Name: _____( )

Class: Primary 6 _____

# CHIJ ST NICHOLAS GIRLS' SCHOOL

## Primary 6
## Termly Assessment
## SCIENCE

### BOOKLET A

**28 February 2019**

**Total Time for Booklets A and B: 1 hour 30 minutes**

**26 questions**
**52 marks**

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

***This booklet consists of 17 printed pages.***

**Section A** (26 x 2 marks = 52 marks)

For each question from 1 to 26, 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 two systems work together to ensure that we get the nutrients from the food we eat?

   (1) Skeletal and digestive system
   (2) Skeletal and circulatory system
   (3) Digestive and circulatory system
   (4) Respiratory and circulatory system

2. Which of the following statements about bacterium is/are true?

   A Some bacteria in our body are useful.
   B Bacterium is not an animal but a fungi.
   C Bacterium cannot reproduce on their own.

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

3. Compare the following organisms.

mushrooms

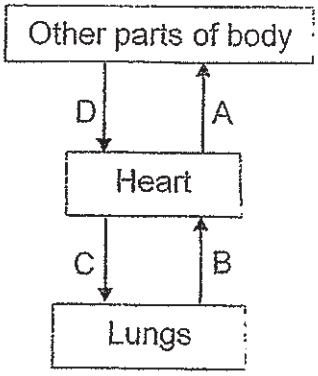
fern

How are they similar?

A They are both fungi.
B They do not bear flowers.
C They reproduce from spores.
D They can make their own food.

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

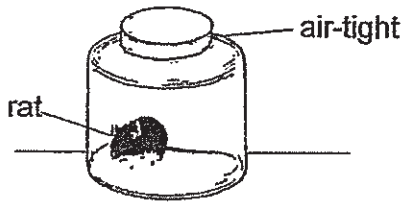
4. The diagram below shows how blood flows in certain parts of the human body.




Which of the following blood vessels carry blood rich in carbon dioxide?

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

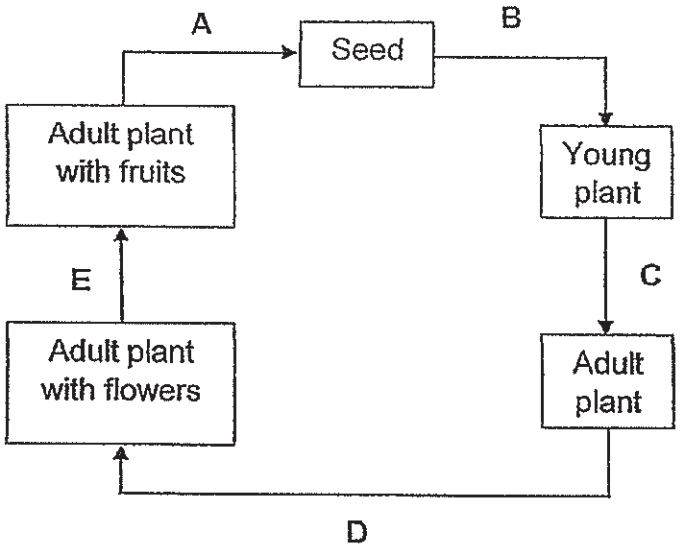
5. A rat was placed in a sealed container as shown below.




Which one of the following shows the change in the amount of gases in the container after 10 minutes?

| | Water vapour | Oxygen | Carbon dioxide |
|---|---|---|---|
| **(1)** | No Change | Decrease | Increase |
| **(2)** | Increase | No Change | Decrease |
| **(3)** | Increase | Decrease | Increase |
| **(4)** | Decrease | Decrease | No Change |

6. The diagram below shows the stages of development of a plant.




At which stages do fertilisation and germination occur?

| | Fertilisation | Germination |
|---|---|---|
| **(1)** | E | B |
| **(2)** | E | C |
| **(3)** | D | B |
| **(4)** | D | A |

7. Raja conducted an experiment to show how overcrowding affects the growth of a plant. He planted some seeds of the same plant into two similar pots. Which other variables should he keep the same in order to conduct a fair experiment?

A Amount of soil
B Amount of water
C Number of seeds in each pot
D Location where the pots are placed

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

8. The diagram below shows the cross-sections of four different flowers.

A B C D

Which of the flower(s) will definitely not be able to develop into a fruit?

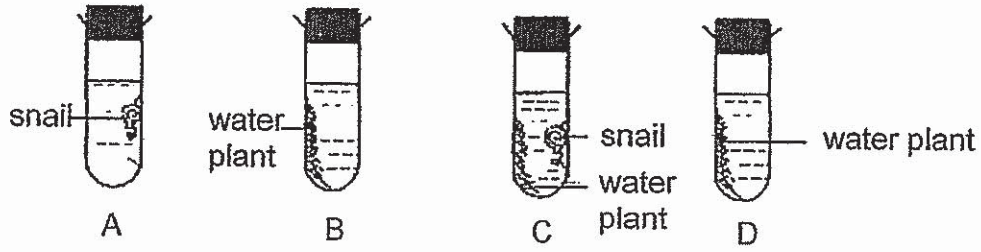
(1) C only
(2) A and B only
(3) C and D only
(4) A, B and D only

9. Which of the following characteristic(s) can a baby inherit from the parents?

A Fingerprints
B Length of hair
C Double eyelids
D Attached earlobes

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

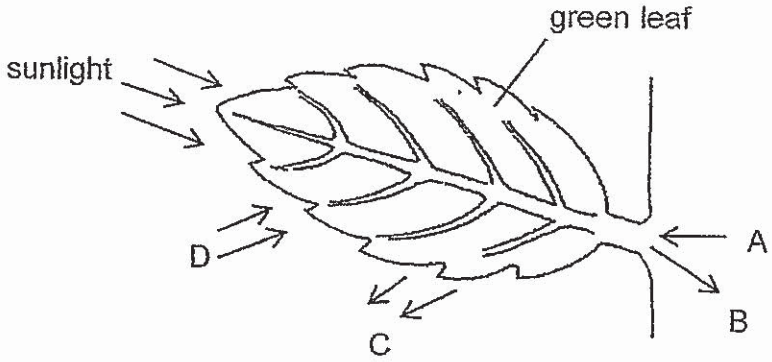
10. Mathew sets up an experiment as shown in the diagram below. All the tubes contain the same amount of a red indicator added to the water. The solution will turn yellow when it detects more carbon dioxide and turn purple when it detects more oxygen.




