

**Primary Four  
Science  
Semestral Assessment Two**

**Section A (30 x 2 marks)**

For each question 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Write the correct answer in the box provided.

1. In Science, a textbook is classified as a matter because \_\_\_\_\_.

- A: it has a definite volume
- B: it takes up space
- C: it has mass
- D: it has a definite shape

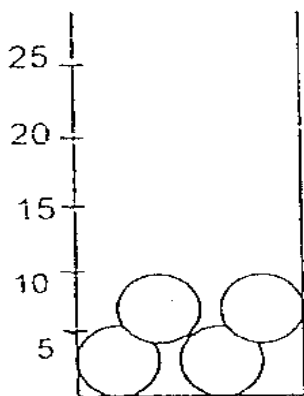
(1) A and B only

(2) A and D only

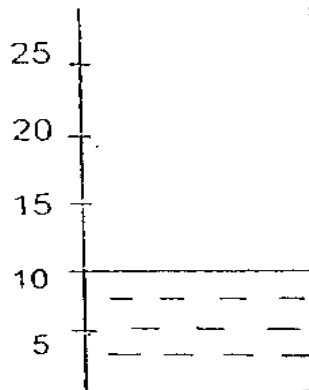
(3) B and C only

(4) C and D only

2. The diagrams below show Beaker X and Beaker Y. There are some marbles in Beaker X. In Beaker Y, there are 10 ml of water.



Beaker X



Beaker Y

All the water in Beaker Y is poured into Beaker X.

The water level in Beaker X is most probably at the \_\_\_\_\_ ml mark.

(1) 10

(2) 15

(3) 20

(4) 25

3. Which one of the followings processes occur at the same fixed temperature?

- A: melting of ice
- B: boiling of water
- C: freezing of water
- D: evaporation of water

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

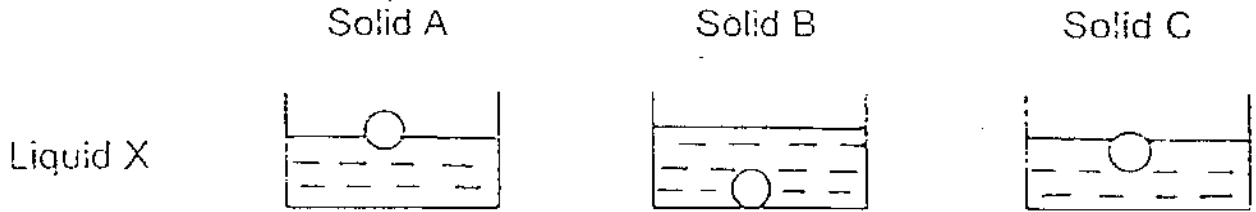
4. Sumei classified six objects as shown in the table below.

Group X	Group Y
Nitrogen	Ruler
Alcohol	Snow
Beer	Paper

What properties of matter did Sumei use when classifying them?

	Group X	Group Y
(1)	Does not have mass	Has mass
(2)	Cannot be seen	Can be seen
(3)	Has no definite shape	Has a definite shape
(4)	Can be compressed	Cannot be compressed

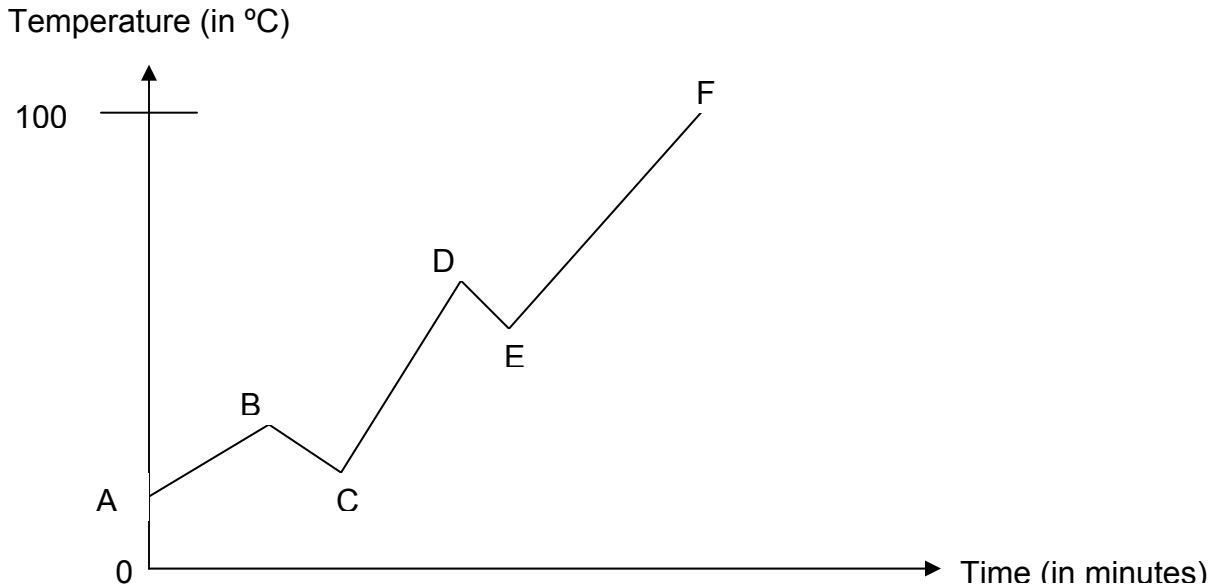
5. Three solids, made of different materials but of the same size, are put into Liquid X. The results are shown in the diagram below.



