

NAME : (_____)

CLASS : _____

METHODIST GIRLS' SCHOOL (PRIMARY)

MID-YEAR EXAMINATION 2007

PRIMARY FOUR

SCIENCE

BOOKLET A

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

Booklet A : 30 Questions (60 marks)

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

Methodist Girls' School (Primary)
Primary 4 Science
First Semestral Assessment 2007

Section A (30 x 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. Which of the following are needed by all living things?

- A: Food
- B: Water
- C: Oxygen
- D: Sunlight

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

2. Ian found a creature in his garden and observed these characteristics:-

- It's fixed in a position.
- It responds slowly to changes.
- It does not make its own food.
- It feeds on dead and live animals and plants.

What do you think is this creature?

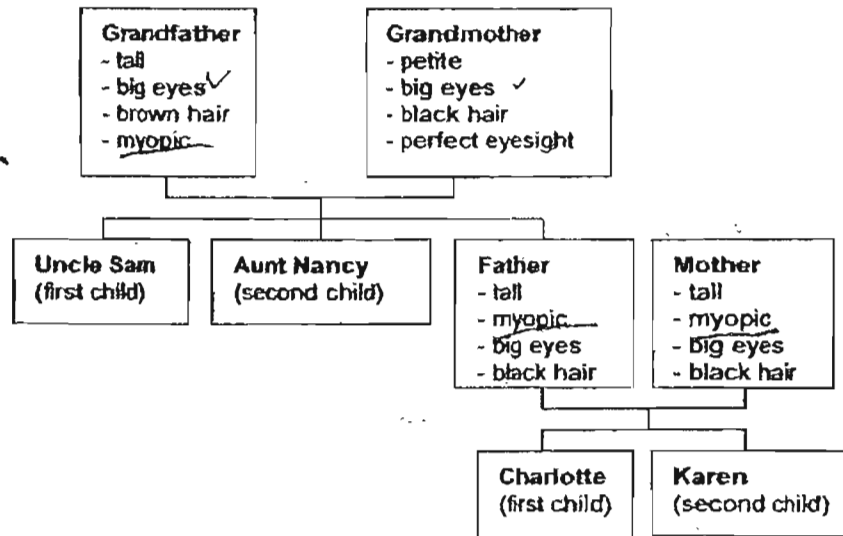
- (1) A plant
- (2) A fungus
- (3) An animal
- (4) A micro-organism

3. Which living things are grouped incorrectly based on the way they reproduce?

- (1) Ant, owl, spider and butterfly
- (2) Dolphin, guppy, man and rat
- (3) Angelfish, hen, ostrich and turtle
- (4) Kingfisher, penguin, tilapia and whale

4. Which one of the statements below contains at least a living thing, a non-living thing, and a non-living thing that was once alive?
- (1) A plastic bag full of vegetables and meat
 - (2) A porcelain vase of fresh roses and tulips
 - (3) A glass tank of fishes on a wooden table
 - (4) Children playing with a beach ball in the pool
5. The Underwater World in Sentosa is the largest tropical oceanarium in Asia. Beautiful marine life can be viewed through the specially constructed glass tank. Which statement correctly explains why glass is used to construct the tank?
- (1) It does not crack easily
 - (2) It is the cheapest material in the world
 - (3) It allows light to pass through and it is waterproof
 - (4) It can conduct heat away to the surrounding easily
6. Abel, Ben and Caleb each brought a water bottle with them when they went hiking at Fort Canning Hill. Abel brought a plastic water bottle with 500ml of water, Ben brought a metal water bottle with 500ml of water and Caleb brought a thermo flask with 500ml of water. After hiking for an hour under the hot sun, they found that their water had different temperature. Which statement has correctly arranged the water bottle according to the water temperature in ascending order?
- (1) Thermo flask, plastic water bottle, metal water bottle
 - (2) Plastic water bottle, thermo flask, metal water bottle
 - (3) Metal water bottle, plastic water bottle, thermo flask
 - (4) Metal water bottle, thermo flask, plastic water bottle
7. Which one of the following pairs of items shows an object and its appropriate material?
- (1) Frying pan -- metal only
 - (2) Spectacles -- glass only
 - (3) Raincoat -- cloth and plastic
 - (4) Bicycle's wheel -- rubber and metal

During the Science lesson, Charlotte drew her family tree as below. Refer to this family tree to answer Question 8 and 9.



8. By referring to the family tree, which description would best describe how Aunt Nancy may look like?

- (1) She is petite with brown hair and a sharp nose
- (2) She is tall and has a pair of blue eyes with black hair
- (3) She is petite and has a pair of small eyes with red hair
- (4) She is tall with brown hair and wears a pair of spectacles

9. Recently, Charlotte was diagnosed to be myopic, she hopes that her younger sister, Karen, would not be myopic when she grows older. Which statement is most likely to be true?

- (1) Karen is most likely to be myopic in future because she looks like Charlotte.
- (2) Karen is most likely to be myopic in future because both her parents are myopic ✗
- (3) Karen is most likely to have a perfect eyesight because her grandmother says so
- (4) Karen is most likely to have a perfect eyesight because she looks like her grandmother

10. After explaining the 3 states of Matter, a Science teacher asked the class to explain which state water is in. The following are the answers the class gave:-

- A: Water can be a solid, liquid or gas
- B: Water is definitely a gas because it is steam
- C: Water is definitely a solid because ice is made from it
- D: Water changes its state depending on the temperature
- E: Water is definitely a liquid because we drink it everyday

Which option would best explain the state of water?

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

11. While learning the 3 states of Matter, Gary learnt that the melting points and the boiling points of the following matters at normal atmospheric pressure are:

| Matter | Melting point (°c) | Boiling point (°c) |
|---------|--------------------|--------------------|
| Argon | -189.35 | -185.85 |
| Iodine | 113.70 | 184.30 |
| Iron | 1538.00 | 2861.00 |
| Mercury | -38.83 | 356.73 |

Which statement is correct about the states of these gases?

| | Matter | 0°c | Room temperature | 100°c |
|-----|---------|--------|------------------|-------|
| (1) | Argon | Gas | Gas | Gas |
| (2) | Iodine | Liquid | Solid | Gas |
| (3) | Iron | Solid | Liquid | Gas |
| (4) | Mercury | Liquid | Liquid | Gas |

12. One night, Joyce saw her own shadow while walking her dog. When she saw her dog stepped into her shadow, she concluded that shadow is not a matter. Which statements below are true?

