

Mendaki PSLE Standard Science

Section A (30 x 2 marks = 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) and fill them in the brackets.

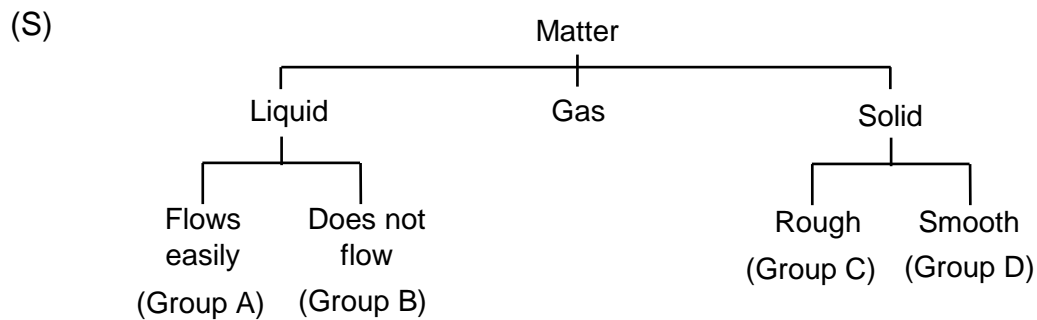
(1)

Bat	Lion	Monkey	Giraffe
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(S) The above animals can be grouped together because they _____.

- (1) live on land
- (2) are carnivores
- (3) have four legs
- (4) have an outer covering of hair ()

(2) Study the classification chart shown below.



Coconut oil should be classified in Group _____ .

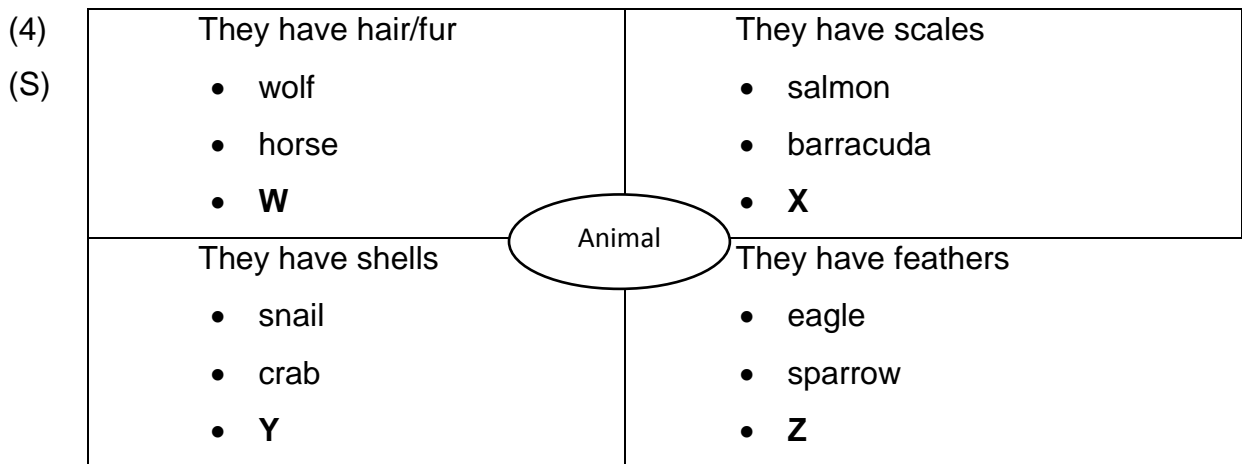
- (1) A
- (2) B
- (3) C
- (4) D ()

(3) The diagram shows a leafy sea dragon which looks like a plant.



What characteristic of the leafy sea dragon did biologists observe before classifying it as an animal and not a plant?

- (1) The ability to reproduce.
- (2) The ability to grow bigger.
- (3) The inability to make its own food.
- (4) The inability to move by itself from place to place. ()



Which one of the following represents the animals W, X, Y and Z?