The following of the 3 solids are arranged in an ascending order. Which one of the following arrangements is correct?

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

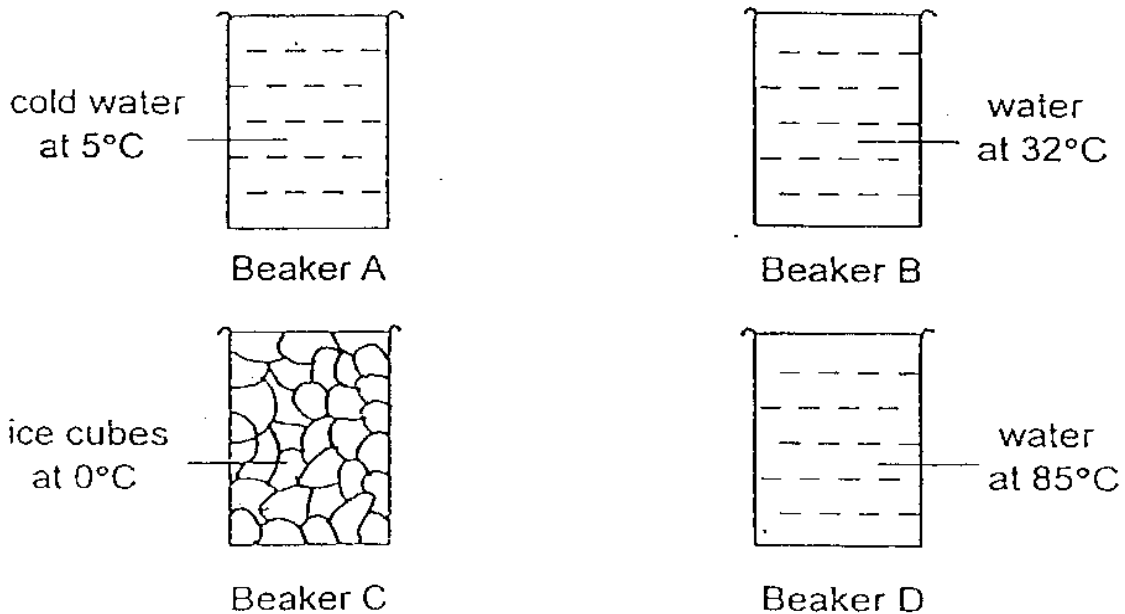
6. Study the graph below carefully. It shows the changes in the temperature of a beaker of water as it was heated.



Some ice was added to the water while the water was being heated. Which parts of the graph show that the ice was added to it?

- (1) AB and CD                      (2) AB and EF  
(3) BC and DE                      (4) DE and EF

7. Sumei set up the apparatus below to find out more about condensation. She noted that the room temperature at the time of the experiment was 30°C.



After two minutes, she noticed that the water droplets were formed on the outer surfaces of Beaker \_\_\_\_\_ and Beaker \_\_\_\_\_.

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

8. An experiment was carried out to find out the effect of salt on the melting point of ice. The results of the experiment were recorded on the table below.

Amount of Salt Added (in g)	0	40	80	120	160
Melting Point of Ice (°C)	0	-2	-4	-6	-8

Based on the results obtained, which of the following statement is correct?

- (1) The salt has no effect on the melting point.  
 (2) The melting point of ice when 80g of salt was added was -6 °C.  
 (3) The greater the amount of salt added the higher is the melting point.  
 (4) The greater the amount of salt added the lower is the melting point.

