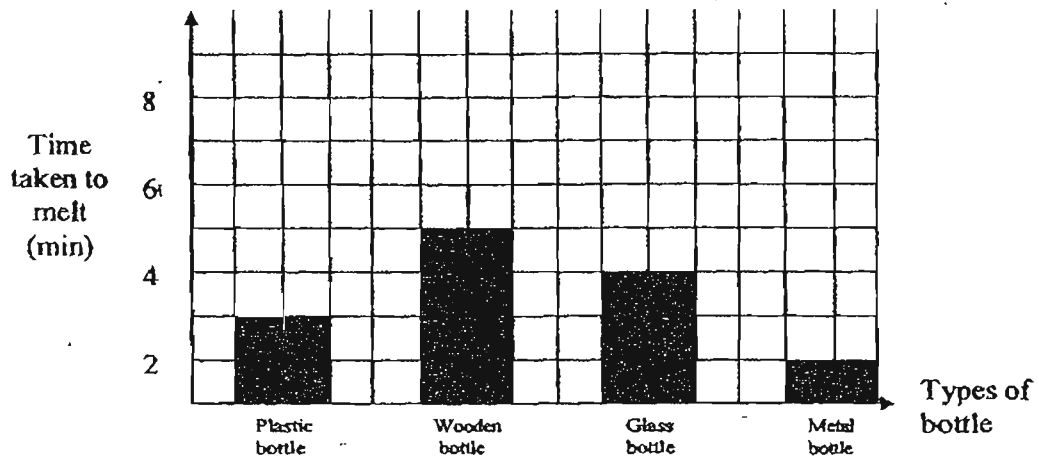
(b) Do you think the same effect will be achieved if the warm air is replaced with cooler air? Why? (2m)

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39. Lisa did an experiment with four bottles of different materials. She put an ice cube in each bottle and capped them. She recorded the time taken for the ice cube to melt in each bottle and plotted the graph as shown below.



- (a) Which bottle was the best conductor of heat? (1m)

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- (b) How long did the ice cube in the wooden bottle take to melt? (1m)

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- (c) What is the relationship between the time taken for an ice cube to melt and the type of bottle? (1m)

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40. Sometimes when we take out a bottle of jam from the refrigerator, we find it difficult to open the lid.

(a) Why is it so? (Assume the bottle is made of glass and the lid is made of metal.) (1m)

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(b) What can you do to open the lid? (Assume you have no strength to open the lid and there is no one around to help you.) (1m)

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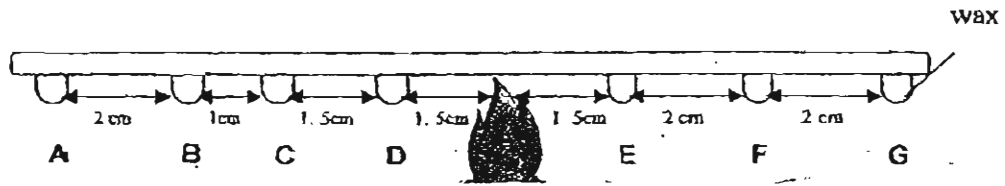
(c) Explain your answer in (b). (1m)

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41. Some candle wax is dripped on a metal rod and a flame is placed below the rod as shown below.



- (a) When a heat source is placed under the metal rod as shown in the diagram, which candle will be the fast to drop? (1m)

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- (b) Based on your answer in (a), how does heat flow? (1m)

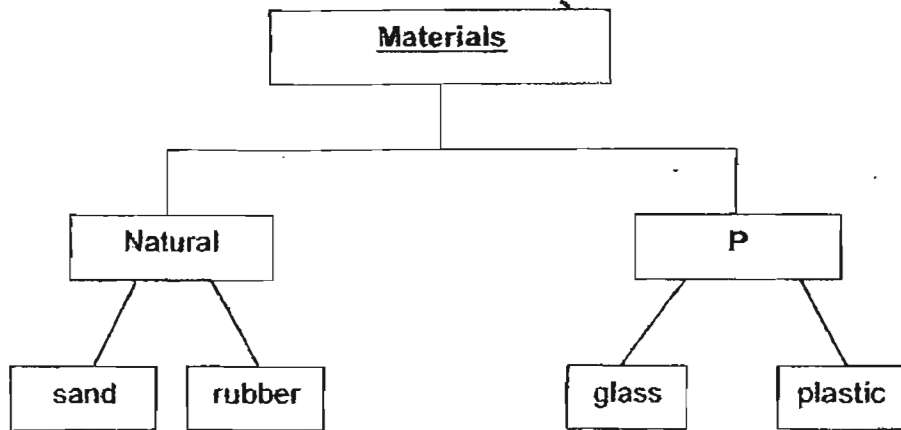
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42. The following shows a classification table of materials.