	W	X	Y	Z
(1)	lion	spider	shellfish	parrot
(2)	dog	dory	frog	ostrich
(3)	mouse	guppy	turtle	bee
(4)	bat	python	tortoise	penguin

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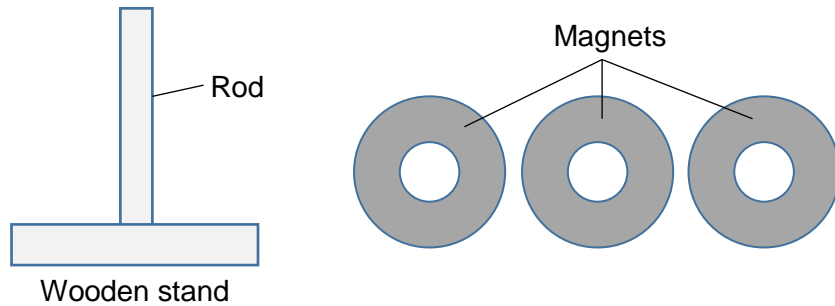
- (5) Delara took a walk through the botanical gardens and compared some characteristics of the bird's nest fern and mushroom she saw in the following table.

	Fern	Mushroom
(A)	A food producer	A decomposer
(B)	Has flowers	No flowers
(C)	Produces spores	Produces spores
(D)	Part of a food chain	Not a part of food chain

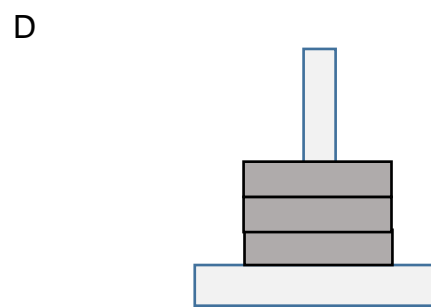
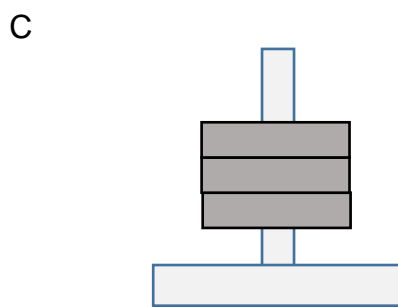
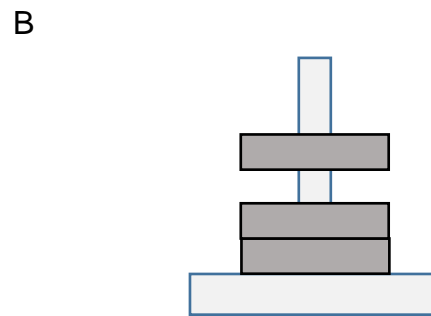
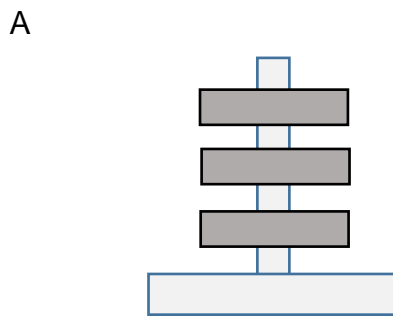
Which of the comparisons are **false**?

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

- (6)* Syamil received a toy as a present on his birthday. It consists of three discs (M) of the same size, each with a hole in the centre, and a wooden stand. The three discs are magnets. All three discs could pass through the rod of the wooden stand.



Syamil slotted the 3 discs through the rod.



Which of the following observations of the discs would be possible?

- (1) A and B only (3) C, D only
 (2) B and D only (4) A, B and D only ()
- (7) Stanley goes to the gym regularly and uses the dumb-bells. In order to lift (S) the dumb-bells with his arm, his _____ must work together.
- (1) skeleton and skull (3) ribs and skeleton
 (2) muscles and skull (4) muscles and bones ()

(8)* Which of the following statements is/are definitely true?

(M)

A : At the end of every chain is a carnivore.

B : At the start of every food chain is a food producer.

C : Fungi can be found at the start of certain food chains.

D : The population of a predator is usually smaller than the population of its prey in food chain.

(1) B only

(3) A and C only

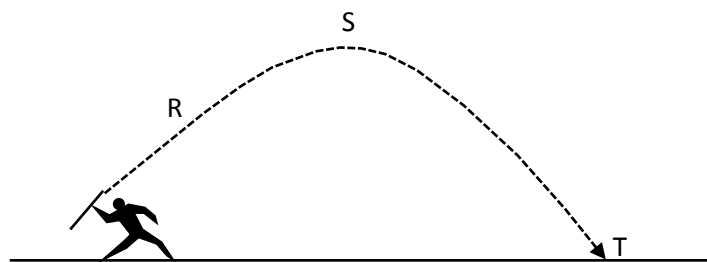
(2) A and B only

(4) B and D only

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(9)* Ze Yu throws a javelin up into the air during an athletics competition. The

(S) dotted line shows the path the javelin will travel through the air.