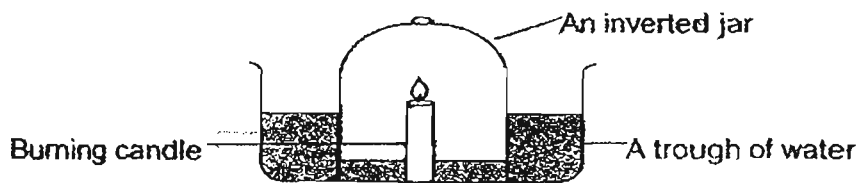
- A: Shadow is not a solid, liquid or gas
- B: Shadow has mass and occupies space
- C: Shadow does not have mass but covers an area

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

13. Which of the following processes use up oxygen and release carbon dioxide?

- (1) Combustion and Digestion
- (2) Combustion and Respiration
- (3) Respiration and Photosynthesis
- (4) Decomposition and Photosynthesis

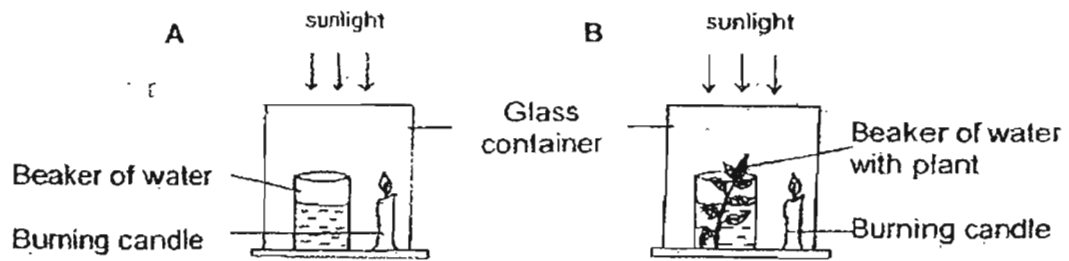
14. A candle is burnt in an inverted jar. Bubbles can be seen coming out of the water.



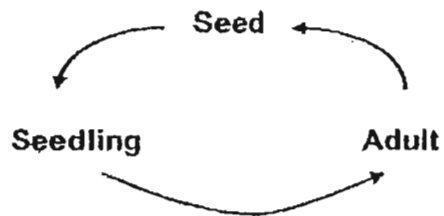
Which statement is **true** about the water level?

- (1) The water level in the jar will rise
- (2) The water level in the jar will drop
- (3) The water level in the trough will rise
- (4) The water levels in the jar and trough remain the same

15. Two experiment set-ups A and B are placed under the sun. Set-up A consists of a beaker of water and a burning candle inside a glass container. Set-up B consists of exactly the same apparatus except that it has a small plant in the beaker. Study the following diagram. Which statement is **true** about the observation of the experiment?



- (1) Candle in Set-up A will go out first
 - (2) Candle in Set-up B will go out first
 - (3) Both candles will go out at the same time
 - (4) Both candles will keep on burning for a long time
16. The diagram below shows the life cycle of a plant.



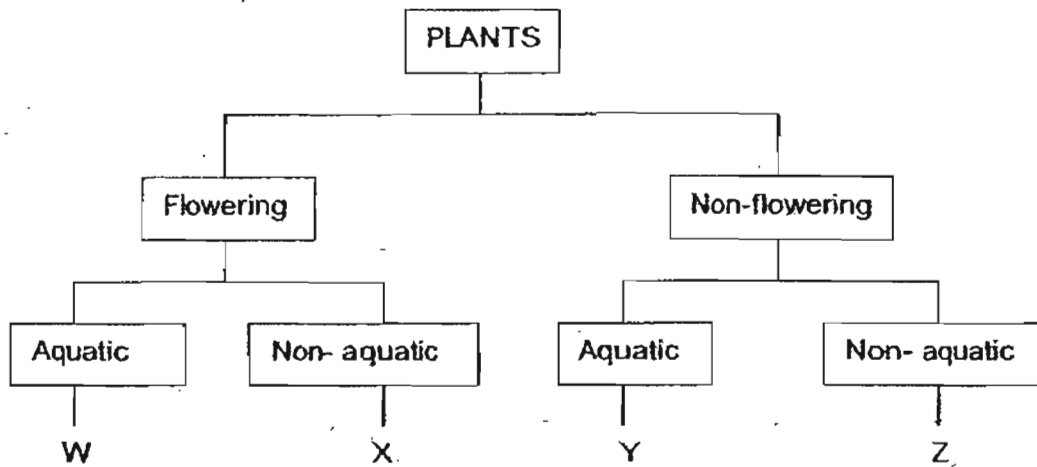
Based on the above life cycle, what can you infer about the plant?

- (1) It is a flowering plant.
- (2) It will grow into a tree.
- (3) The fruit can be eaten.
- (4) The seeds are dispersed by animals.

17. The following table gives information on four plants, A, B, C and D, based on two characteristics. A tick (✓) shows that the plant has the characteristic.

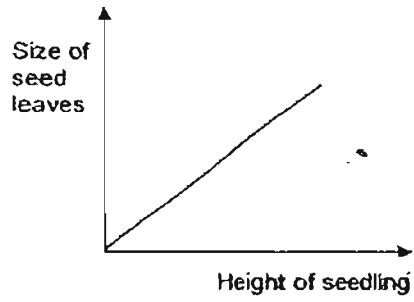
| Characteristic | A | B | C | D |
|----------------|---|---|---|---|
| Grows on Land | | ✓ | | ✓ |
| Bears fruit | ✓ | | | ✓ |

From the information above, where do plants B and C belong in the following classification table?