He then placed tubes A and B near a window and tubes C and D in a cupboard. What will be the colour of the solutions in each tube a day later?

| | Tube A | Tube B | Tube C | Tube D |
|---|---|---|---|---|
| **(1)** | yellow | purple | yellow | yellow |
| **(2)** | red | purple | yellow | purple |
| **(3)** | purple | red | purple | yellow |
| **(4)** | yellow | purple | red | purple |

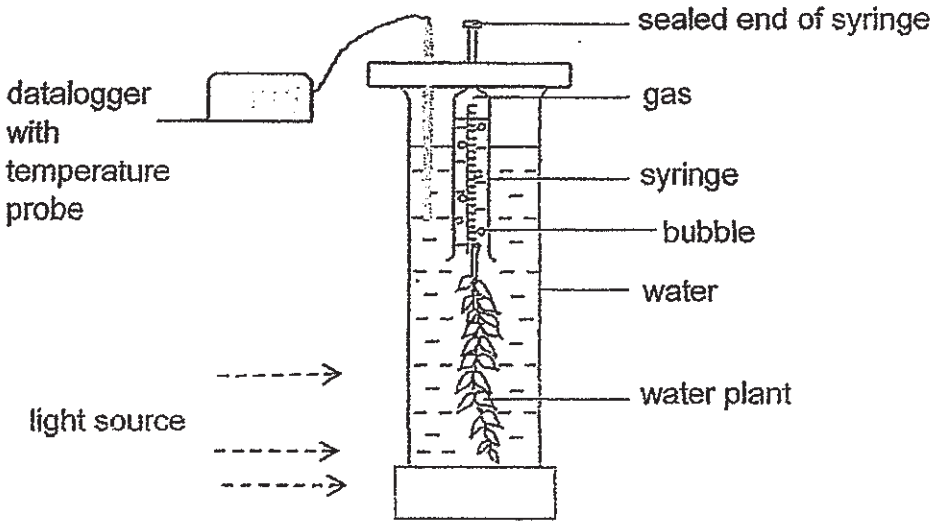
11. The diagram below shows a green leaf on a plant carrying out certain life processes.



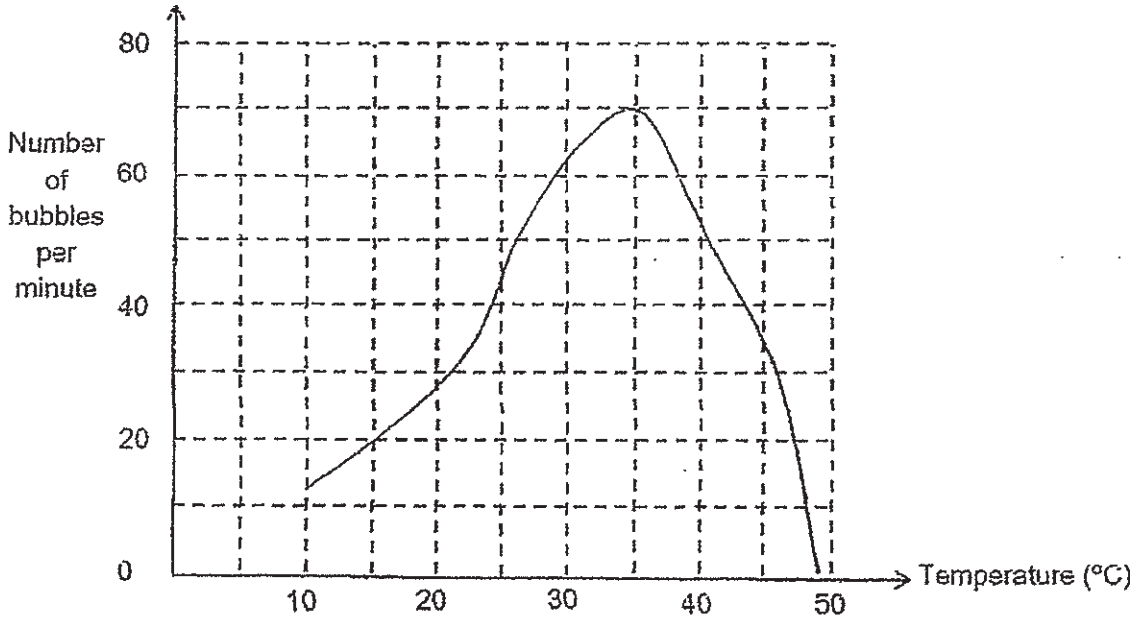

Which one of the following is correctly represented by A, B, C and D?

| | A | B | C | D |
|---|---|---|---|---|
| **(1)** | oxygen | sugar | water | carbon dioxide |
| **(2)** | water | sugar | oxygen | carbon dioxide |
| **(3)** | water | oxygen | sugar | carbon dioxide |
| **(4)** | sugar | carbon dioxide | oxygen | water |

12. Hassan used the following set-up to investigate the rate of photosynthesis at different water temperatures.



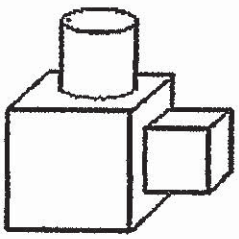

He plotted a graph to show the number of bubbles counted per minute at different water temperatures as shown below.




At which temperature range of water should he expose the plant in the jar to in order to have the highest rate of photosynthesis?

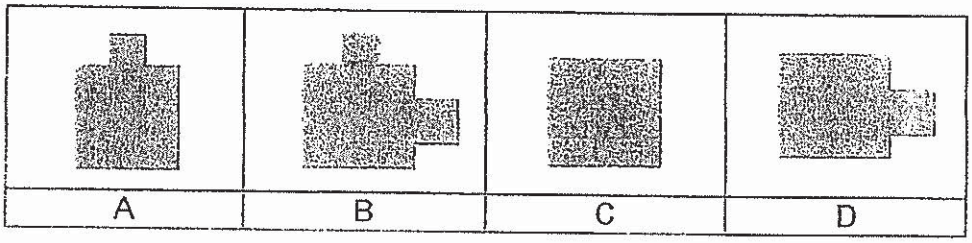
(1) 10 °C to 15 °C
(2) 20 °C to 25 °C
(3) 30 °C to 35 °C
(4) 40 °C to 45 °C

13. Study the object below carefully.



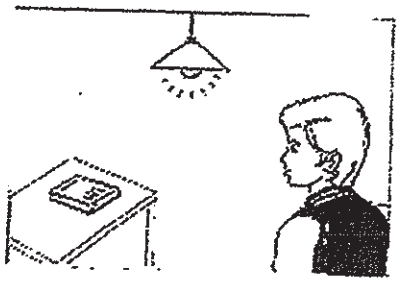
object X

Which of the following shadows cannot be formed by object X when light is shone on it from different directions?