At which point(s) is gravitational force acting on the javelin?

(1) S only

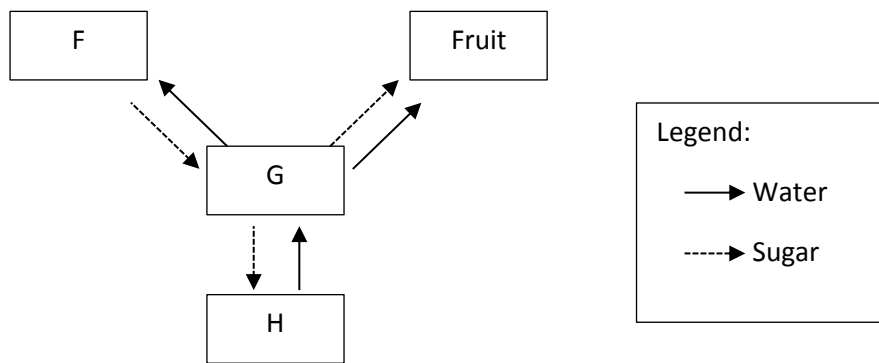
(3) S and T only

(2) R and S only

(4) R, S and T

()

(10)* Raja created a diagram below to show how sugar and water are transported to and from different parts of a plant.
 (M) transported to and from different parts of a plant.

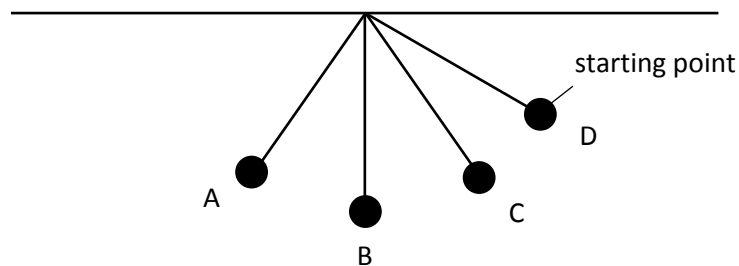


Which one of the following correctly shows the parts of the plant that are represented by F, G and H?

	F	G	H
(1)	leaves	roots	stem
(2)	roots	leaves	stem
(3)	roots	stem	leaves
(4)	stem	leaves	roots

()

(11)* Shah Indera released a pendulum from the starting point as shown in the diagram below.
 (M) diagram below.



At which point did the pendulum possess the most kinetic energy?

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

(12)* Jessica wanted to find out if overcrowding would affect the growth of a plant. She has two pots of different sizes. Which variables listed below should she keep the same?

A : Location of pots placed

B : Amount of water given

C : Number of plants used

D : Type of plants used

E : Type of soil used

(1) C only

(3) A, B, D and E only

(2) C and D only

(4) A, B, C, D and E ()

(13)* What happens when the small intestine in the human body does not function properly?

A : Undigested food cannot be passed out to the rectum.

B : Digestion of food cannot complete.

C : Water cannot be absorbed from the undigested food.

D : Digested food cannot enter the bloodstream.

(1) B only

(3) A and C only

(2) C only

(4) B and D only ()

(14)* The process in which energy from food is released for life processes in living organisms is called?

(1) breathing

(3) respiration

(2) digestion

(4) photosynthesis ()

(15)* Syafiq asked his best friend, Joseph, for the difference between inhaled and exhaled air. Which one of the following statements is the **true** statement given by Joseph?

(1) Inhaled air has more nitrogen than exhaled air.

(2) Exhaled air has more water vapour than inhaled air.

(3) Inhaled air has lesser dust particles than exhaled air.

(4) Exhaled air has lesser carbon dioxide than inhaled air. ()

(16)* Danisyah uses her camera to take photographs using the flash function.

(M) Which form(s) of energy is/are needed to operate it?

