

PRELIMINARY EXAMINATION

SPECIMEN 1

SCIENCE (BOOKLET A)

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

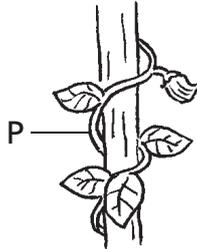
INSTRUCTIONS TO CANDIDATES

- Follow ALL instructions carefully.
- Answer ALL questions.

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4).

[56 marks]

1. The diagram shows a plant with part P.

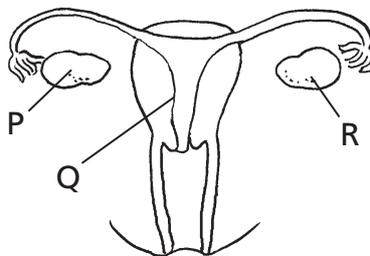


Which of the following statements state the importance of part P?

- A It holds the plant firmly to the ground.
- B It takes in water for all parts of the plant.
- C It transports food from leaves to the roots.
- D It climbs a support for leaves to receive more sunlight.

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

2. The diagram below shows the human reproductive system.



Which statements are correct?

- A P and R are ovaries.
- B Like flowering plants, fertilisation takes place at Q.
- C When R is removed, P can still produce fertilised eggs.
- D A foetus develops at Q over an average period of nine months.

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

3. Which lists only parts of the respiratory system?

- (1) nose, lungs, oxygen
- (2) mouth, gullet, air sacs
- (3) stomach, windpipe, lungs
- (4) nose, windpipe, air sacs

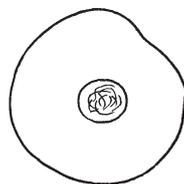
4. Trevor is eating.



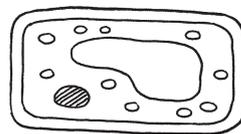
In which parts of Trevor’s digestive system would the food pieces be broken down into digested food?

	mouth	gullet	stomach	small intestine	large intestine
(1)	✓	✓		✓	
(2)	✓		✓	✓	
(3)		✓	✓		✓
(4)		✓	✓	✓	✓

5. Meyers observed the following cells X and Y.



Cell X

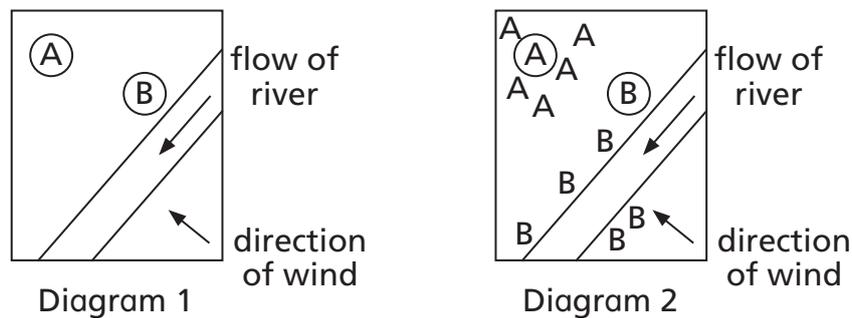


Cell Y

Which statement about the cells is **incorrect**?

- (1) The cell wall surrounds the cell membrane in both cells.
- (2) Both cells have a nucleus which controls the activities of the cells.
- (3) Cell Y can trap sunlight to carry out photosynthesis but cell X cannot.
- (4) Both cells have a cell membrane that controls substances moving in and out the cells.

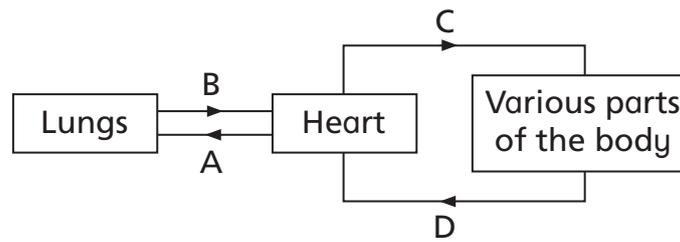
6. The diagram shows two types of plants A and B found in an area as shown in diagram 1. A few years later, more plants A and B were found in the area shown in diagram 2.



What are the most likely dispersal methods and characteristics of the fruits of plants A and B?