9. Which one of the following activities does NOT show the presence of air around us?

- (1) Flying kite
- (2) Burning a piece of wood
- (3) Resting on an armchair
- (4) Dropping a piece of foolscap paper from a height of two metres

10. Which one of the following correctly shows the path taken by oxygen when it enters the body?

- (1) nostrils → windpipe → blood → lungs → all parts of the body
- (2) nostrils → lungs → windpipe → blood → all parts of the body
- (3) nostrils → windpipe → lungs → blood → all parts of the body
- (4) all parts of the body → blood → lungs → windpipe → nostrils

11. Which one of the following statements about stomata is correct?

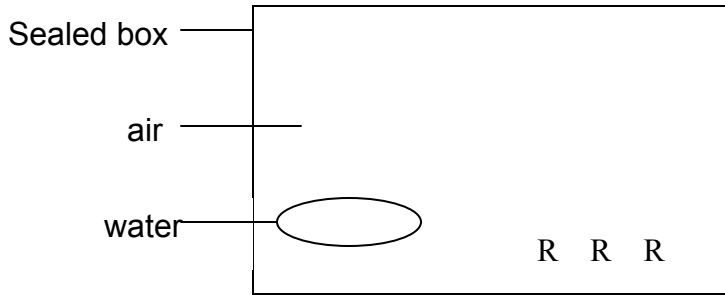
- (1) Most of them are found on the upperside of a leaf.
- (2) They can be seen clearly with the eyes.
- (3) They do not allow water vapor to escape through it.
- (4) They help the plants to exchange gases with the surroundings.

12. The air that we breathe in is usually \_\_\_\_\_ before it enters the lungs.

- A: dried
- B: cleaned
- C: warmed
- D: moistened

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

13. John sets up the apparatus shown below to find out how respiration will affect the amount of oxygen and carbon dioxide in the sealed box.

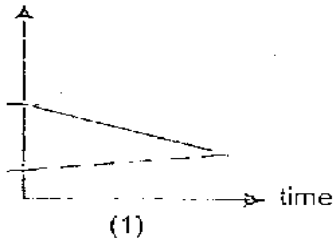


KEY:

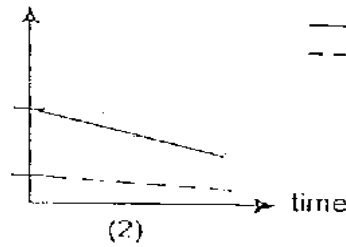
R - Rat

Which one of the following graphs shows the changes in the amount of oxygen and carbon dioxide with time?

Amount(in litres)



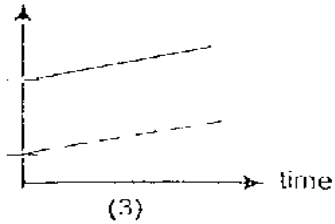
Amount(in litres)



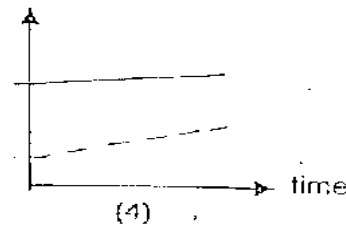
KEY:

— oxygen  
- - - carbon dioxide

Amount(in litres)



Amount(in litres)




14. What is the function of our lungs?

- (1) They protect the heart and the windpipe.
- (2) They help to get rid of undigested food.
- (3) They pump blood that is rich in oxygen to the heart.
- (4) They exchange the oxygen that is breathed in with carbon dioxide that is produced.

15. The blood that is found in the arteries is rich in \_\_\_\_\_.

- |                    |                  |
|--------------------|------------------|
| (1) oxygen         | (2) nitrogen     |
| (3) carbon dioxide | (4) water vapour |

16. Which one of the following sentences about the heart is WRONG?

- (1) The heart is made up of two chambers.
- (2) The heart is conical in shape.
- (3) There are a lot of blood vessels in the heart.
- (4) The heart tilts slightly towards the left side of the body.

17. What do you call those parts of the plants that transport food to all parts of the plants?

- |                 |                  |
|-----------------|------------------|
| (1) veins       | (2) capillaries  |
| (3) xylem tubes | (4) phloem tubes |

18. Simon has a normal pulse rate of about 122 beats per minutes. Simon is most probably a/an \_\_\_\_\_.

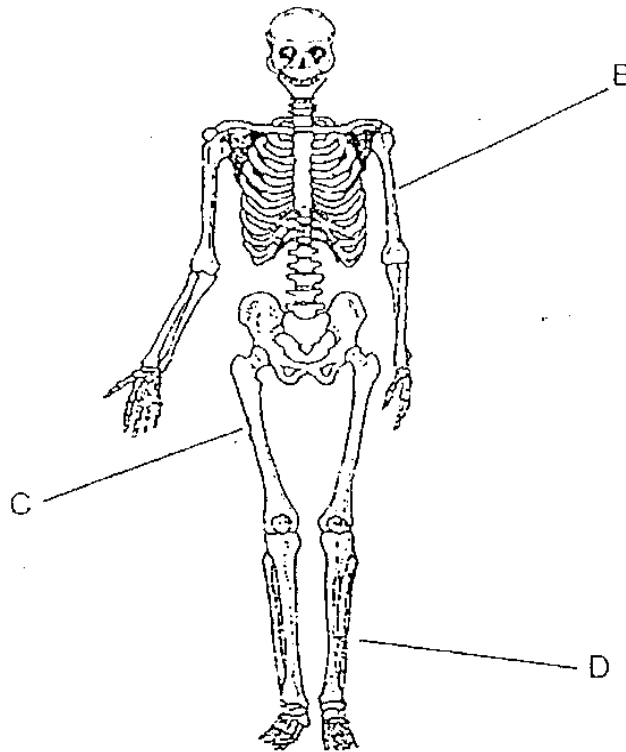
- |              |             |
|--------------|-------------|
| (1) baby     | (2) toddler |
| (3) teenager | (4) adult   |