A : Electrical energy

B : Sound Energy

C : Light Energy

D : Heat Energy

(1) A only

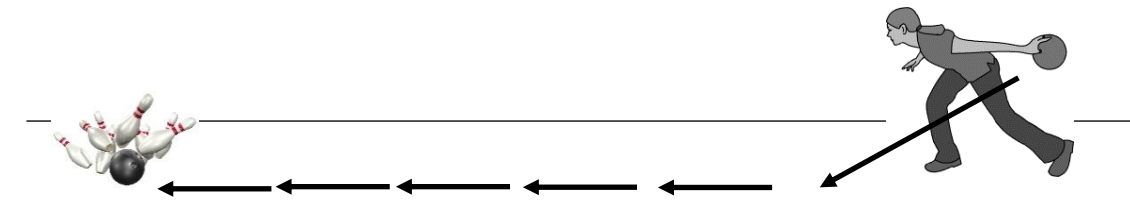
(3) A and C only

(2) A and B only

(4) A, C and D only ()

(17)* In the diagram below, Viki is bowling a ball, which strikes all the pins down.

(M)



What is the energy conversion that takes place when Viki bowls the ball?

(1) Kinetic energy \rightarrow Chemical Potential energy \rightarrow Heat energy + Sound energy

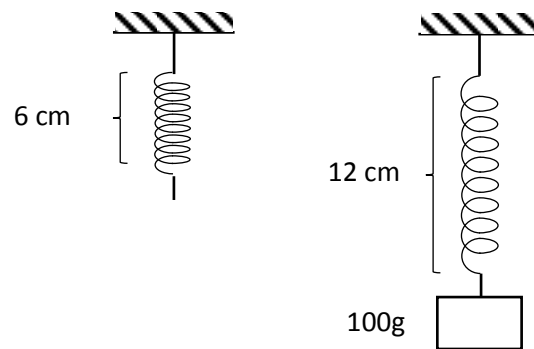
(2) Kinetic energy \rightarrow Gravitational Potential energy \rightarrow Heat energy + Sound energy

(3) Chemical Potential energy \rightarrow Gravitational Potential energy \rightarrow Heat energy + Sound energy

(4) Chemical Potential energy \rightarrow Kinetic energy \rightarrow Sound energy + Heat energy

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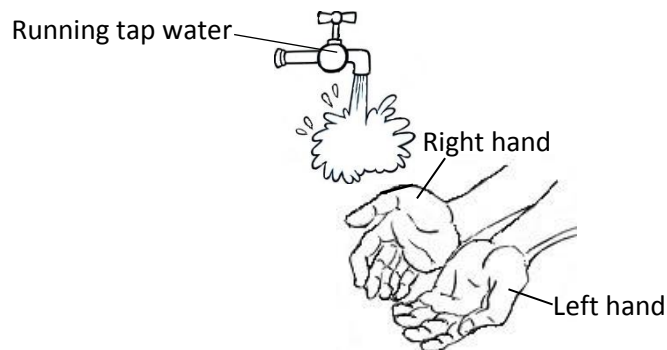
- (18)* The following diagram shows how the length of a spring changes when a load of 100 g is hung from it.
 (M)



What will be the extension of the spring be when a 150 g load is hung on it?

- (1) 15 cm (3) 3 cm
 (2) 9 cm (4) 6 cm ()

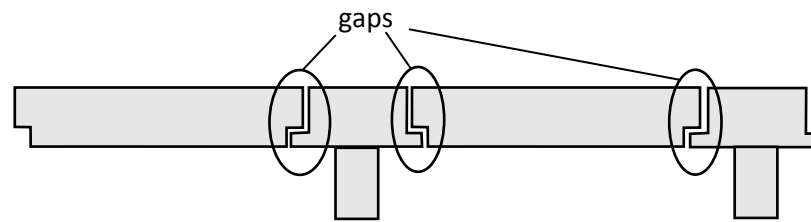
- (19) Ifan placed his right hand into a bowl of warm water for 1 minute. He then
 (C)* immediately placed both his hands under a tap of running water, at room temperature, to wash his hands. Under the running tap water, his right hand felt colder than his left hand.



Which statement below shows the possible reason for his hands to feel that way when placed under the running water?

- (1) His left hand lost heat faster than his right hand.
 (2) His right hand gained heat faster than his left hand.
 (3) His right hand lost more heat than the left hand.
 (4) His left hand lost more heat than the right hand.
 ()

- (20) Abygail was walking under the Mass Rapid Transit (MRT) track bridge that
 (M) passes overhead and noticed some gaps placed at regular intervals.