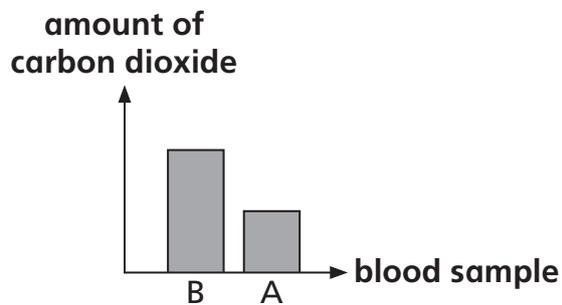
	Fruit	Method of seed dispersal	Characteristics of fruit
(1)	A B	explosive action water	splits at the line of weakness fibrous husk
(2)	A B	wind water	dry pod-like structure fibrous husk
(3)	A B	explosive action animals	wing-like structure waterproof outer covering
(4)	A B	wind explosive action	small and light dry pod-like structure

7. The diagram shows the direction of blood flow in the body.

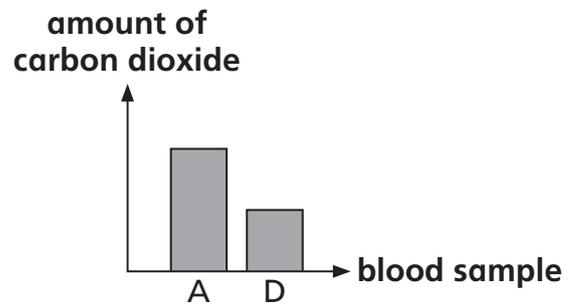


The same volume of blood was taken from A, B, C and D. Which chart shows the correct comparison of the amount of carbon dioxide in the blood samples?

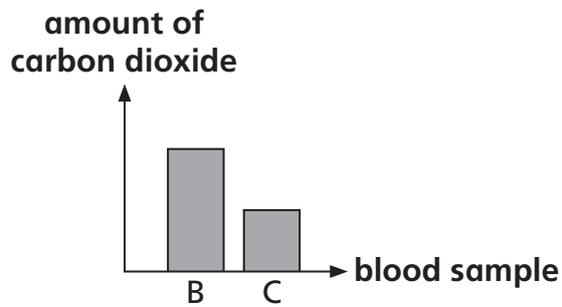
(1)



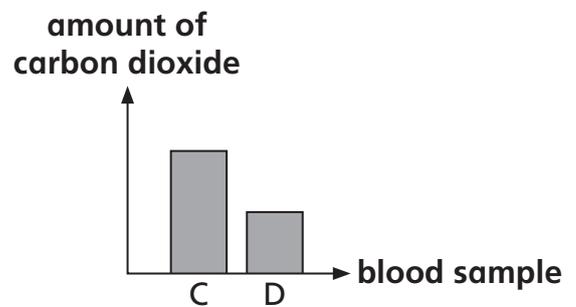
(2)



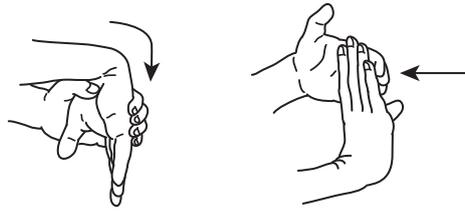
(3)



(4)

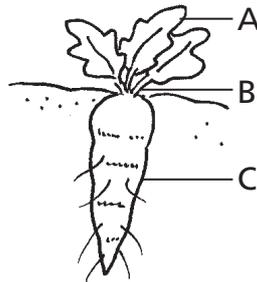


8. Due to prolonged used of his mobile phone, Sheldon suffers from strain injury. His physiotherapist recommends him to stretch his wrist regularly as shown.



Which pair of body systems needs to work together to allow Sheldon to do the wrist stretch?