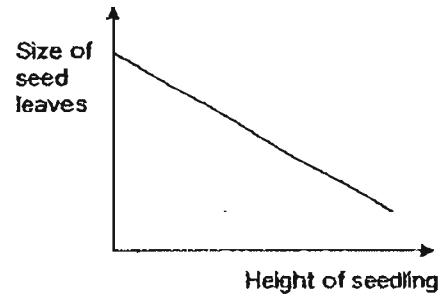


| | Plant B | Plant C |
|-----|---------|---------|
| (1) | X | Z |
| (2) | Z | Y |
| (3) | Y | W |
| (4) | W | X |

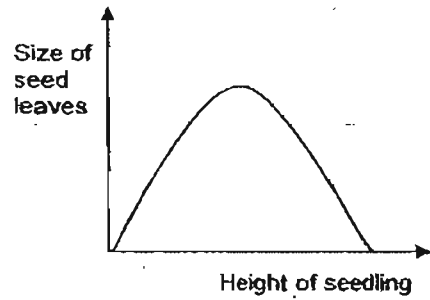
18. Which of the following graphs correctly shows the relationship between the size of the seed leaves and the height of the seedling?



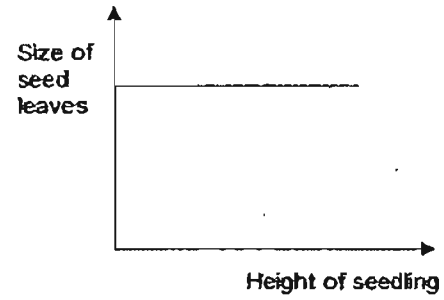
(1)



(2)

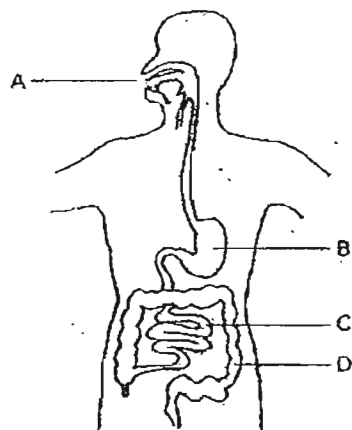


(3)



(4)

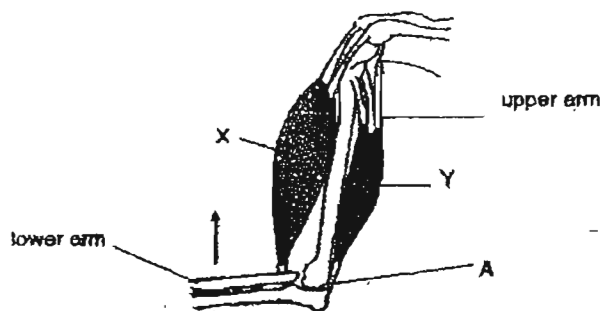
19. The diagram below shows the human digestive system.



In which part, A, B, C or D is food digested and passed into blood vessels?

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

20. The diagram below shows the muscles of a human arm.



Which of the following correctly shows the type of Joint at A and the reactions of the muscles when the lower arm is raised?

| | Muscle X | Muscle Y | Joint A |
|-----|-----------|-----------|-----------------|
| (1) | Relaxes | Contracts | Ball and Socket |
| (2) | Contracts | Relaxes | Ball and Socket |
| (3) | Relaxes | Contracts | Hinge |
| (4) | Contracts | Relaxes | Hinge |

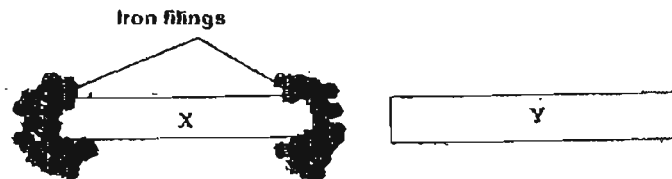
21. The table below shows what four vases A, B, C and D contain.

| Vase | Amount of chemical Y (mg) | Amount of water (ml) | Number of flowers |
|------|---------------------------|----------------------|-------------------|
| A | None | 100 | 3 |
| B | None | None | 3 |
| C | 5 | 100 | None |
| D | 5 | 100 | 3 |

Mary wanted to find out if Chemical Y helps to keep flowers fresh for a longer time. Which two vases should she use to conduct the experiment?

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

22. X and Y are two objects placed very close to each other on a piece of paper laced with iron filings. The diagram below shows what happens to X and Y.



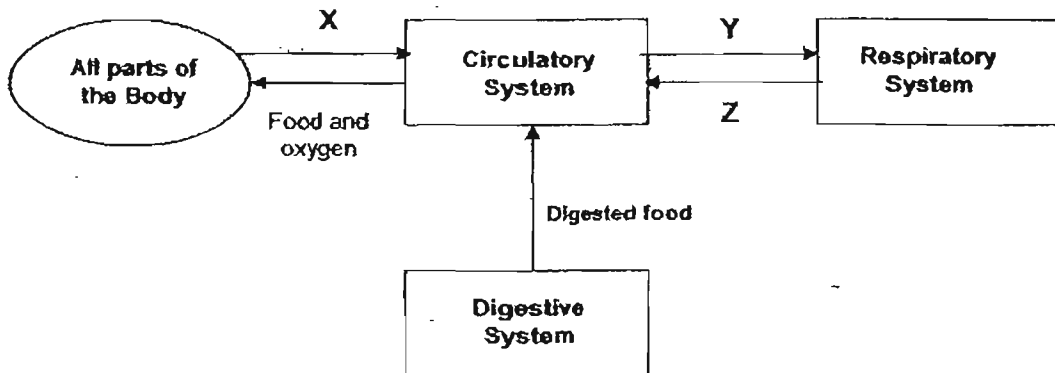
Which of the following statement(s) is/are **definitely true**?