19. Which of these organs help to get rid of waste materials carried in the blood?

- A: kidney
- B: brain
- C: skin
- D: lungs

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

20. Look at the diagram below. It shows the skeleton system of a human.



Which one of the following sets labeled the parts correctly?

	B	C	D
(1)	Backbone	Leg bone	Toe bone
(2)	Ribcage	Hip bone	Thigh bone
(3)	Arm bone	Thigh bone	Shin bone
(4)	Thigh bone	Shin bone	Shoulder bone

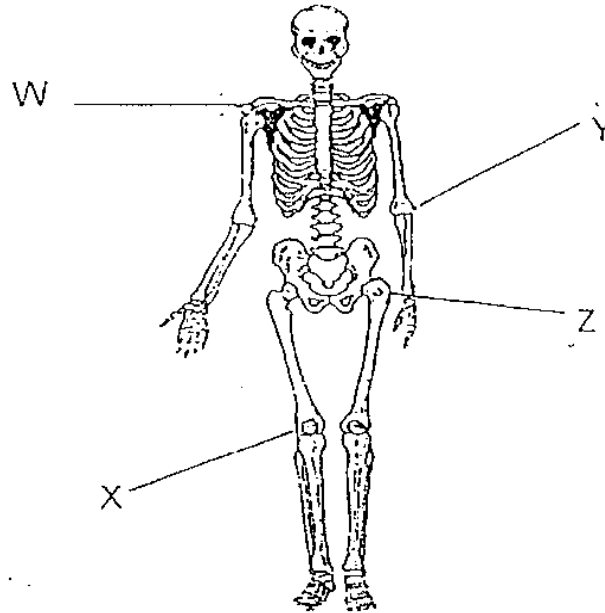
21. Which of the following statements are true about the digestive system?

- A: Food is mixed with digestive juices and is broken down into a creamy liquid in the stomach.
- B: In the large intestine, tiny bits of food pass into the blood vessels found in the walls of the intestine.
- C: In the small intestine, water is removed from the food and the undigested food is then passed out through the anus.

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



22. Look at the diagram below. It shows the skeleton system of a human.



Which one of the following sets correctly matches the type of joints?

	Ball and socket joints	Hinge joint
(1)	W	Z
(2)	X	Y
(3)	X	Z
(4)	W	Y

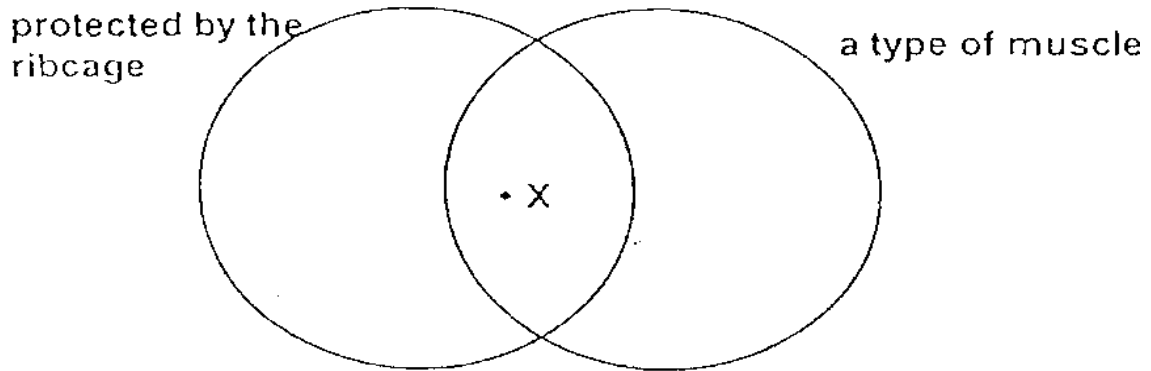
23. Aileen was asked to observe a body part of an animal. She filled up the following table after her observation related to the functions of the body part.

Does it ...	Remark
Absorb food so that it can be used by the body	NO
Help different parts of the body to move	NO
Support the body	YES
Give the body shape	YES
Protect the lungs	NO
Protect the heart	NO
Protect the brain	YES

Which is likely to be the body part that Aileen observed?