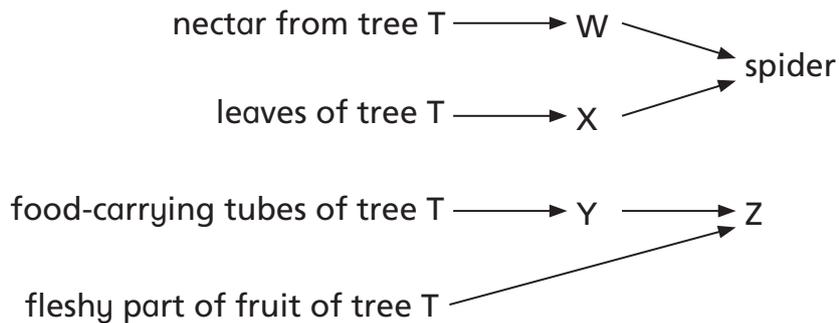
- (1) muscular and skeletal
 - (2) circulatory and skeletal
 - (3) circulatory and muscular
 - (4) respiratory and skeletal
9. The diagram shows a plant.



In which parts are tubes that transport water found?

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

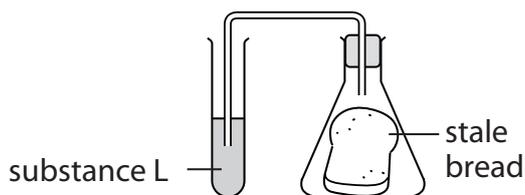
10. Study the following food web.



Which organism, W, X, Y or Z, in the food web carries out pollination and which carries out seed dispersal?

	Carries out pollination	Carries out seed dispersal
(1)	W	Y
(2)	X	Y
(3)	W	Z
(4)	X	Z

11. Helen set up an experiment to find out if decomposition releases carbon dioxide. Substance L changes colour when carbon dioxide is present.

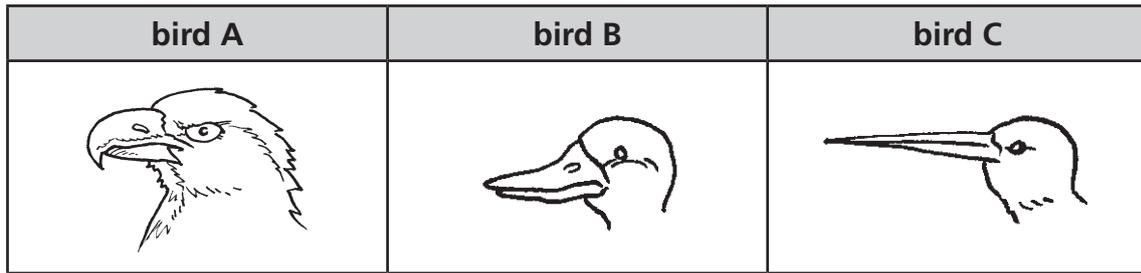


Which set-up should Helen use as a control?

(1) (2)

(3) (4)

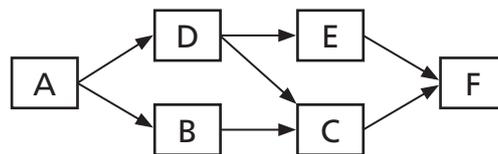
12. The diagram shows the beaks of three different birds.



What are the most likely foods of the birds?

	Bird A	Bird B	Bird C
(1)	mouse	worm	nectar
(2)	nectar	fruits	seed
(3)	seeds	nectar	fish
(4)	fish	seeds	mouse

13. The diagram shows the food relationships between organisms in a habitat.



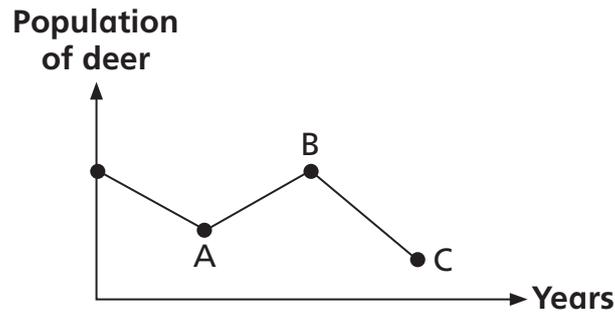
Which organisms are both a prey and a predator?

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

14. Here is a food chain in a grassland community.

grass → deer → lion

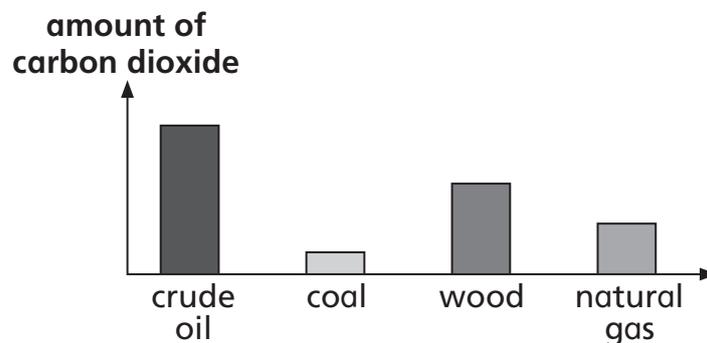
The graph below shows the change in the population of deer over some years.