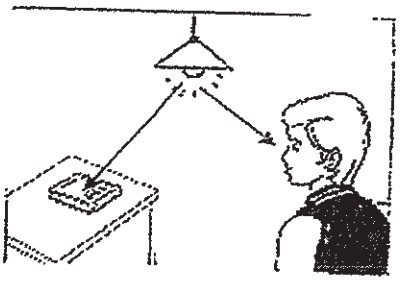

**(1)** B only
**(2)** C only
**(3)** A and B only
**(4)** C and D only

14. The diagram below shows a boy in a room with a lamp as its only light source.

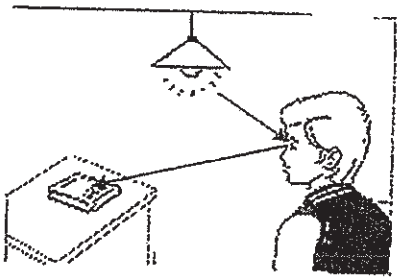


Which one of the diagrams below shows correctly the path of light that enables him to see the book on the table?

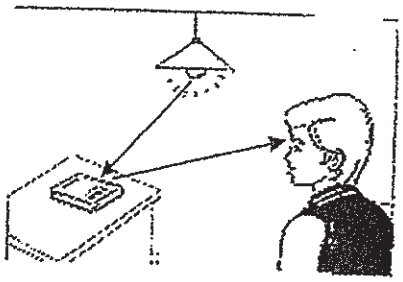
**(1)**



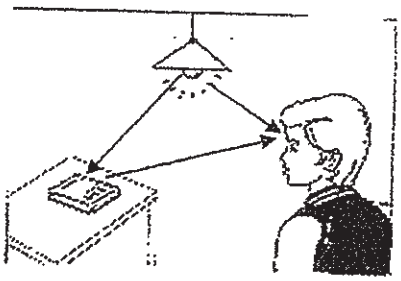
**(2)**



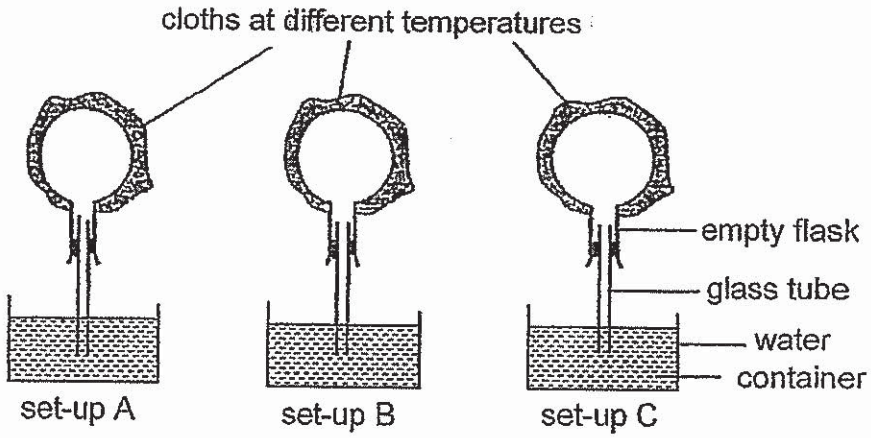
**(3)**



**(4)**



15. June conducted an experiment using three set-ups as shown below.




She recorded her observations in the table below.

| | |
|---|---|
| Set-up A | Water rose up the glass tube. |
| Set-up B | Bubbles observed in the water in the container. |
| Set-up C | No changes were observed. |

Which of the following correctly shows the temperature of the cloth used to wrap the flask in each set-up?

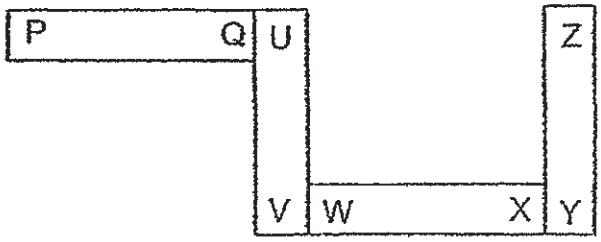
| | Set-up A | Set-up B | Set-up C |
|---|---|---|---|
| (1) | 90°C | 5°C | room temperature |
| (2) | 5°C | 90°C | room temperature |
| (3) | room temperature | 5°C | 90°C |
| (4) | room temperature | 90°C | 5°C |

16. As ice melts, _____.

A it gains heat
B its mass increases
C its temperature increases
D there is a change in material

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

17. Four pieces of bar magnets are put together and their poles are marked as shown in the diagram below.




Which of the following arrangements of the magnets are possible?


diagram A


diagram B

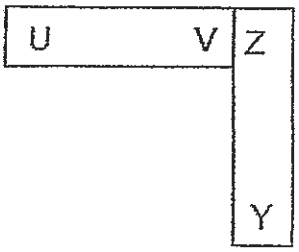



diagram C

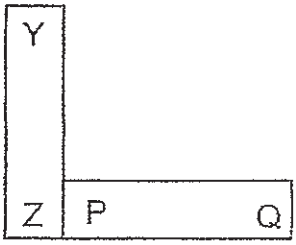



diagram D

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

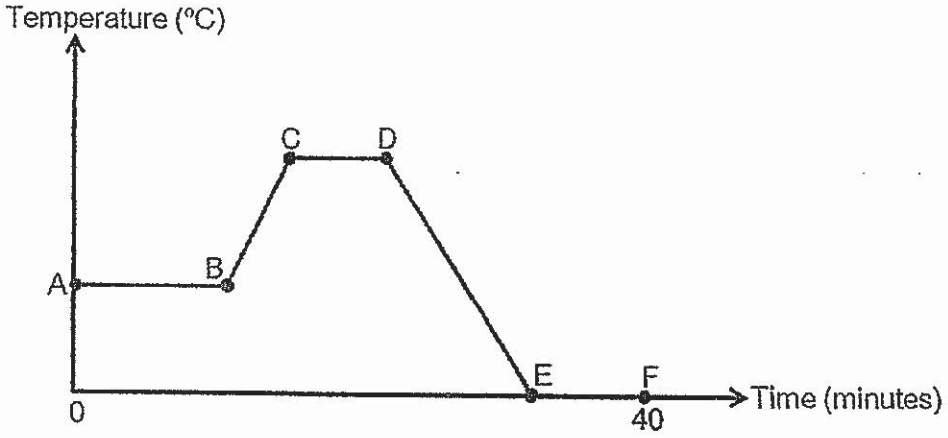
18. Muthu wanted to find out how the temperature of water affects the rate at which sugar dissolves. He used sugar cubes of similar size and 4 identical beakers to set up his experiment. Details of his experiment are shown in the table below.

| Beaker | Number of sugar cubes | Temperature of water ( °C ) | Amount of water ( ml ) |
|---|---|---|---|
| W | 2 | 90 | 600 |
| X | 1 | 30 | 600 |
| Y | 1 | 90 | 500 |
| Z | 1 | 40 | 500 |

Which two beakers should Muthu compare?