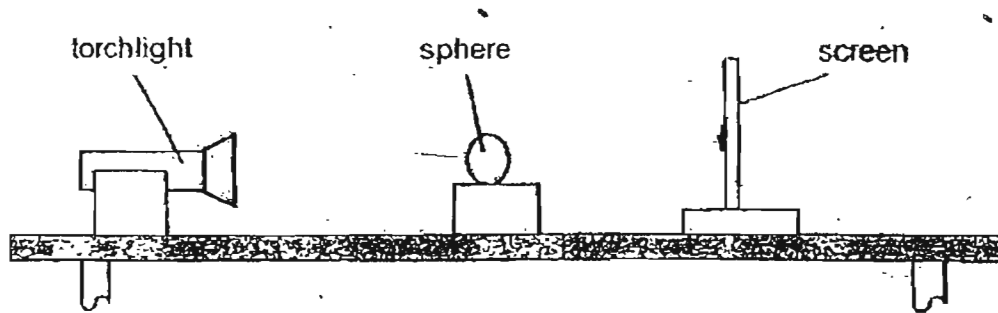
(a) What is the heading 'P'? (1m)

'P' is \_\_\_\_\_

(b) Give the name of another material that can be classified under 'P'. (1m)

\_\_\_\_\_  
\_\_\_\_\_

43. Dorothy set up an experiment as shown below.



A shadow was formed on the screen after the torch was switched on in a dark room.

(a) Why was the shadow formed? (1m)

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(b) As the sphere was moved towards the screen, describe two changes in the shadow that Dorothy would observe on the screen. (1m)

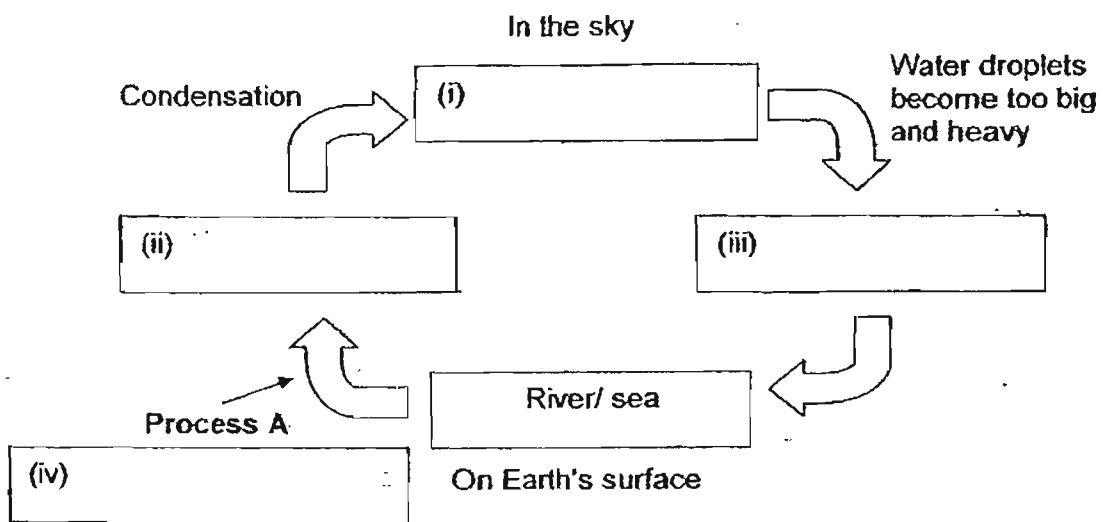
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44. (a) Complete the water cycle below by filling in the different stages and process A. (2m)

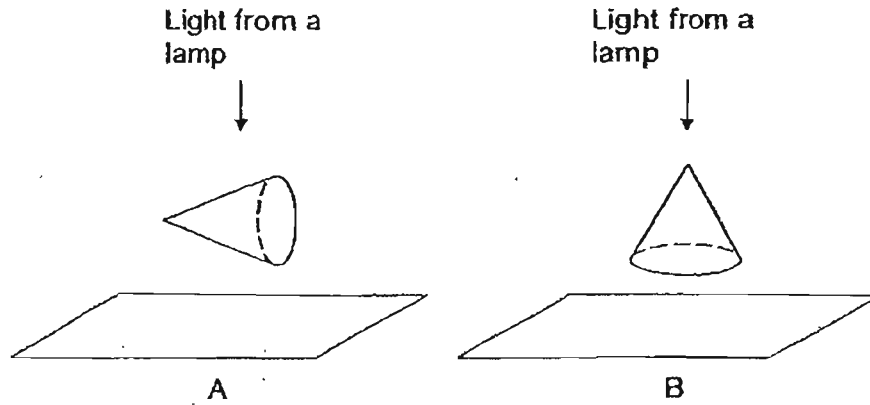


- (b) Explain why the sun plays an important role in the water cycle. (1m)