- |             |              |
|-------------|--------------|
| (1) ribcage | (2) backbone |
| (3) gullet  | (4) skull    |

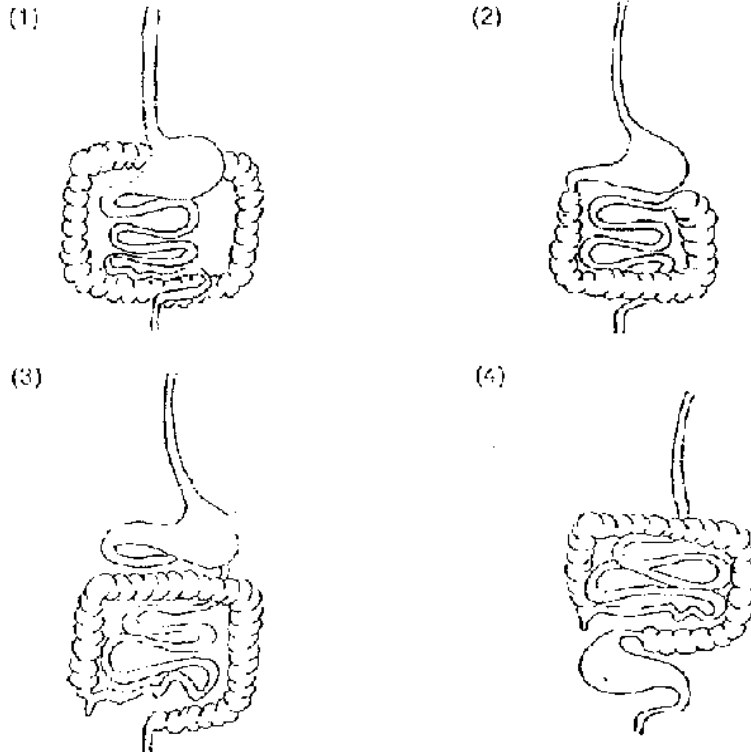
24. Look at the Venn diagram shown below.



Which one of the following can be X?

- |               |           |
|---------------|-----------|
| (1) lung      | (2) heart |
| (3) diaphragm | (4) skull |

25. Which one of the following figures correctly shows the position of the human stomach and intestines?



26. Which two of the following processes take place in the water cycle?

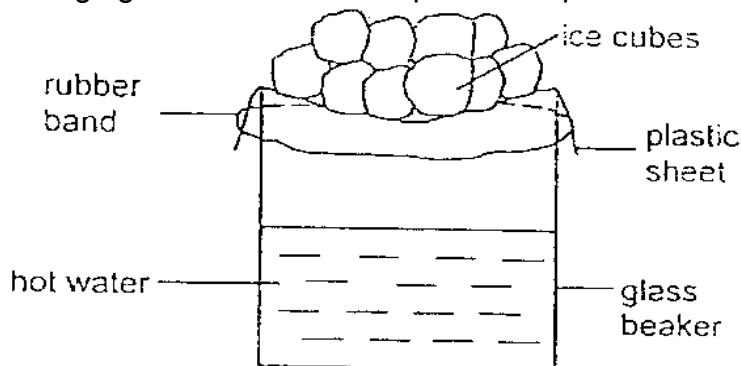
- (1) evaporation and freezing
- (2) evaporation and melting
- (3) condensation and evaporation
- (4) condensation and freezing

27. Ming Kai carried out a Science experiment with a glass beaker, a plastic sheet, a piece of rubber band, a few pieces of ice cubes and some hot water.

He did the following steps:

- Step 1: Pour some hot water into the glass beaker
- Step 2: Cover the top of the beaker with a plastic sheet
- Step 3: Secure the plastic sheet with a rubber band
- Step 4: Press the centre of the plastic sheet down so that it forms a funnel shape
- Step 5: Put some ice cubes on the plastic sheet

The following figure shows the set up of the experiment.



Which one of the following would NOT be one of Ming Kai's observations during the experiment?

- (1) Water droplets were found on the inner surface of the beaker.
- (2) White "clouds" were seen on the outer surface of the beaker.
- (3) Water droplets dripped back into the beaker.
- (4) The temperature of the hot water fell.

28. When the Singapore government conducts water rationing exercises and carries out campaigns, the government is trying to educate Singaporeans that \_\_\_\_\_.