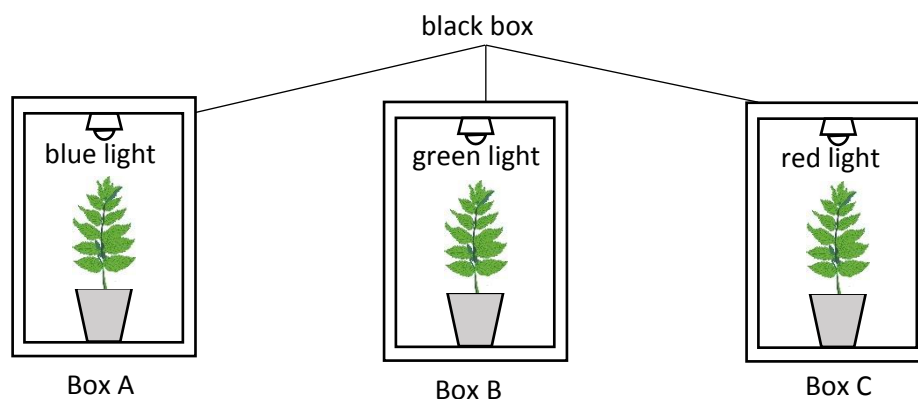
Which statement below shows the possible reason for the presence of the gaps on the bridge?

- (1) Allows the contraction of the bridge during cold weather.
- (2) Allows the expansion of the bridge during cold weather.
- (3) Allows the contraction of the bridge during hot weather.
- (4) Allows the expansion of the bridge during hot weather.

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Study the diagram below and answer questions 21 and 22.

Jahangeer wanted to find out if different coloured lights affect the growth of a plant. He placed three identical pots of plants into three separate identical black boxes. He exposed each plant with three different coloured lights; blue, green and red. He waters the plants regularly with equal amounts of water.



After 7 days, he recorded the results of his experiment as shown in the table below.

	Set-up A	Set-up B	Set-up C
Colour of Light given to plants	Blue	Green	Red
Number of Leaves in the beginning of experiment	20	20	20
Number of Leaves at the end of the experiment	23	14	25

(21)* Which of the following statements below is definitely true?

(M)

A : Green light is the best light to be given to a plant to photosynthesize.

B : The plant photosynthesises better with red light as compared to the blue and green lights.

C : Plants can only photosynthesize with blue and red lights.

D : The plant exposed to the red light grows the tallest.

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(1) A only

(3) B and C only

(2) B only

(4) B, C and D only

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(22)* What is the purpose of the black box for his experiment?

(M)

(1) The black box absorbs the heat from the surrounding air.

(2) The black box absorbs the light given out by the lamps.

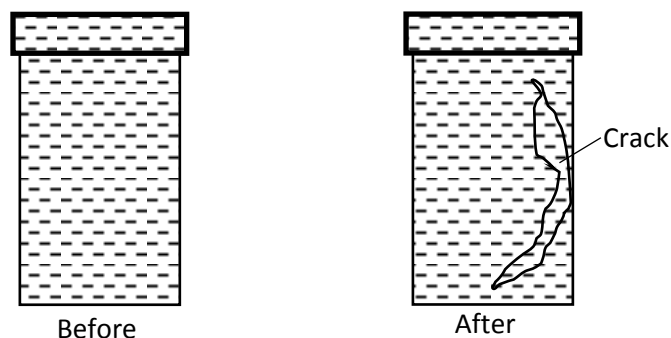
(3) The black box is opaque and prevents the light from the lamps to escape.

(4) The black box is opaque and prevents light from the surroundings to enter and affect the experiment.

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(23)* Jocelyn filled a thin-walled glass bottle with water to the brim, capped it

(C) tightly and placed it in the freezer compartment of a refrigerator as shown in the diagram below.



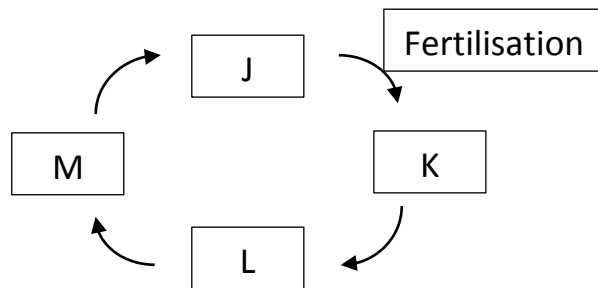
When she took out the bottle out of the freezer the next day, she noticed a large crack on the side of the glass bottle. Why do you think this happened?