**(1)** W and X
**(2)** W and Y
**(3)** X and Y
**(4)** Y and Z

19. The line graph below shows the changes in the temperature of water over a period of 40 minutes.

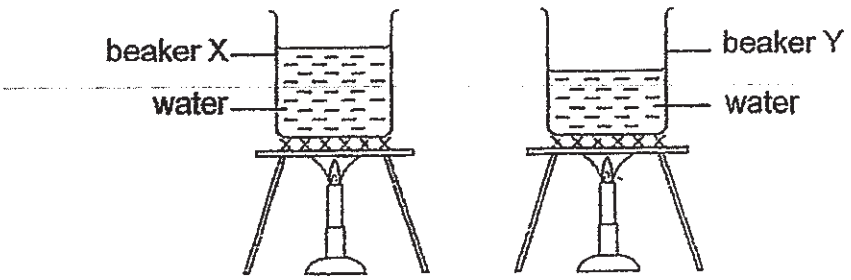



Based on the above, which one of the following statements is/are correct?

A Water was boiling at C.
B Water was losing heat at DE.
C Melting occurs at AB and EF
D Evaporation occurs at BC only.

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

20. In the experiment below, two beakers containing different volumes of water at room temperature were heated to 50 °C.

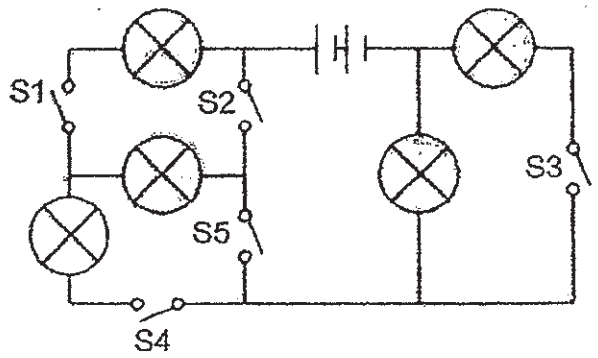



Which of the following statement(s) is/are correct?

A The water in beaker X has more heat energy than in beaker Y.
B The water in beaker Y took a shorter time to be heated to 50 °C.
C The water in beaker X gained heat faster than the water in beaker Y.
D The water in beaker X and beaker Y have the same amount of heat.

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

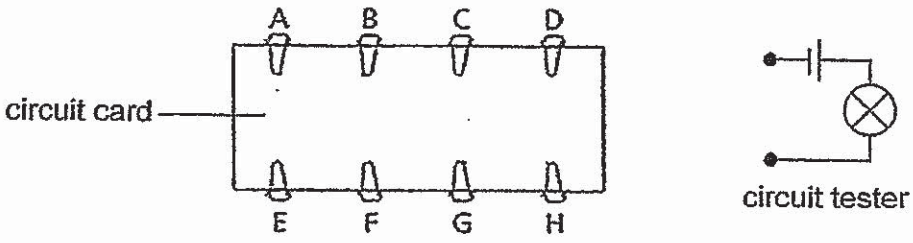
21. The set-up below shows an electric circuit using identical bulbs, switches, wires and two batteries.




How many bulbs will light up when switches S1, S3 and S5 are closed?

(1) 2 bulbs
(2) 3 bubs
(3) 4 bulbs
(4) None of the bulbs

22. Zhi Hui used a circuit tester to test several points on a circuit card.

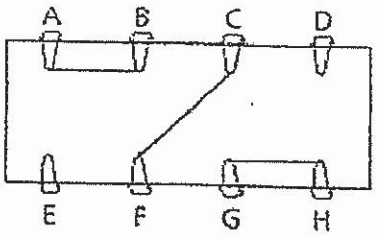



He recorded the results as shown in the table below.

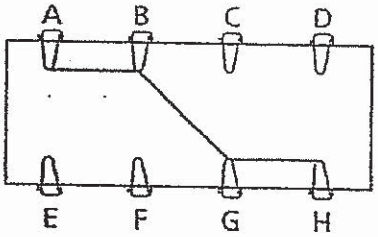
| Points | Did the bulb of the circuit tester light up? |
|---|---|
| AF | Yes |
| BC | Yes |
| BG | No |
| DE | No |
| BF | Yes |
| GH | No |

Which one of the following circuit cards did Zhi Hui use?

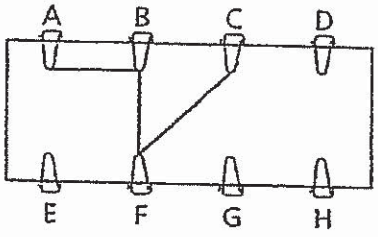
(1)



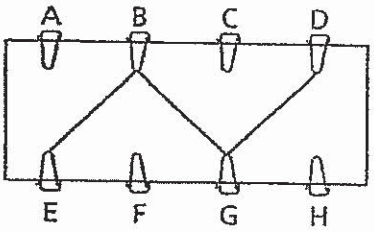

(2)



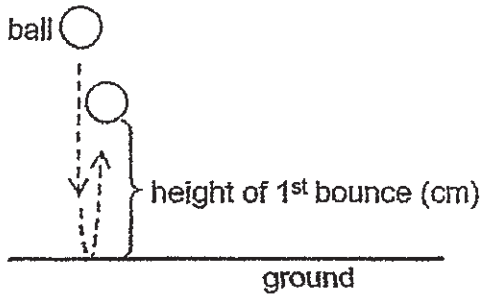

(3)



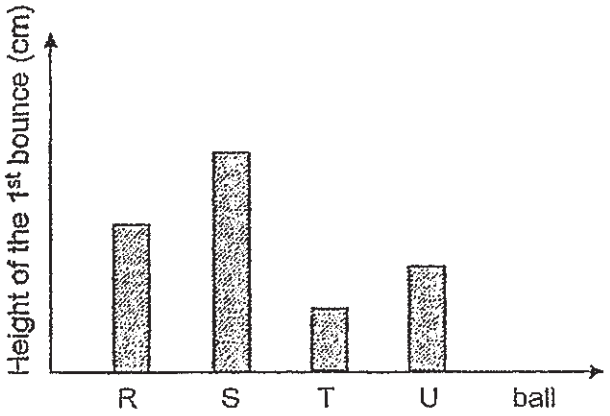

(4)



23. Salleh conducted an experiment with 4 balls R, S, T and U which were made of different materials. He released each ball from the same height and recorded the height of the first bounce from the ground.




The results of his experiment are presented in the bar graph below.




What could Salleh infer from the results?