- (1) water can be recycled
- (2) water is an unlimited resource
- (3) there will never be a shortage of water
- (4) water conservation is everyone's responsibility

29. Which one of the following sets matches the cause of water pollution with the correct effects?

	Causes	Effects
(1)	Oil spills from ships and tankers	Marine animals are injured or killed
(2)	Toxic (poisonous) waste from factories pumped into rivers	Oxygen is unable to reach the marine animals and plants
(3)	Untreated waste water pumped into rivers and streams	Aquatic life is poisoned and dies; diseases are spread
(4)	Litter thrown on land and in water	Aquatic life is poisoned and died

30. Which of the following are activities that required the use of water?

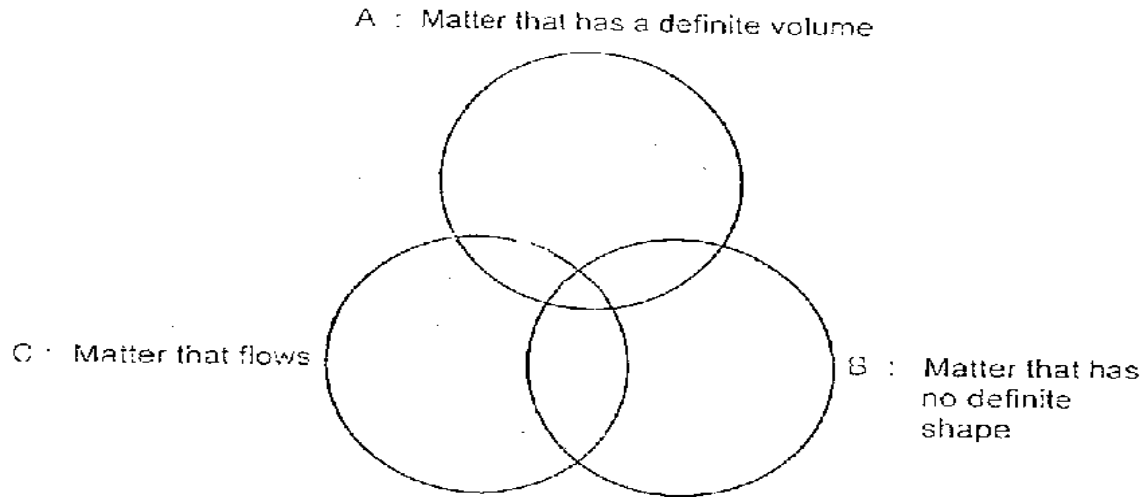
- A: windsurfing
- B: irrigation
- C: preserving food
- D: starting a car engine

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

**Section B (40 marks)**

**Write your answers for each question 31 to 46 in the blank spaces provided.**

31. Study the diagram below carefully.



a. Based on the diagram, describe Matter X. (1m)

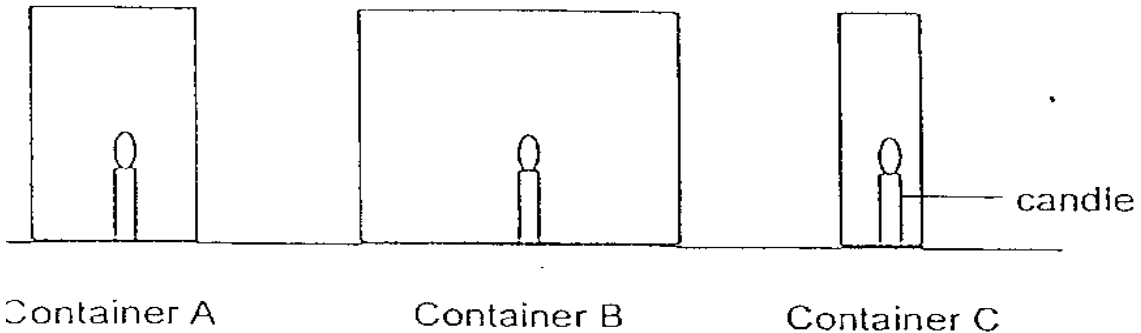
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b. What do you think Matter X is? (1m)

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c. Y is hydrogen and Z is an eraser. By adding a dot in front of the letters Y and Z, indicate in the diagram where you will put Matter Y and Matter Z. (2m)

32. Three containers were inverted over a burning candle, one at a time.



The time taken for each candle to go off was recorded in the table below.

Container	Time taken for candle to go off
A	8 seconds
B	16 seconds
C	4 seconds

a. Complete the following sentence (1m)

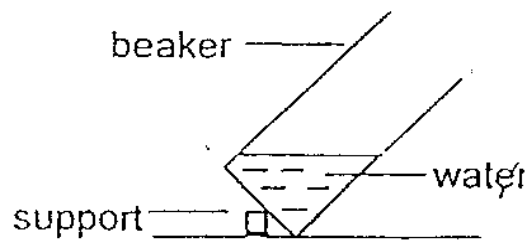
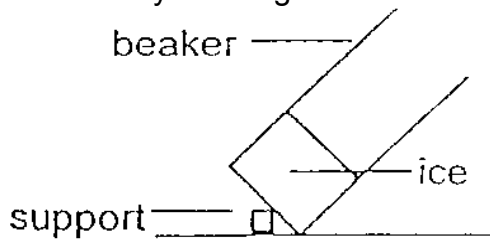
The candle in Container \_\_\_\_\_ took the shortest length of time to go off.