- A : The water takes up more space when it freezes
- B : The glass bottle gained heat and expands too quickly.
- C : The glass bottle lost heat and contract, taking up lesser space.
- D : There is no air in the glass bottle to absorb the expansion of the water.

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

(24)*

(M)

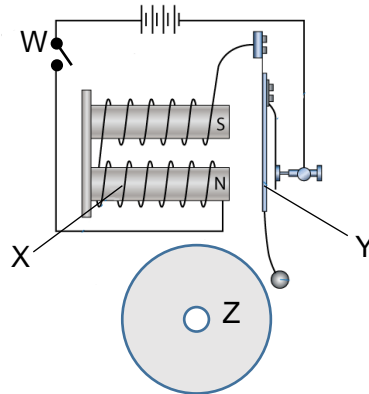


The diagram shows the life cycle of a mosquito and the point at which fertilisation occurs. Which of the following correctly shows the different stages of its life cycle?

- | | J | K | L | M |
|-----|----------|----------|----------|----------|
| (1) | Egg | Larva | Pupa | Adult |
| (2) | Pupa | Adult | Egg | Larva |
| (3) | Adult | Egg | Larva | Pupa |
| (4) | Larva | Pupa | Adult | Egg |
- ()

(25) The diagram below shows how a doorbell works.

(S)



Which part becomes an electromagnet when the circuit is closed?

(1) W

(3) Y

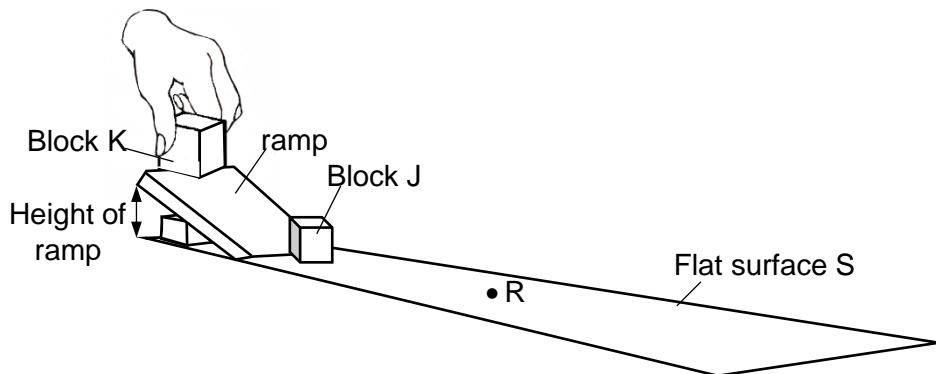
(2) X

(4) Z

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(26) Janelle released block K from the top of a smooth ramp. It moves down the

(M) ramp and hits block J which was placed at the bottom of the ramp.



After being hit by block K, block J slides along surface S before coming to a stop at point R. Which of the following changes can increase the distance moved by block J along surface S?

(1) Increase the length of surface S.

(2) Increase the roughness of surface S.

(3) Increase the width of the ramp.

(4) Increase the height of the ramp.

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(27)* The following statements describe the different stages of the water cycle.

(M)

A : When the water droplets become bigger, rain falls back to the Earth.

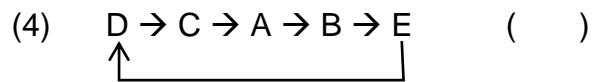
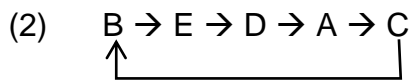
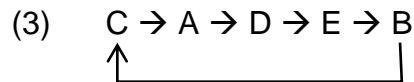
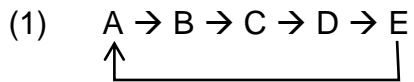
B : Heat energy from the Sun warms the Earth.

C : Droplets of water form clouds.

D : Condensation occurs.

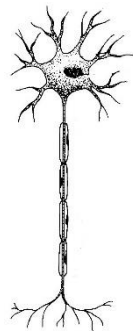
E : Water evaporates.

Which one of the following is a correct representation of the water cycle?

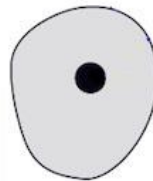


(28)* The diagram below shows 3 different types of cells.