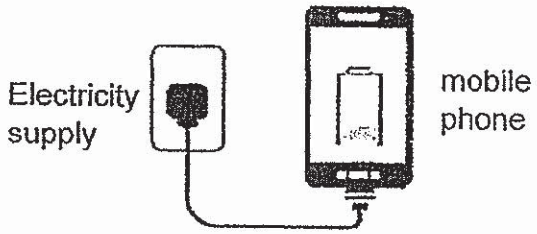
A Ball U was bigger than ball T.
B Ball S most likely can bounce the most number of times before stopping.
C Ball R had less kinetic energy than Ball U when it bounced up from the ground.
D Ball T had the least gravitational potential energy compared to the other balls after the first bounce.

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

24. Energy cannot be created or destroyed. However, it can be converted from one form to another form. How does a zebra obtain its energy indirectly from the sun?

(1) The zebra obtains its energy by feeding on other herbivores.
(2) The zebra obtains its energy by spending many hours under the sun.
(3) The zebra gets its energy by feeding on the plants which have converted the light energy into chemical potential energy.
(4) The zebra gets its energy by feeding on the plants which have converted the heat energy into chemical potential energy.

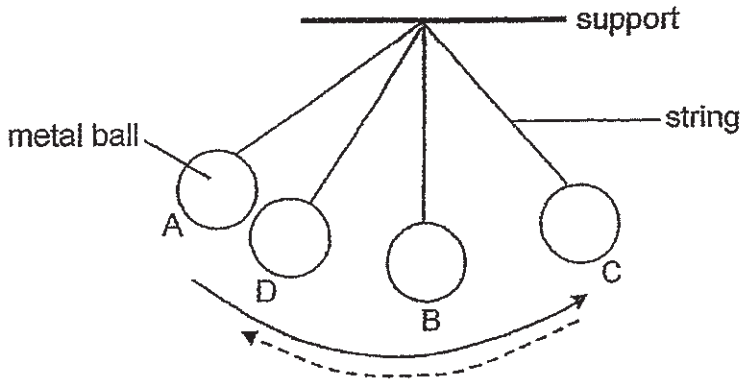
25. Jason has a mobile phone. Energy is stored in the battery of the phone. The diagram below shows the battery of the mobile phone being charged.




What is the main energy conversion in the battery as it is being charged?

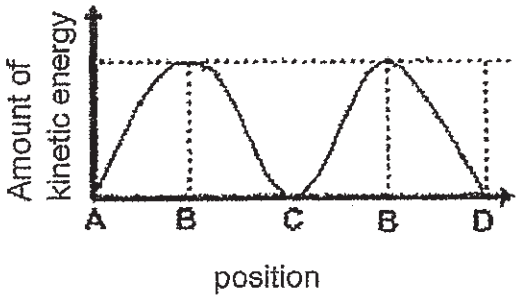
(1) Electrical energy → sound energy
(2) Electrical energy → sound + heat energy
(3) Chemical potential energy → electrical energy
(4) Electrical energy → chemical potential energy

26. Shaun carried out an experiment with the set-up below. He released the metal ball at position A. The ball swung to position C and then back to position D.

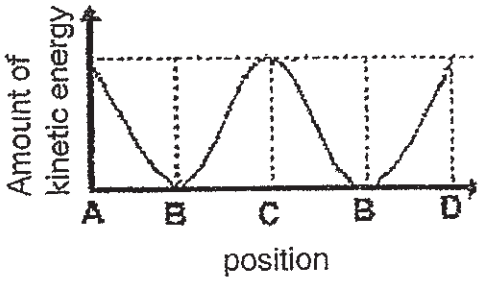



Which one of the following graphs shows the change in kinetic energy of the metal ball as it swung from A to C and then back to D?

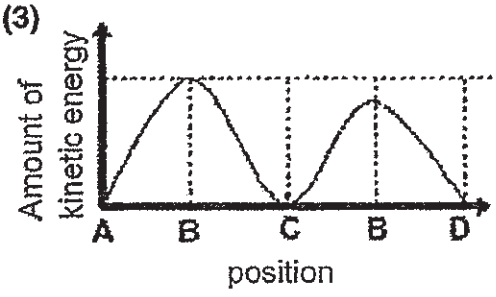
(1)



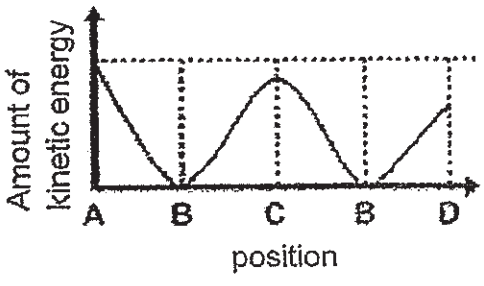

(2)




(3)




(4)




~ End of Booklet A ~

Name : _____

Class : Primary 6 _____

# CHIJ ST NICHOLAS GIRLS' SCHOOL

## Primary 6
## Termly Assessment
## SCIENCE

## BOOKLET B

28 February 2019

| | |
|---|---|
| Booklet A | 52 |
| Booklet B | 38 |
| Total | 90 |

Total Time for Booklets A and B: 1 hour 30 minutes

11 questions
38 marks

_____
Parent's Signature/Date

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

*This booklet consists of 13 printed pages.*

## Section B: (38 marks)

**For questions 27 to 37, write your answers in this booklet.**
**The number of marks available is shown in the brackets [ ] at the end of each question or part question.**

27. Melvin wanted to know how his pulse rate would change after completing two different activities. The table below shows his pulse rates at different intervals after he had completed the activities.

| Activity (10 minutes) | Pulse rate ( beats per minute ) | | |
|---|---|---|---|
| | Just after activity | 2 minutes after activity | 20 minutes after activity |
| Walking | 81 | 78 | 70 |
| Running | 120 | 105 | 70 |

(a) What does pulse rate measure? [1]

_____

_____

(b) Based on the table above, explain why Melvin's pulse rate was higher when he was running. [2]

_____

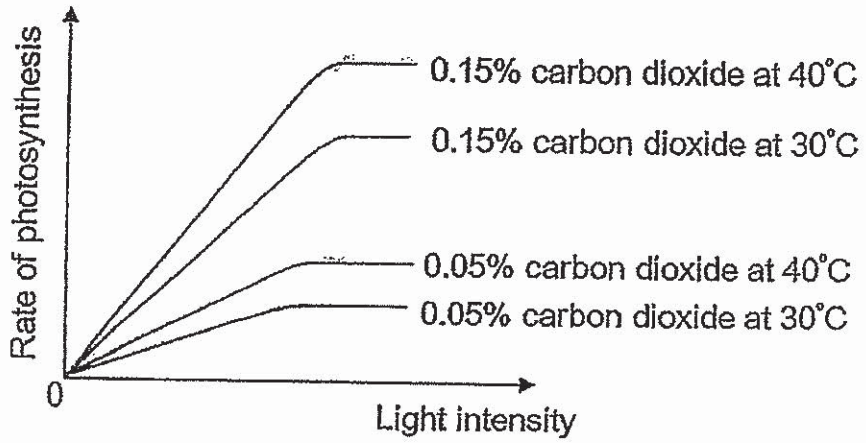
_____

_____

(c) Based on the table above, what was Melvin's pulse rate when he is at rest? [1]

_____

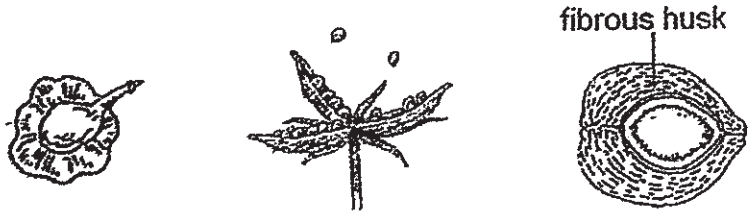
28. Henry carried out an experiment to find out the effects of light intensity, amount of carbon dioxide and temperature on the rate of photosynthesis. He obtained the following results.