b. John studied the results of the experiment and discovered a pattern between the size of the container and the time taken for the candle to go off. What was the pattern? (1m)

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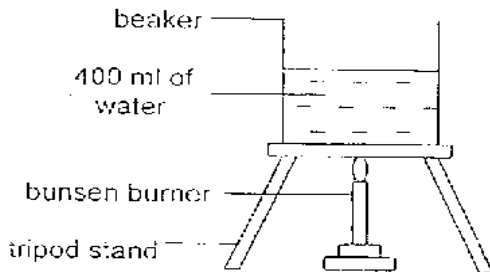
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33. Study the diagrams below carefully.

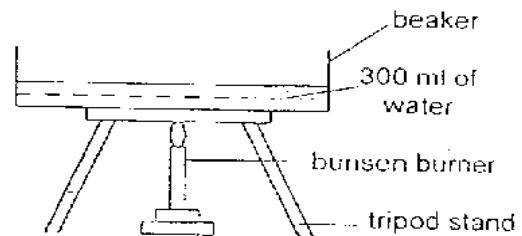


- (a) The above diagrams show that the process of \_\_\_\_\_ has taken place. ( 1m )
- (b) The process mentioned in (a) occurs at a temperature of \_\_\_\_\_. ( 1m )

34. Serene set up the following apparatus to find out whether the volume of water affects the rate of evaporation.



Set-up A



Set-up B

However, she was told that her set-up B was not a fair one.

In the space given below, DRAW and LABEL the apparatus that you would use for Set-up B to make the experiment a fair one. ( 3m )



35. Photosynthesis is a very important process that takes place in plants.

(a) Identify the gas that is taken in and the gas that is produced in this process. (1m)

Gas that is taken in ----

Gas that is produced ----

---

b. In what way is photosynthesis important to plants? (1m)

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36. George studied a sample of 50 litres of air taken from a place just outside a factory. He recorded his findings in the table below.

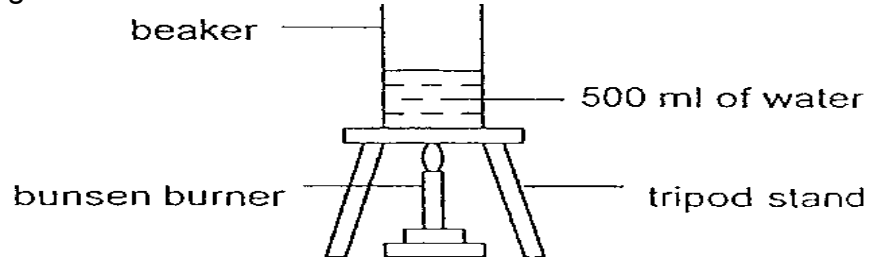
Gas	Number of Litres	Percentage (%)
Oxygen	13	26
Nitrogen	35	70
Carbon Dioxide	1	2
Water Vapour and Other Gases	1	2

Based on George's findings, complete the following table by putting a tick (✓) in the correct boxes. ( 2m )

		True	False	Cannot Tell
(a)	There is more water vapour than carbon dioxide in the air.			
(b)	There is more carbon dioxide than oxygen in the air.			
(c)	There is ½ litre of water vapour in the air.			
(d)	There is more nitrogen than any other gas in the air.			



37. 500 ml of water at a temperature of 30 °C is heated as shown in the diagram below.



List down two changes that have taken place to the water after twelve minutes. ( 2m)

(a)

(b)

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38. The table below shows the different parts which some animals use for respiration. Study carefully.

Animal	Grills	Lungs	Skin
Whale	√		
Shark		√	
Lion		√	
Earthworm			√
Parrot			√
Donkey		√	
Dog			√

(a) How many animals have their breathing parts identified **WRONGLY**. (1m)