- A: Object X is a magnet.
 - B: Object X is made of aluminum.
 - C: Object Y is made of copper.
 - D: Object Y is made of magnetic material.
- (1) A only
 - (2) A and B
 - (3) A and C
 - (4) A, C and D

23. Candice was about to eat a banana when she discovered that it was rotten. What senses are involved here?

- (1) Smell and taste
- (2) Smell and Sight
- (3) Smell and touch
- (4) Touch and Sight

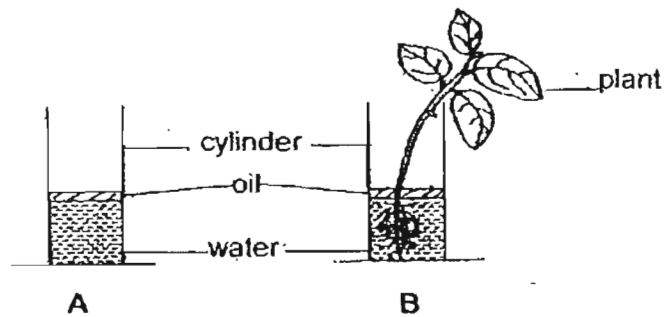
24. The diagram below shows how the respiratory, circulatory and digestive systems in our body work together.



Which one of the following correctly shows the gases represented by X, Y and Z?

| | X | Y | Z |
|-----|----------------|----------------|----------------|
| (1) | carbon dioxide | oxygen | carbon dioxide |
| (2) | carbon dioxide | carbon dioxide | oxygen |
| (3) | oxygen | carbon dioxide | carbon dioxide |
| (4) | oxygen | carbon dioxide | oxygen |

25. Xiao Hong carried out an experiment to find out if plants take in water. She placed equal amount of water in cylinders A and B which are of the same size. She then placed a plant in cylinder B as shown below.



What is the purpose for Xiao Hong to set up cylinder A?

X: To show that water is absorbed by the plant.

Y: To act as a control for the experiment.

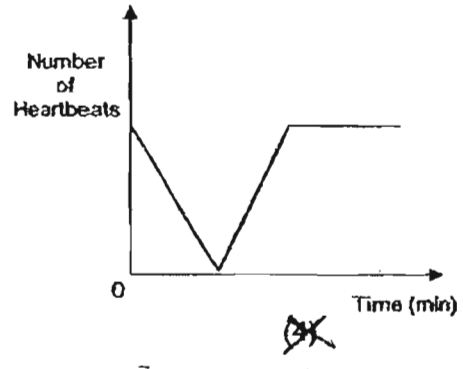
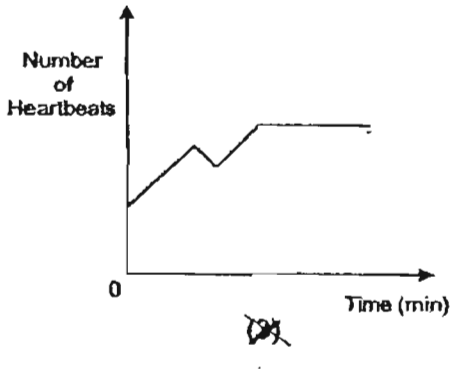
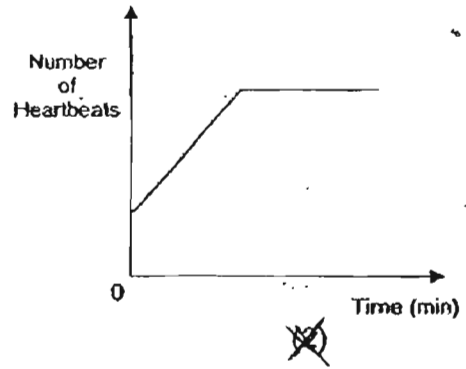
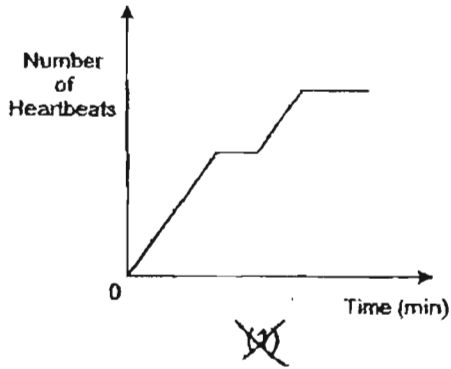
Z: To show the amount of water lost through evaporation.

- (1) X and Y only
 (2) X and Z only
 (3) Y and Z only ✗
 (4) X, Y and Z

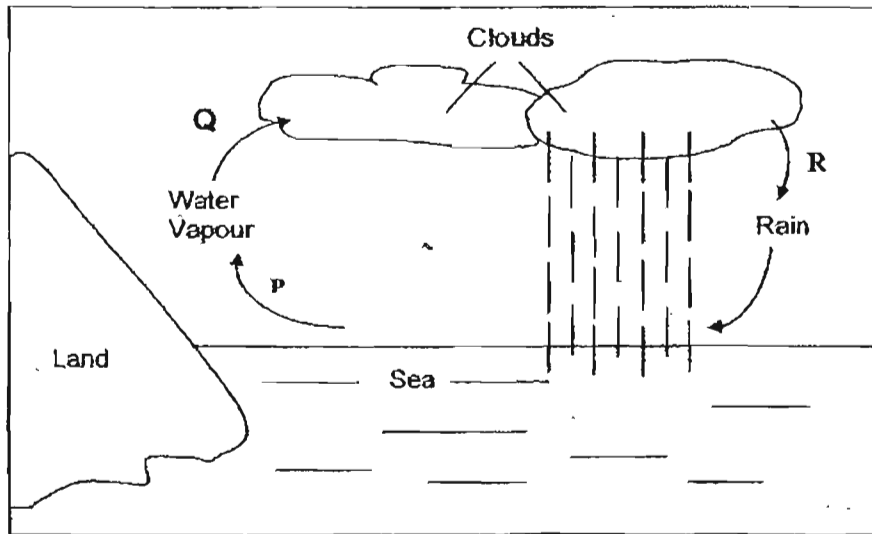
26. Water has three states. Which of the following are correct examples of the different states?

| | Solid | Liquid | Gas |
|-----|---------|--------------|--------------|
| (1) | Ice | Clouds | Glacier |
| (2) | Iceberg | Water vapour | Dew |
| (3) | Snow | Dew | Mist |
| (4) | Glacier | Mist | Water vapour |

27. Bill went jogging up Bukit Timah Hill. He took a 5-minute rest halfway up the hill. Then, he continued jogging until he reached the peak of the hill. Which one of the following graphs shows the likely change in his heartbeat when he started jogging till he reached the peak of the hill?