(M)



Cell A



Cell B



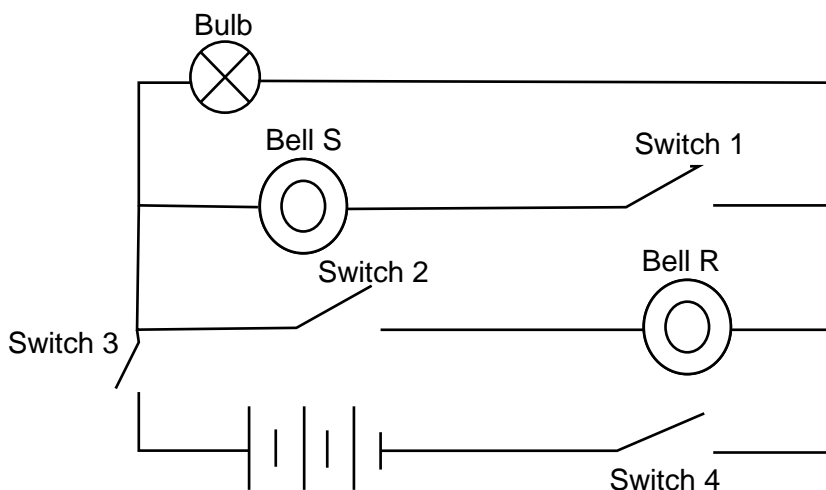
Cell C

Which of the following matches the cells to their functions correctly?

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

(29)* The diagram below shows an electric circuit.

(M)

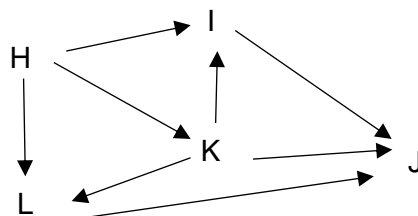


In which order must the switches be closed such that the bulb will light up first followed by the ringing of Bell S and finally Bell R?

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

(30)* The food web below shows the transfer of energy among 5 populations of organisms, H, I, J, K and L

(C)



Based on the food web above, which one of the following statements is **false**?

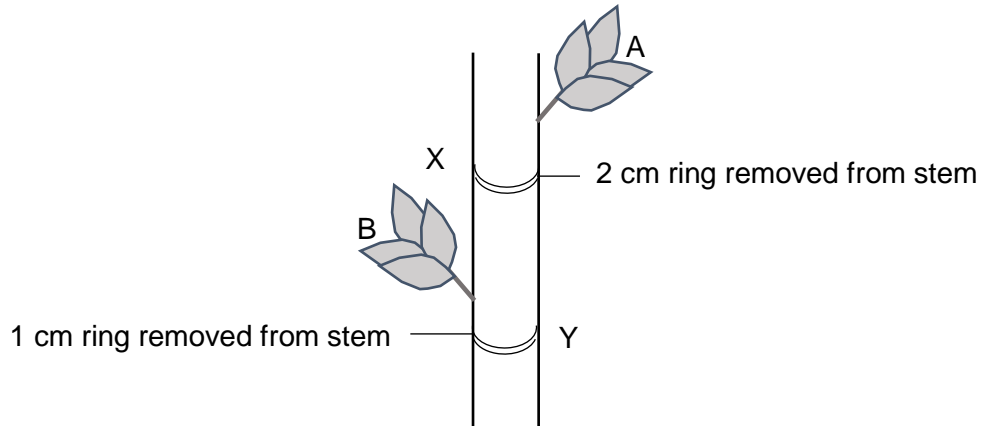
- (1) J and L are predators.
(2) There are a total of 5 food chains in the food web.
(3) A decrease in the population of H will cause a decrease in the population of its predators.
(4) Population of I, J, K and L would decrease when the food producer is wiped out.

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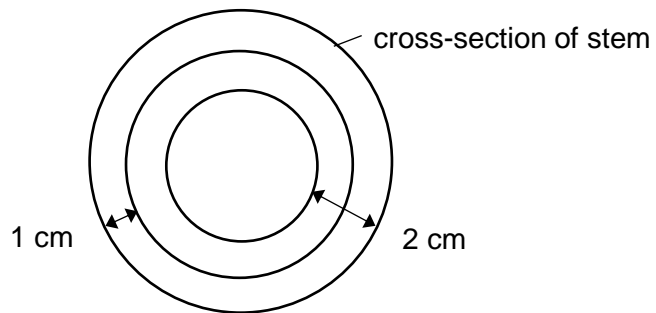
Section B (40 marks)

Answer the following questions.