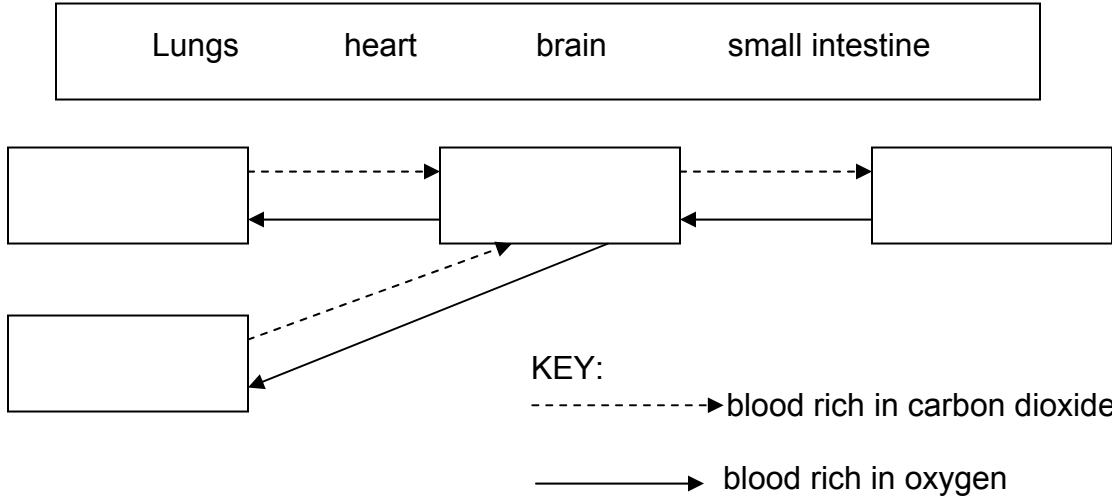
(b) Identify these animals. (1m)

(c) Name the two breathing mechanisms possessed by the mudskipper.( 1m )

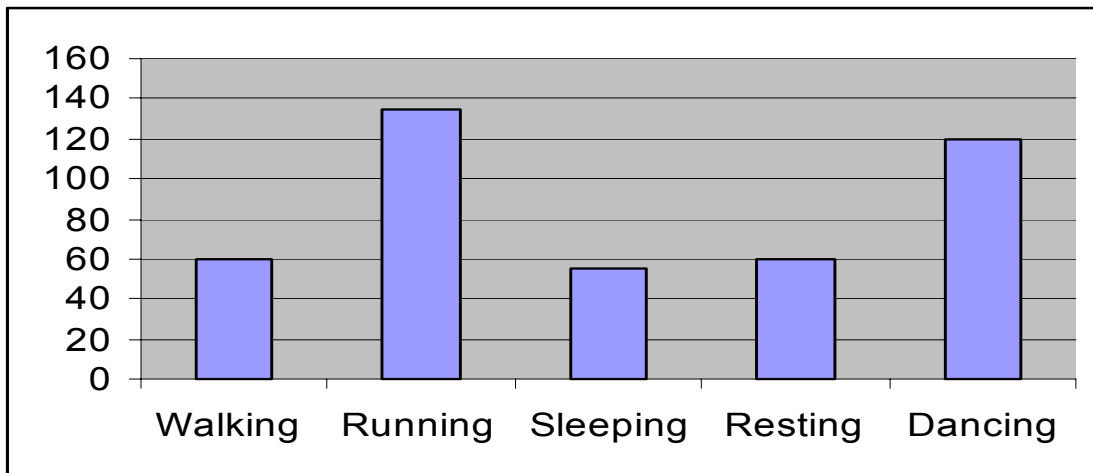
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39. The diagram below shows how blood helps to circulate the gases in the body. ( 2m )

Fill in the box with the words given below.



40. Joe, a 17-year old boy, performed some activities and recorded the heart rate for each activities as shown in the graph below.



a) Identify all those activities with a heart rate of more than 65 times per minutes. (1m)

b) If Joe danced for four minutes, calculate the total number of times his heart beat while he was dancing. (1m)

41. The circulatory system in the human body carries two important functions. What are they? ( 2m )

(a)

---

(b)

---

42. In the human body, there are some muscles that work on their own, beyond the human control. Name two of them. ( 2m )

(i)

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(ii)

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43. Complete the following paragraph about muscles. ( 3m )

Muscles are thick, stretchy bands that cover the skeleton. They are attached to the bones and help them move. Muscles often work in \_\_\_\_\_. While one muscles contracts to \_\_\_\_\_ on the bone, its partner \_\_\_\_\_.

44. Study the classification table below and complete it using the words given in the box.

Yellow tail	lobster	jellyfish	facon	beetle
Cow	frog	mussel	crab	

Animals with skeleton inside their bodies	Animals with skeleton outside their bodies	Animals without skeleton

45. A group of pupils in Class 4P recorded their findings in the table below after observing samples of water collected from five different sources. ( 3m )

	Sample A	Sample B	Sample C	Sample D	Samples E
Is there litter in the water?	No	No	Yes	Yes	Yes
Is there oil floating on the surface?	No	No	Yes	Yes	No
Is there soap floating on the surface?	No	No	No	Yes	Yes
Does it smell?	No	No	Yes	Yes	No
Are there many aquatic animals living in the water?	Yes	No	No	No	No
Are there many water plants found?	Yes	No	No	No	No

In the table below, match the sample to the correct source.

	Places	Sample
(i)	In a boat repair yard	
(ii)	In a public park	
(iii)	Near a food centre	

46. Study the classification table below and complete it using the words given in the box.

Uses of Water	Polluting Water	Conserving Water
Saving Water	Controlling Water Pollution	