Based on the results above, state whether each of the following statements is true (T), false (F) or not possible to tell (NP) by writing T, F or NP in the table below. [4]

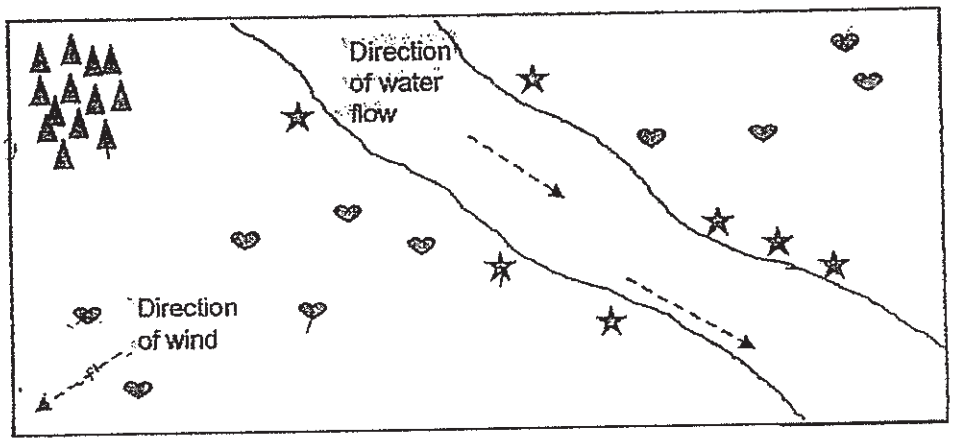
| Statement | True (T), False (F) or Not Possible to tell (NP) |
|---|---|
| The rate of photosynthesis increases with increasing light intensity until it is limited by other factors. | |
| The rate of photosynthesis is the highest when the temperature is above 40 °C. | |
| At the same temperature, the rate of photosynthesis is not affected by the amount of carbon dioxide present. | |
| At the same light intensity, the rate of photosynthesis is not affected by a change in temperature. | |

29. Karen found three samples of fruits A, B, and C on a plot of land as shown below.




fruit A fruit B fruit C

The diagram below shows the distribution of the plants A, B and C.




(a) Which of the following symbols represents plants A, B and C respectively? [1]

| Symbol | Plant |
|---|---|
| ★ | |
| ▲ | |
| ♥ | |

(b) How does having a fibrous husk help fruit C in its dispersal? [1]

_____

_____

The diagram below shows another fruit that Karen found on the same plot of land.


She studied the fruit and concluded that the dispersal method of this fruit is similar to fruit A.

(c) Do you agree with Karen? Explain your answer. [2]

_____

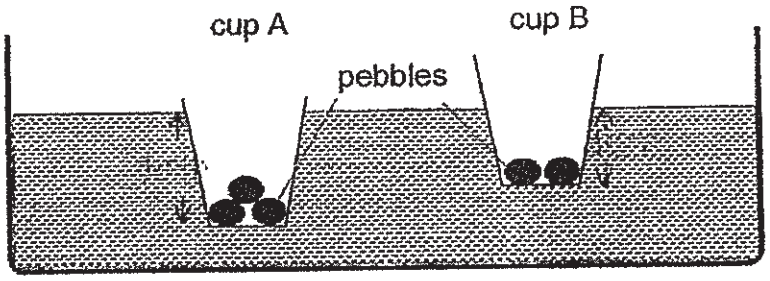
_____

(d) Why is it important for plants to disperse their seeds? [1]

_____

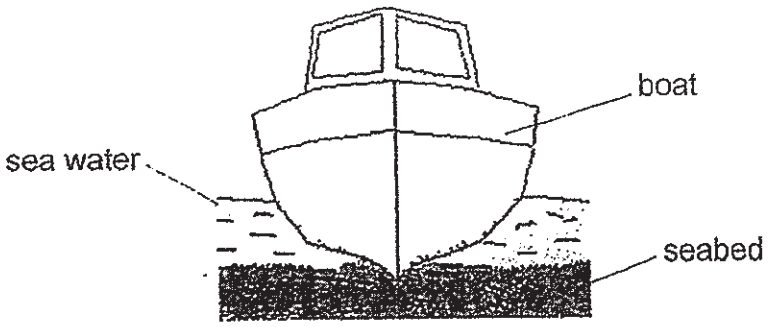
_____

30. Swari placed different numbers of similar pebbles into two similar cups A and B. She wanted to find out the relationship between the numbers of pebbles in the cups and the depth to which the cups will sink when put in water. The diagram below shows what she observed.



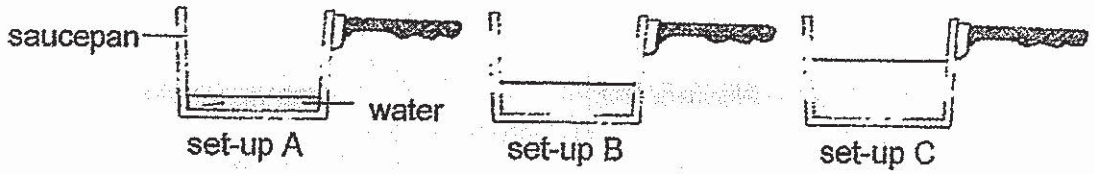

(a) Based on her observation, what is the relationship between the number of pebbles in the cup and the depth to which the cups will sink when put in water? [1]

A boat carrying a full load of fish was stuck on the seabed as shown below.