28.



Study the diagram above. Which of the following statements are **true**?

- A: Q takes place only when water vapour evaporates.
- B: P takes place at a higher temperature than Q.
- C: P does not take place at a fixed temperature.
- D: Q is known as evaporation.

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

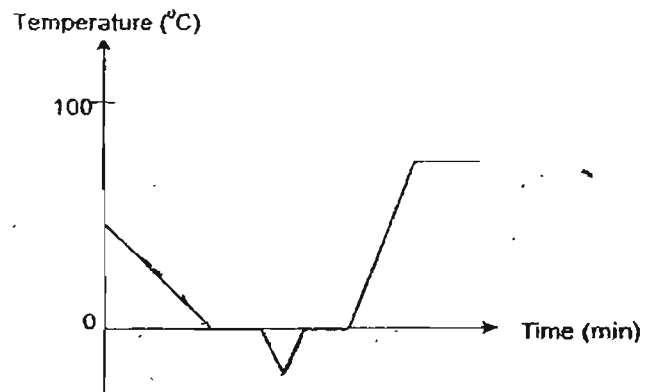
29. Four identical containers A, B, C and D were filled with the same amount of water. They were left in places with four different conditions for half a day as shown in the table below.

| Container | Condition |
|-----------|----------------------------|
| A | Sunny and windy |
| B | Sunny and not windy |
| C | In the shade and windy |
| D | In the shade and not windy |

Arrange the containers A, B, C and D in order starting with the most amount of water left after half a day.

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

30. The graph below shows the temperature of water during an experiment.



How many changes of state did the water go through?

- (1) 1
- (2) 2
- (3) 3
- (4) 4

NAME _____

CLASS : _____

METHODIST GIRLS' SCHOOL (PRIMARY)

MID-YEAR EXAMINATION 2007

PRIMARY FOUR

SCIENCE

BOOKLET B

| BOOKLET | MARKS |
|----------------|--------------|
| A | / 60 |
| B | / 40 |
| TOTAL | |

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

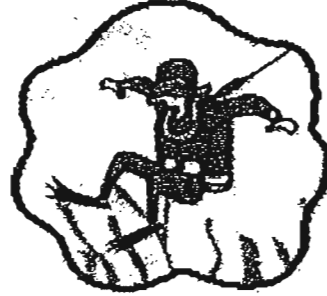
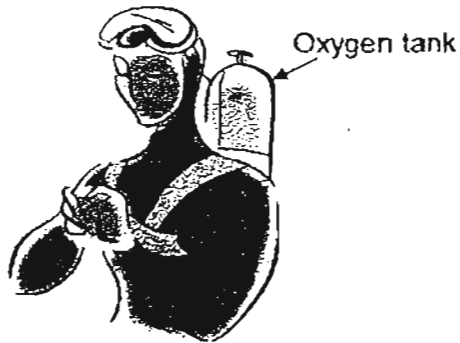
Booklet B : 16 Questions (40 marks)

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Section B: Open-ended (16 questions = 40 marks)

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

31. Divers enjoy going underwater to view the beauty of the sea bed. They are to put on a mask with a breathing tube connecting from an oxygen tank to their mouths. The oxygen tank may weigh about 5 kg.



The weight of the oxygen tank can be a burden to the divers, however the divers usually feel lighter once they get into the water.

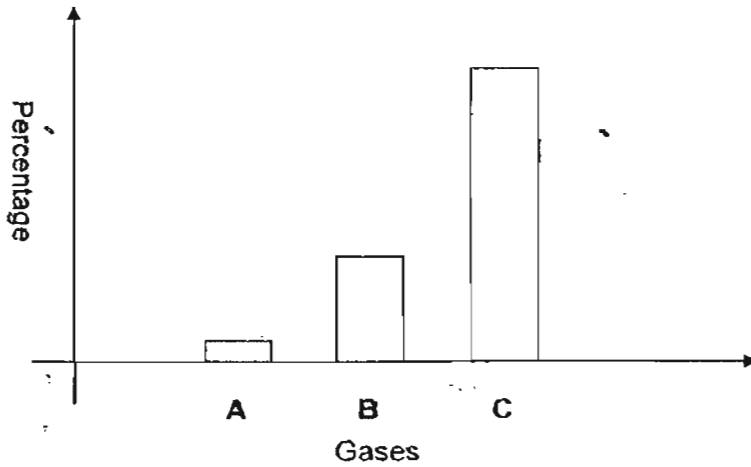
- (a) Does the mass of the oxygen tank change once the divers are underwater? Explain why the oxygen tank feels lighter when they are underwater. (1 m)

It is advised that the way the divers breathe is not the usual way and thus it is unhealthy to breathe too long in that manner.

- (b) What is the usual way that we should breathe? (1 m)

- (c) Why is it unhealthy for us to breathe through our mouth? (1 m)

32. The following graph represents the component of gases found in air.



(a) By looking from the graph, indicate which letter (A, B or C) represents the gases in the table below. Write down the percentage of their component in air.

| | Gases | Letter (A, B or C) | Percentage |
|------|-------------|--------------------|------------|
| i) | Oxygen | | |
| ii) | Nitrogen | | |
| iii) | Other gases | | |

(1½ m)

(b) Carbon Dioxide is also one component of air. State 2 applications of this gas. (1m)

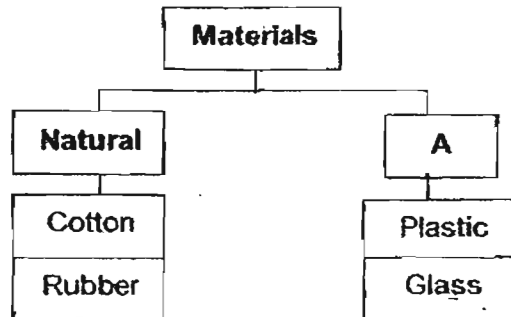
33. Study the table carefully

| | Need air | Can move | Can reproduce | Once Alive |
|----------|----------|----------|---------------|------------|
| Object E | ✓ | | | ✓ |
| Object F | ✓ | ✓ | ✓ | |
| Object G | | | | ✓ |