Which would **not** cause the change in the population of deer at point B?

- (1) a drought in the grassland
- (2) a deadly disease that spread amongst the deer
- (3) a decrease in the population of lions due to trophy hunting
- (4) overgrazing due to the increase in the population of deer from point A

15. The graph below shows the amount of carbon dioxide released into the air annually when different types of fuels are burnt.



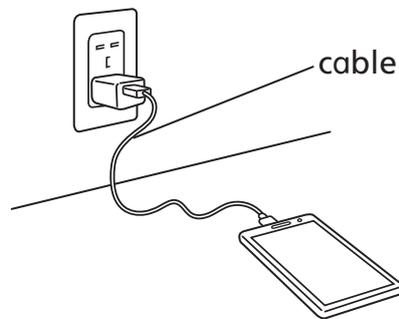
Which fuel contributes the least to global warming?

- (1) coal
- (2) wood
- (3) crude oil
- (4) natural gas

16. The table below shows the properties of four materials P, Q, R and S. A ✓ indicates the presence of the property.

Material	Properties			
	Flexible	Waterproof	Strong	Electrical conductor
P	✓	✓	✓	✓
Q	✓			✓
R	✓	✓	✓	
S		✓		✓

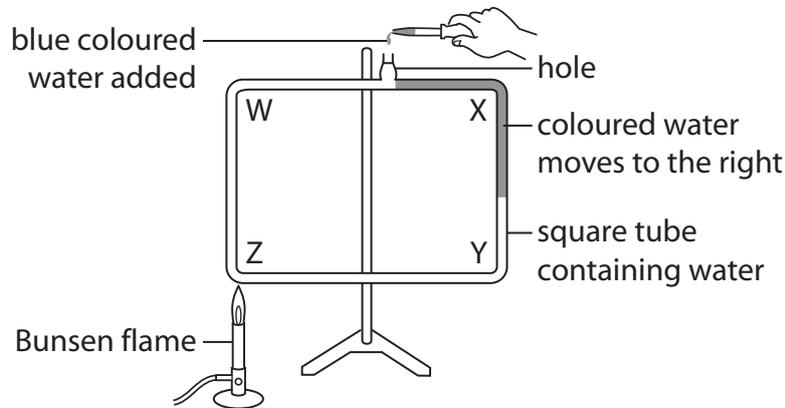
Which material is most suitable for make the covering of the cable of a mobile phone?



- (1) P
(3) R

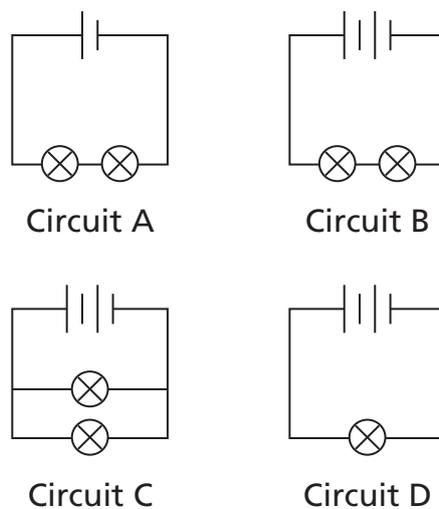
- (2) Q
(4) S

17. Aaron fills a square tube WXYZ with water and heats the water at Z before adding several drops of coloured water into the hole at the top of the tube. He observes that the coloured water moves in the direction $W \rightarrow X \rightarrow Y \rightarrow Z$.



Which statement is definitely correct?