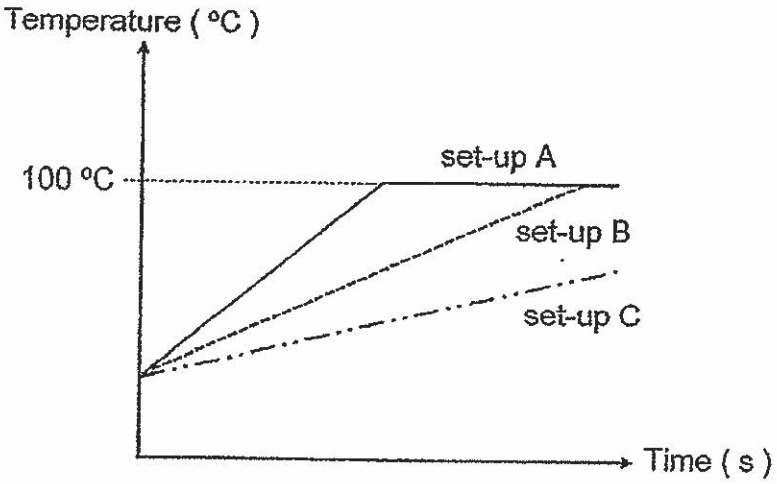



(b) Based on the experiment above, what could the fisherman on the boat do in order for the boat to be lifted off the seabed and move forward? Explain your answer. [1]

31. Sarah conducted an experiment with 3 similar saucepans filled with different amounts of water as shown below.




She recorded the changes in the temperature of water in the saucepans over a period of time. The graph below shows the results of her experiment.



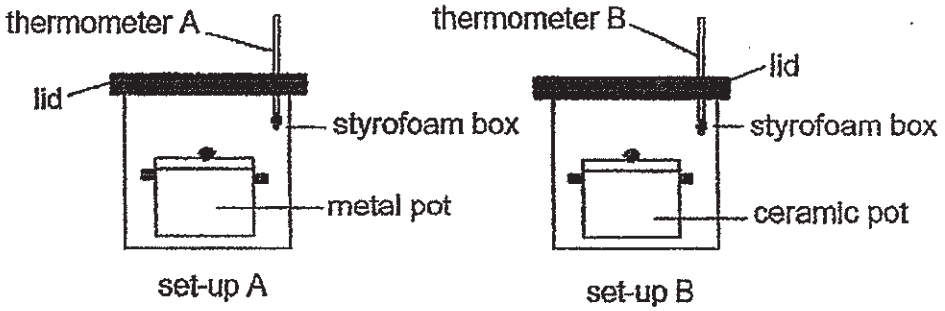

(a) What is the aim of Sarah's experiment? [1]

(b) Based on the results above, water in set-up A boiled the fastest. Explain why this is so. [1]

(c) Based on Sarah's experiment, state two other variables that she has to keep constant in order for this experiment to be a fair one. [2]

| | |
|---|---|
| Variable 1: | |
| Variable 2: | |

32. Winston conducted an experiment using the set-ups shown. The metal and ceramic pots contained hot water at the same temperature.

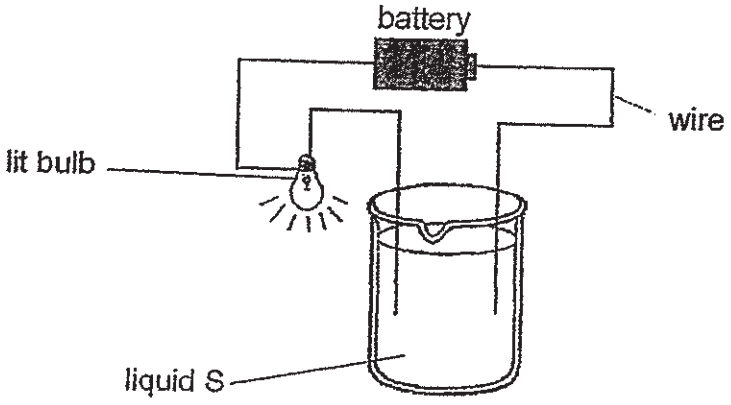



(a) After 10 minutes, Winston found that the temperature in the styrofoam box with the metal pot is higher than that in set-up B. Explain why. [2]

(b) Explain how using styrofoam boxes helped to make the results more reliable. [1]

(c) Give a reason why Winston left the two styrofoam boxes uncovered for 15 minutes before repeating the experiment with pots made of glass and plastic. [1]

33. Study the set-up below.




(a) What does the experiment above tells you about liquid S? [1]

_____

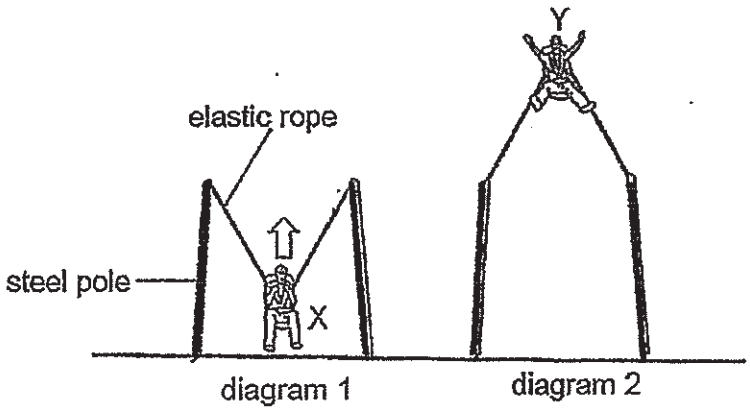
_____

(b) Suggest a change to the set-up such that the bulb will be brighter. [1]

_____

_____

34. David sat on a ride at an amusement park. The elastic ropes were pulled down to point X as shown in diagram 1.

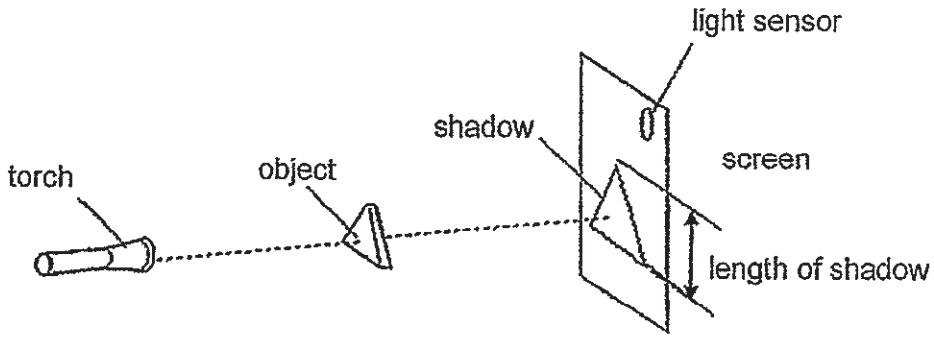



When released, the stretched elastic ropes pulled David upwards as shown in diagram 2. The elastic ropes stretched to a maximum length when he was at point Y.

(a) What was the main energy conversion when David was moving from point X in diagram 1 to point Y in diagram 2? [1]


(b) If David is replaced with a boy who has a smaller mass and released from point X, will his final position be higher or lower than point Y? Explain your answer. [2]

35. Nazri used the set-up below to conduct an experiment. He used a light sensor to measure the amount of light on the screen.