Write T for True or F for False in the bracket provided after each statement. (3m)

- (a) Object E is a living thing. ()
- (b) Object E, F and G will die. ()
- (c) Object G can be a leather bag. ()
- (d) Object F and G need sunlight to make food. ()
- (e) Object F needs food to grow and move around. ()
- (f) Object E and F can respond to changes around them. ()

34. Study the classification chart below and answer the questions accordingly.



(a) What should the heading A be? (1 m)

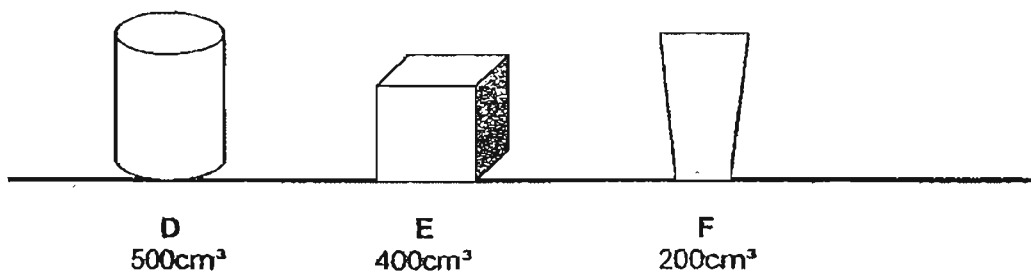
(b) Name another material that can be classified under **Natural** and under the heading A. (1 m)

Natural: _____

A : _____

J8

35. Anna pumped 200cm^3 of air into each of the containers D, E and F and covered them with a lid.



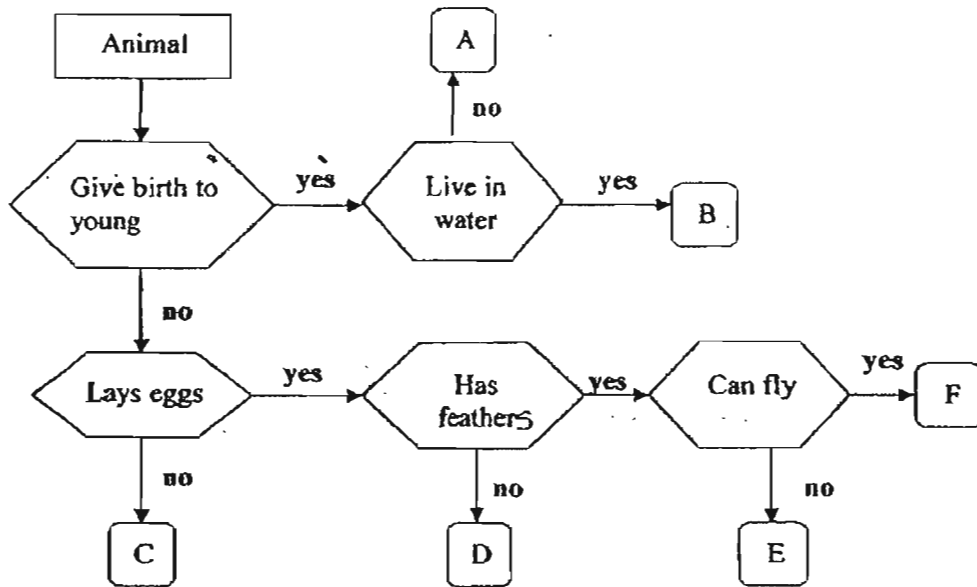
(a) Fill in the table below the volume of air in the container after she pumped in the air. (1½m)

| Container | D | E | F |
|--|---|---|---|
| Volume of air in the container after she pumped in the air (cm^3) | | | |

(b) Air is a Matter. For each row, tick the box that correctly represents the property of air in that category. (1½ m)

| Matter : Air | 1 | 2 | 3 |
|--|--|--|---|
| (i) The molecular arrangement of air | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (ii) The movement of the air molecules | Vibrate within one spot. Slight movement <input type="checkbox"/> | Vibrate slowly. Movement is quite restricted <input type="checkbox"/> | Vibrate randomly. Molecules are free to move in any direction <input type="checkbox"/> |
| (iii) Its properties | Definite shape but no definite volume <input type="checkbox"/> | No definite shape and volume <input type="checkbox"/> | Definite shape and volume <input type="checkbox"/> |

36. Study the flow chart below.



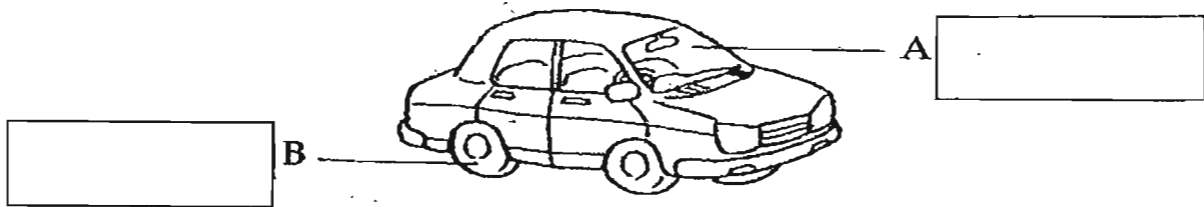
(a) Describe the characteristics of animal E. (1 m)

(b) Name an animal that can be placed at : (1 m)

A: _____

B: _____

37. Fill in the blanks by determining the materials it is made from. (1 m)



(a) State 2 properties of material B that makes it suitable to make that part of the car. (1 m)