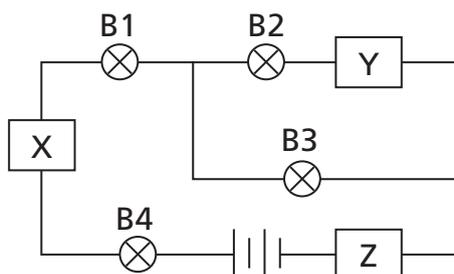
- (1) Cooler water floats on warmer water.
 - (2) Heat is transferred in the direction $Z \rightarrow Y \rightarrow X \rightarrow W$.
 - (3) When water is heated, it loses gravitational force and moves up.
 - (4) Heat energy in the flame is converted to kinetic energy of moving water.
18. Rohan wanted to find out if the arrangement of bulbs in a circuit affects the brightness of the bulbs. She set up four circuits with identical bulbs and identical batteries.



Which two circuits should Rohan use to carry out a fair test?

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

19. Three rods, P, Q and R, made of different materials are placed in different positions X, Y and Z in the circuit.



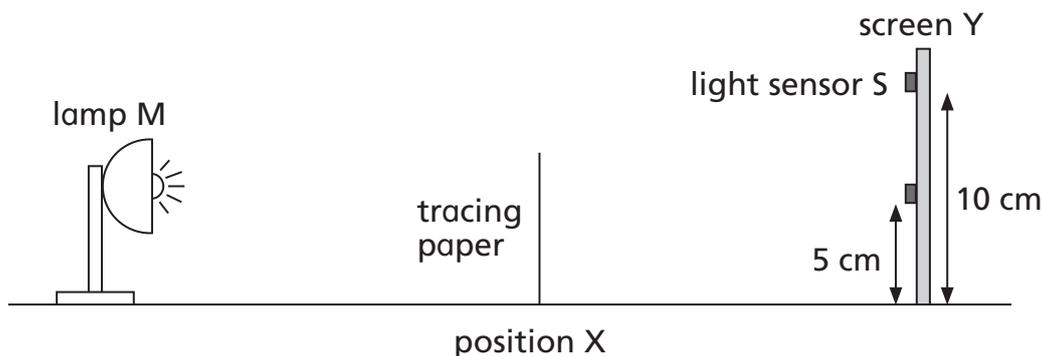
The results of the experiment are shown in the table below. A tick in the box represents the bulb lit up.

Positions where rods were place			Bulbs			
X	Y	Z	B1	B2	B3	B4
P	Q	R	✓		✓	✓

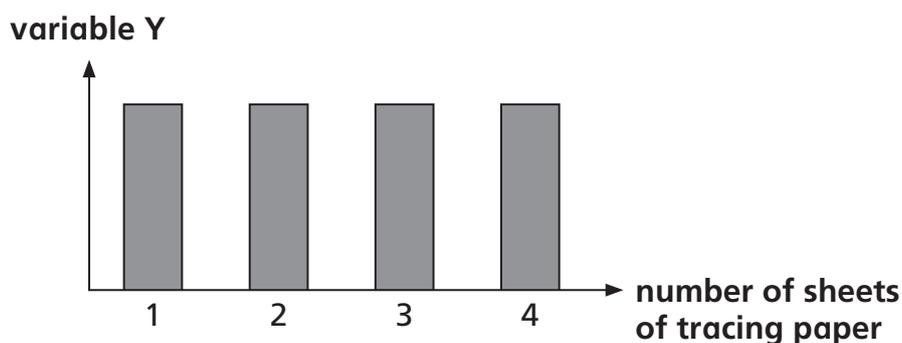
Which shows the correct results if rods P, Q and R are placed at different positions X, Y and Z?

	Positions of rods			Bulbs			
	X	Y	Z	B1	B2	B3	B4
(1)	P	R	Q	✓	✓	✓	✓
(2)	R	P	Q	✓			✓
(3)	R	Q	P	✓		✓	✓
(4)	Q	R	P		✓	✓	

20. When John places a piece of tracing paper at position X between lamp M and screen Y, a faint shadow 8 cm tall is formed on screen Y.



He then adds more sheets of tracing paper of the same size at position X and obtains the following graph.

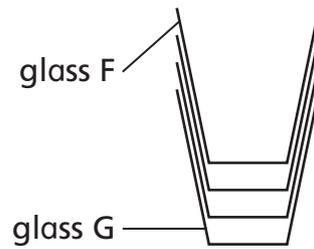


Which could variable Y be?

- A amount of light measured by sensor S
- B amount of light measured by sensor T
- C size of shadow

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

21. Four glasses are stacked together as shown. They became stuck and Casey was unable to separate them with his hands.



Which two ways can Casey use to remove glass F and glass G from the stack?