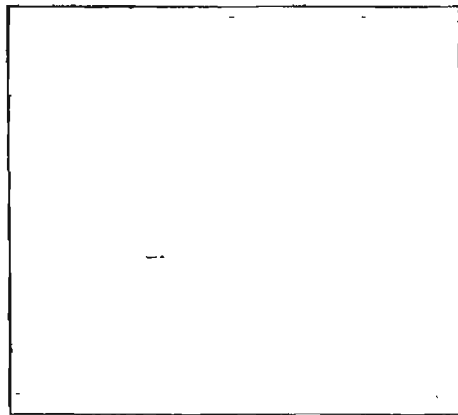
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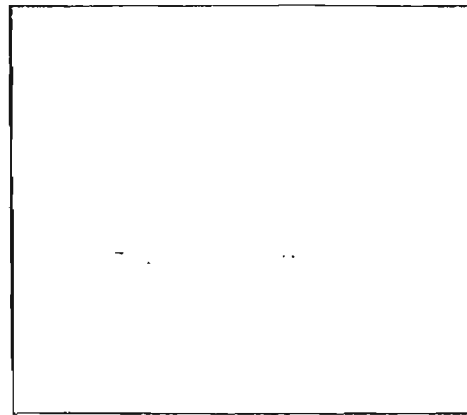
45. Benjamin placed two identical cones in different positions directly under identical light sources in a dark room. He observed the shadows formed on Screens A and B. (2m)



In the boxes below, draw the shadow that Benjamin would be able to observe on each screen.



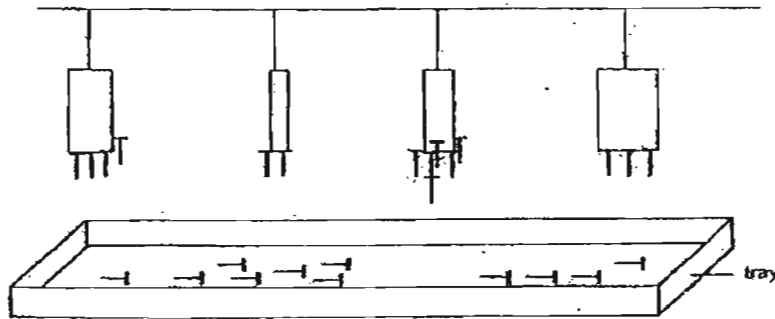
Screen A



Screen B

46. Gary conducted an experiment as shown below to find out if the magnetic strength of a bar magnet increases with its size.

The result of his experiment is as shown below.



- (a) What conclusion can Gary draw based on his result? (1m)

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- (b) Name one variable that should be kept the same in this experiment. (1m)

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- (c) Based on Gary's results, which of the following statements is/ are **definitely true**?

(Indicate only the true statement(s) with a tick "✓".) (1m)

i) Magnetic force can act at a distance.

ii) The nails are made of steel.

- End of paper -



# ANSWER SHEET

M G S PRIMARY SCHOOL - PRIMARY 4 SCIENCE 2007  
SEMESTRAL ASSESSMENT (2)

1. 4 Bird, Parrot
2. 4 P; Fish Gold Fish
3. 3
4. 2 32) a) i) Gills ii) Oxygen
5. 3 b) i) Water ii) Photosynthesis
6. 2
7. 3 33) a) 's' is a bud.
8. 3 b) 's' will develop into a flower.
- 9.
10. 34) a) When Wei Lin cutted her finger, the platelets coted on her wound and stopped more blood from coming out.
11. 3 b) The brownish layer is known as a scab.
12. 3
13. 1
14. 2 35) a) A) Large intestine
15. 2 B) Small intestine
- 16.
17. 4 C) Rectum
18. 4 b) In the small intestine.
19. 4 c) It is to store the undigested food and extract water from the undigested food.
20. 2
21. 3
22. 3 36) a) The breathing rate increases as the heart beats increases.
23. 1 b) i) Tom was skipping and Bala was jogging.
24. 2 ii) Tom exercised for only five minutes while Bala exercised for ten minutes.
25. 1
26. 3
27. 4
28. 2
29. 4
30. 1

- 37) a) i) Solid  $\rightarrow$  Liquid  
 ii) Liquid  $\rightarrow$  Gas

b)



- 38) a) It will start to fly.

No. The warm air made the air in the bag expand and when there is more air, the air will have no space to fit and push the bag up. But cool air made the air inside the bag contract and paper bag will go to the ground. No, because hot air rises and cold air sinks.

- 39) a) The metal bottle.

b) It took five minutes to melt.  
 c) The ice cube will melt faster with the better conductor of heat.

- 40) a) The metal lid contracts more than the glass

b) It can pour hot water onto the lid.  
 c) The hot water will make the lid expand and grow bigger.

- 41) a) All wax A will be the last to drop

b) Heat flows from a hot place to a cold place.

- 42) a) Man-made.

B) Nylon

- 43) a) The sphere is able to block the light from the torch and cast a shadow on the screen.

b) The shadow grew smaller and darker.

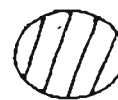
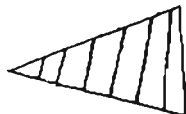
- 44) a) i) cloud    ii) water vapour    iii) rain

iv) evaporation

b) It helps the water to evaporate.

- 45) Screen A.

Screen B.



- 46) a) The magnetic strength does not increase with its size.

b) The length of the magnet to the tray.

c) i)  $\checkmark$