38. Here is a table which gives you some information of 4 different items.

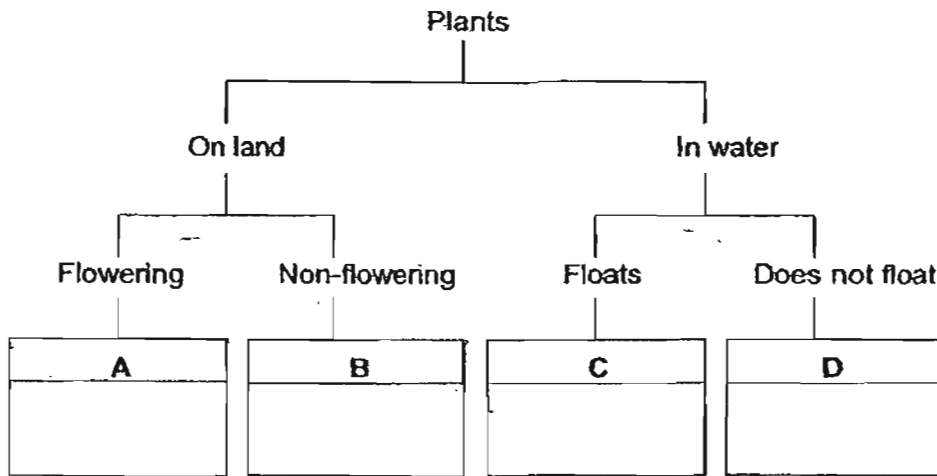
| Item | Has Mass | Occupy Space | Definite Shape | Compressibility |
|------|----------|--------------|----------------|-----------------|
| M | ✓ | ✓ | ✓ | |
| N | ✓ | ✓ | | ✓ |
| P | | | | |
| Q | ✓ | ✓ | | |

(a) Place the items into the correct boxes based on their properties. (1½ m)

Solid: Liquid: Gas:

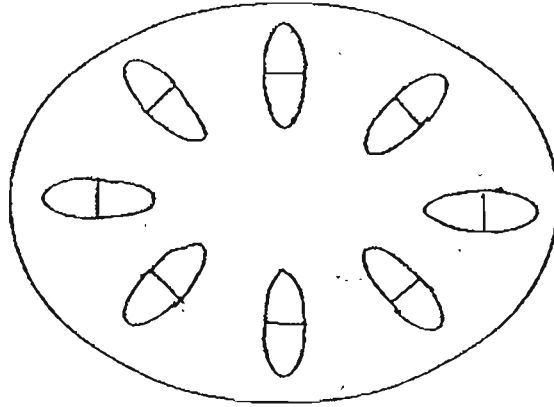
(b) Give ONE example to represent Item P. (1 m)

39. The diagram below shows a classification chart. How would you group the plants: fern and hydrilla in this table? Write your answers in the boxes provided. (2m)



(a) Base on the classification chart, state one difference between Plant A and Plant C? (1m)

40. The balsam plant was placed in a beaker containing blue-coloured water. A few days later, the stem was cut and the cross-section of the stem is shown below.

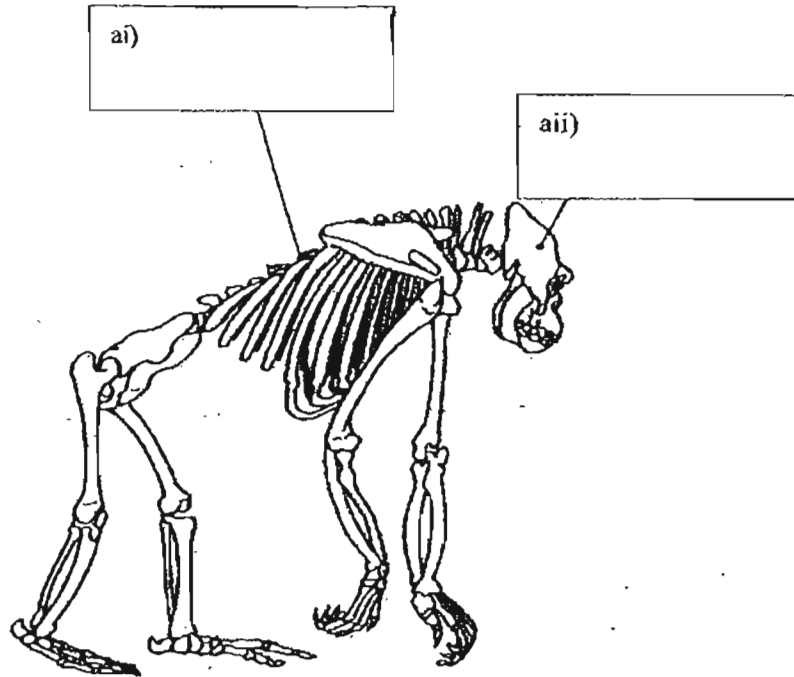


(a) Shade on the diagram above all the areas where you will expect to see blue stains. (1m)

(b) What do these tubes transport besides water? (1m)

41. Label the parts of the skeleton below.

(2m)



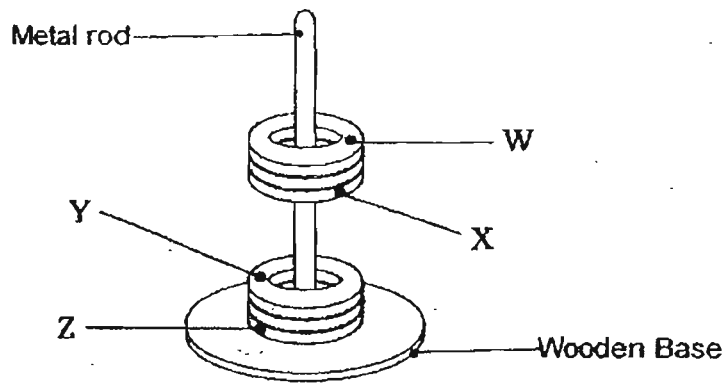
(b) What do you think is the breathing method of this animal?

(1m)

(c) Give a reason for the above answer.

(1m)

42. The diagram below shows what happens when 4 rings, W, X, Y and Z are slotted through a metal rod.

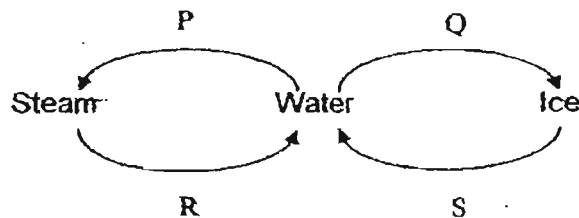


Put a tick in the correct box for each statement.