- A adding cold water into glass F
- B adding hot water into glass F
- C putting glass G in cold water
- D putting glass G in hot water

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

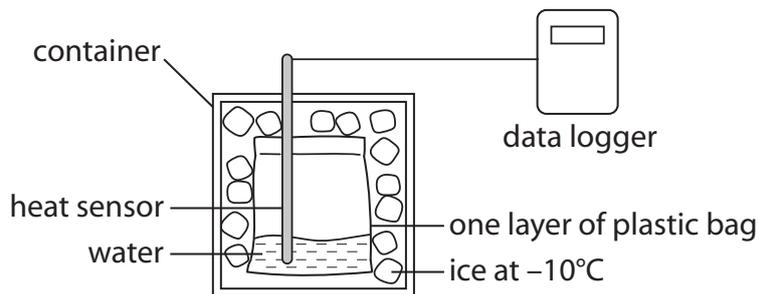
22. The freezing point and boiling point of four substances A, B, C and D are shown in the table below.

Substance	Freezing point (°C)	Boiling point (°C)
A	10	80
B	0	100
C	35	300
D	90	150

Which substance A, B, C or D has a definite volume and no definite shape at 25°C?

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

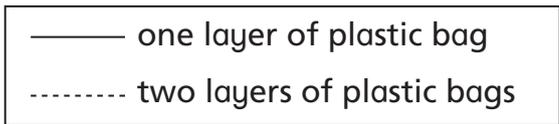
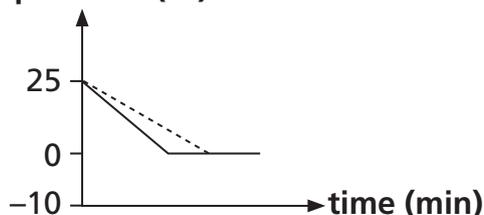
23. Weiling placed a sealed plastic bag of water at 25°C into a container of ice at -10°C. The container is made of a poor conductor of heat. He placed a heat sensor into the water.



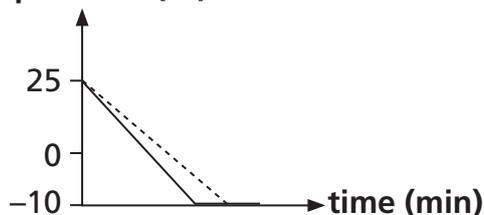
He observed that the water in the sealed plastic bag became ice after some time. He then repeated the experiment by putting the same volume of water in two layers of plastic bags.

Which graph correctly shows the change in the temperature of the water in one layer of plastic bag and in two layers of plastic bags?

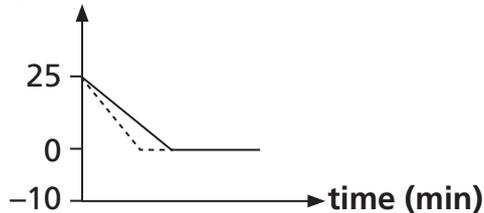
(1) temperature (°C)



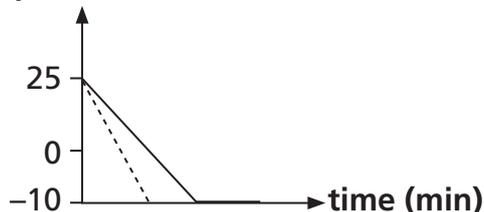
(2) temperature (°C)



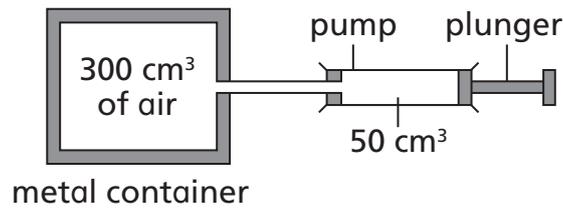
(3) temperature (°C)



(4) temperature (°C)



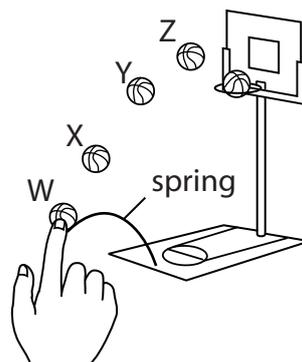
25. When the plunger is pushed all the way in, all the air from the pump entered the metal container.