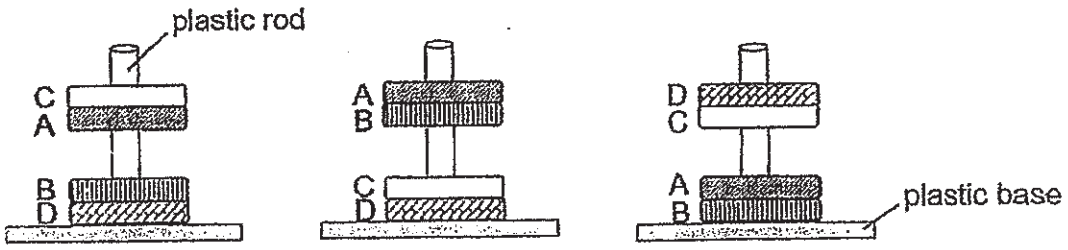

He changed the position of one of the items in the set-up and recorded his observations for each position as follows.

| Light sensor reading (units) | Length of shadow (cm) |
|---|---|
| 80 | 6 |
| 130 | 8 |
| 200 | 13 |

(a) Based on his observations, could he have moved the object towards the torch? Explain your answer. [2]

(b) What is the main property of light that enables a shadow to be formed? [1]

36. Joo Seng put four metal rings A, B, C and D through a plastic rod in three different arrangements as shown below.



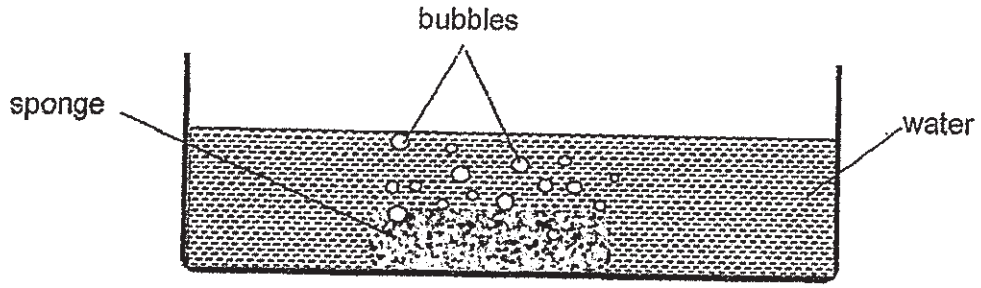

arrangement 1 arrangement 2 arrangement 3

(a) Based on the observations above, which of the metal rings are definitely magnets? [1]

(b) Explain your answer in (a) above. [2]

(c) Name two magnetic materials. [1]

37. Study the diagram below.




(a) When Alexis pushed the sponge into the basin of water, she saw bubbles coming out of the sponge. What do these bubbles contain? [1]

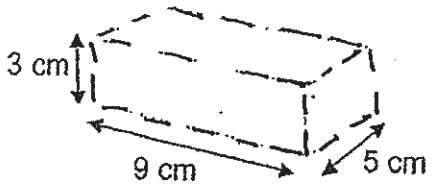
_____

(b) After the sponge was pushed into the water, the mass of the sponge increased. Explain why. [1]

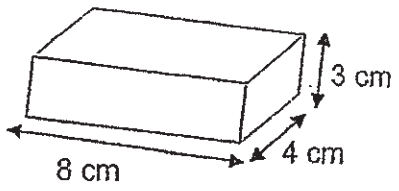
_____

_____

Alexis then took another piece of sponge and a box as shown below.




sponge




box

(c) She managed to squeeze the sponge into the box. Explain why she was able to do so. [1]

_____

_____

_____

~~End of Paper ~~

# ANSWER KEY

**YEAR : 2019**
**LEVEL : PRIMARY 6**
**SCHOOL : CHIJ ST NICLOLAS GIRLS' SCHOOL**
**SUBJECT : SCIENCE**
**TERM : SA1**

## BOOKLET A

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

## BOOKLET B

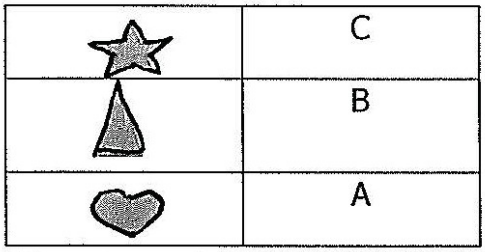
Q27 (a) Number of heartbeat per minute.

(b) When he runs, his body needs more energy. His heart will need to pump faster to transport more blood rich in oxygen and digested food to all parts of his body for higher rate of respiration.

(c) 70 beats per minute.

Q28 (i) T (ii) NP (iii) F (iv) F

Q29 (a)




(b) It contains air space that allows it to float on water.

(c) No. Fruit A has a wing-like structure whereas the new fruit have stiff hair which will help it hook onto the fur of passing animals. Thus fruit A is dispersed by wind and the new fruit is dispersed by animals.

(d) To pervent overcrowding. The seedling will not compete with each other for space, light, water and nutrients.

Q30 (a) The greather the number of pebbles in the cup, the greater the depth to which the cups will sink when put in water.

(b) They could throw out some fish in the boat. With lesser fish, there will be lesser mass and the boat will sink lesser.

Q31 (a) To find out if the amount of water will affect the temperature of water in the saucepans over a period of time.

(b) It has the least amount of water, so it can gain most heat within the shortest time.

(c) same amount of heat, same temperature of water at the start of the experiment.

Q32 (a) Metal is better conductor of heat. Therefore more heat in conducted by the metal pot from the hot water to the air inside the styrofoam box.

(b) Styrofoam is a poor conductor of heat. It will slow down the heat lost from the air inside the box to the surrounding air.

(c) To allow time for the hot air in the box to cool down to the same starting temperature for a fair test.

Q33 (a) Liquid S is a good conductor of electricity.

(b) Increase the number of batteries in set-up.

Q34 (a) Elastic potential energy → Kinetic energy → Gravitational potential energy

(b) It will be higher since the person is lighter, the same amount of elastic potential energy will be converted to more kinetic energy and hence pushing him higher than point Y.

Q35 (a) No. From the table, the intensity of light increases indicationg that the torch is moved nearer to the screen. This will cause a bigger shadow observed.

(b) Light travel in a straight line.

Q36 (a) A, B and C.

(b) They all repel each other, indicating that they are magnets as like poles of magnets repel each other.

(c) Iron and steel / cobalt and nickel

Q37 (a) Air

(b) As the water is being absorber into the sponge, the mass of the sponge will be increase as water has mass.

(c) There are air pockets in the sponge. Since air can be compressed, the sponge will compress a little to fit inside the box.