(2m)

| | Statements | True | False | Not possible to tell |
|-----|----------------------------------|------|-------|----------------------|
| (a) | Object W is a magnetic material. | | | |
| (b) | Object X is a magnet. | | | |
| (c) | Object Y is made of aluminium. | | | |
| (d) | Object Z is a magnet. | | | |

43. The diagram below shows the changes in the state of water.



(a) Name the processes Q and R.

(2m)

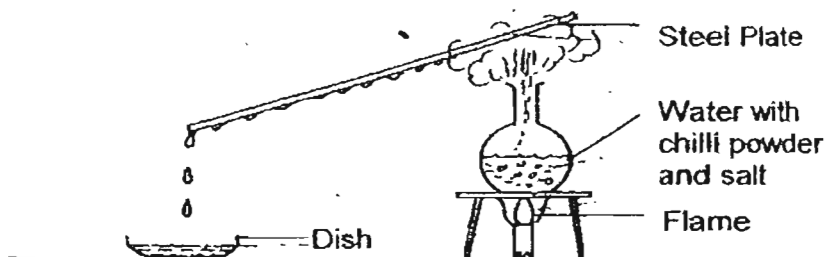
Q: _____

R: _____

(b) State one similarity between the processes Q and R.

(1m)

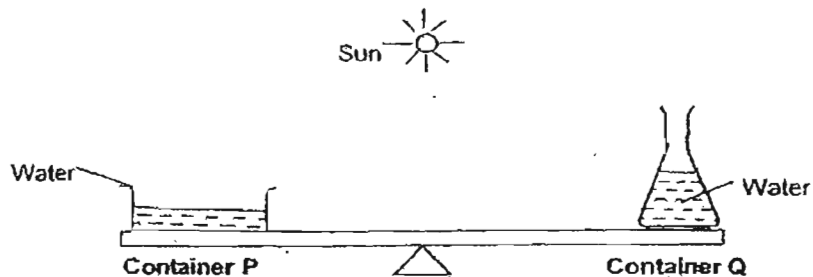
44. The flask on the Bunsen burner contained chilli powder, salt and pure water, all mixed up. These were heated until it boiled. A steel plate was then placed above the flask as shown in the diagram below.



(a) What would be the taste of the liquid collected in the dish? (1m)

(b) Name the process that is occurring at the surface of the liquid in the dish. (1m)

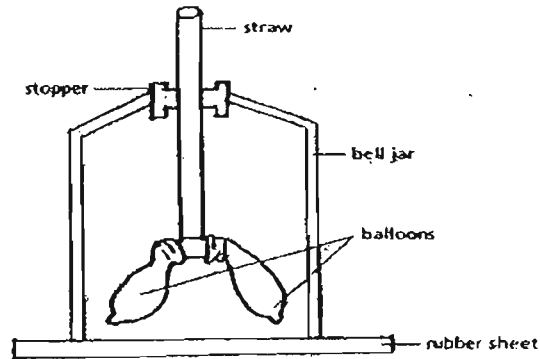
45. Joey wanted to find out about the factors that affect the rate of evaporation. She filled two containers, P and Q, with the same amount of water. Next, she placed them on a lever balance as shown in the figure below.



(a) Which factor is Joey investigating in this experiment? (1m)

(b) What can Joey conclude about the relationship between the factor she is investigating and the rate of evaporation? (1m)

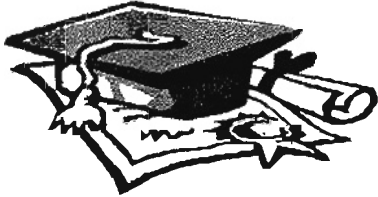
46. The following equipment was set up to show how our lungs work.



(a) The apparatus used in the set-up represents certain parts/organs in our body. Complete the table with the correct information. (1½m)

| (i) | (ii) |
|--------------------------|------------------------|
| Apparatus used in set-up | Body parts represented |
| Bell Jar | |
| Rubber Sheet | |
| | Lungs |

(b) What will happen to the 'balloons' when we breathe in? (½m)



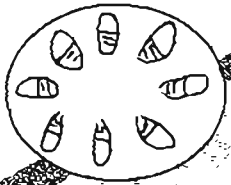
ANSWER SHEET

M G S PRIMARY SCHOOL - PRIMARY 4 SCIENCE 2007
SEMESTRAL ASSESSMENT (1)

1. 3
 2. 2
 3. 4
 4. 2
 5. 3
 6. 1
 7. 4
 8. 4
 9. 2
 10. 2
 11. 1
 12. 2
 13. 2
 14. 1
 15. 3
 16. 1
 17. 2
 18. 2
 19. 3
 20. 4
 21. 3
 22. 1
 23. 2
 24. 2
 25. 1
 26. 4
 27. 3
 28. 2
 29. 4
 30. 2

The water helps to support the weight of the oxygen tank.
 b) Through our nose.
 c) Our mouth does not have hair in it to trap dirt that we breathe in.
 32) a) 1) B 2) 1%
 iii) A, 1%
 b) 1) Fire extinguisher.
 2) To make dry ice.
 33) a) F b) F c) T d) F e) T f) F
 34) a) Man-made
 b) Natural leather
 A: Nylon
 35) a) D: 500cm³ E: 400cm³ F: 200cm³
 b) i) 1 ii) 3
 36) a) They lay eggs, have feathers and cannot fly.
 b) A: Dog B: puppy
 37) a) Strong.
 2) Does not break easily.
 38) a) Q, N
 A shadow.
 39) B: fern D: hydrilla
 a) Plant A lives on land while plant plant lives on water.

40) a)



b) These tubes also transport minerals.

41) a) i) back bones with ribs
Through the lungs

c) has a rib-cage which protects the lungs

42) a) Not
b) F
c) F
d) Not

43) a) C. Freezing

b) Condensation

b) there is heat loss on both processes.

44) a) would taste like water

b) Evaporation

45) a) the amount of exposed surface area

b) the larger the exposed surface area the faster the rate of evaporation

46) a) i) Balloons

ii) Ribcage.

Diaphragm

b) They will expand.