Which of the following correctly shows what happens to the volume and mass of air in the container?

	Volume of air	Mass of air
(1)	increases	increases
(2)	decreases	increases
(3)	remains the same	increases
(4)	remains the same	decreases

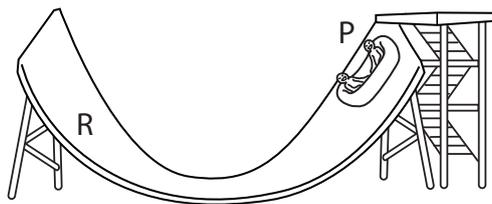
26. The diagram shows a toy basketball game. The path that the ball travels is shown by positions W, X, Y and Z.



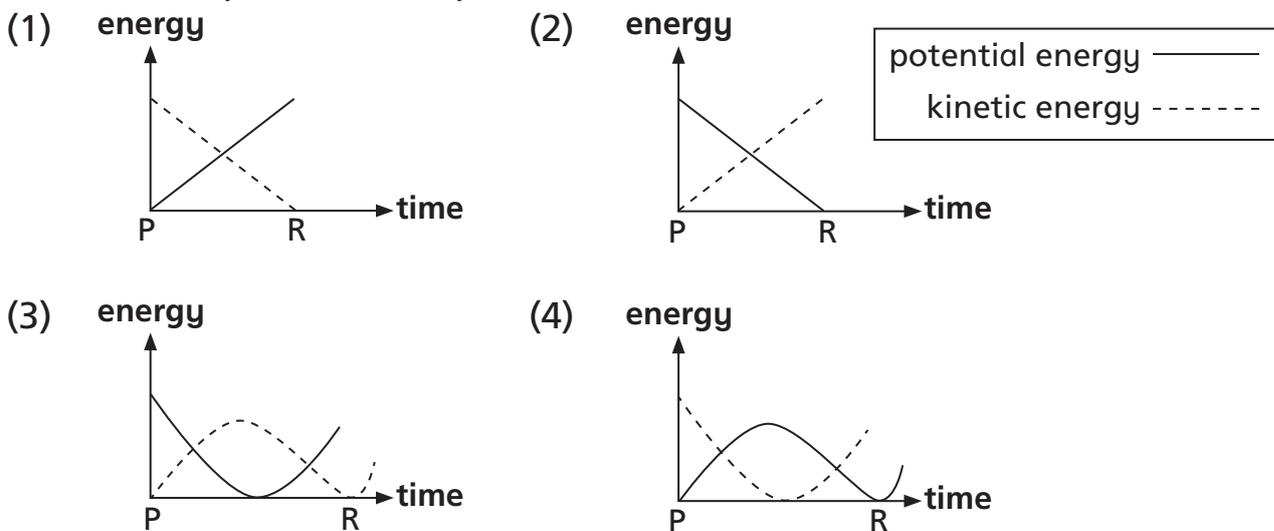
Which statement is **not** correct?

- (1) There is no force acting on the ball at W.
- (2) There is air resistance acting on the ball at X.
- (3) The gravitational force acting on the ball at W and Z is the same.
- (4) The ball changes in direction due to the gravitational force.

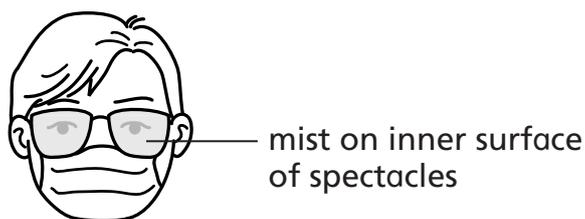
27. The diagram shows a ride at a water theme park.



Which graph shows the changes in the energy of the float when it moves from position P to position R?



28. Sonia’s spectacles became misty when she put over her mask as shown.



Which explains how the mist on the spectacles is formed?

- (1) Steam in the surrounding air condensed on the cooler spectacles.
- (2) Water droplets from her mouth evaporated and condensed on the spectacles.
- (3) Warmer water vapour in exhaled breath lost heat to the cooler spectacles and condensed.
- (4) Warmer water vapour in the surrounding air lost heat to the cooler spectacles and condensed.