- (31)* Adira carried out an experiment on a stem of plant as shown below. She
(S) removed a 2 cm ring at position X and a 1 cm ring at position Y of the stem.
She observed that the leaves at position A died after five days.

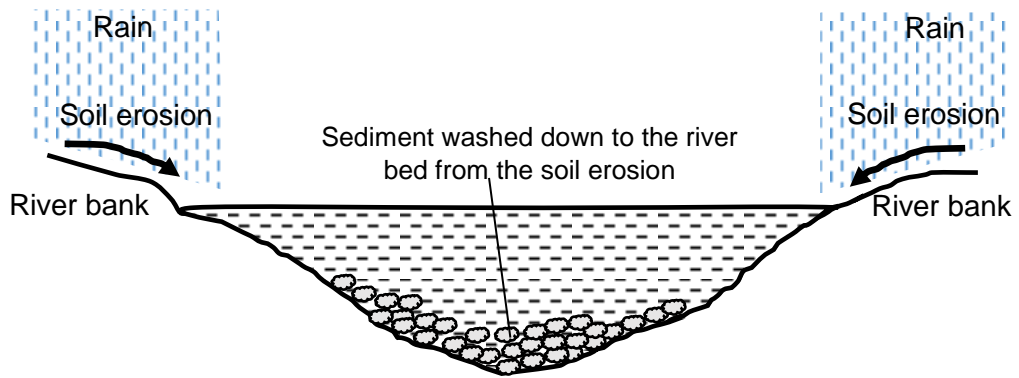


- (a) Based on the information given above, shade the part of the stem that carries water in the diagram below. (1 m)



- (b) Explain why the leaves at position B could survive after 2 days. (1 m)

(32)* The diagram below shows the soil erosion of the river bank due to deforestation.
(M)



(a) State two impacts on the river banks caused by soil erosion. (2 m)

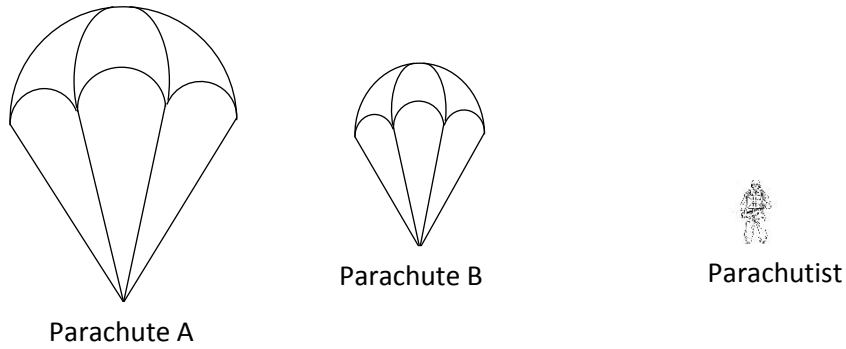
Impact 1 : _____

Impact 2 : _____

(b) State one impact on the plant in the river and explain. (1 m)

(33)* The diagrams below show two parachutes and a parachutist.

(M)



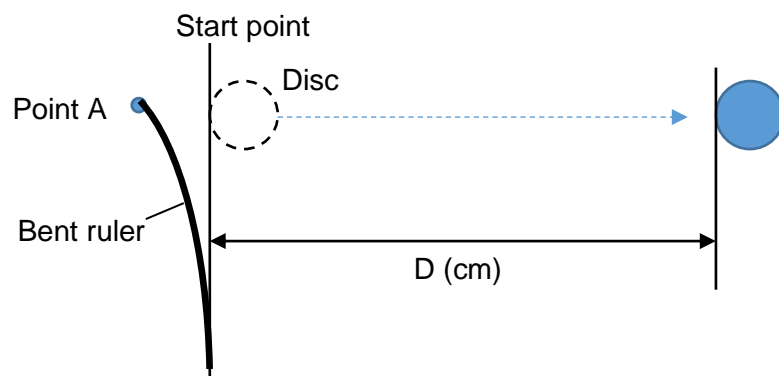
Which parachute should the parachutist use if he wants to descend as slowly as possible? Explain your answer. (2 m)

(34)* Kim Seng wanted to find out how the mass of a round metal disc affects the distance travelled by the disc. He placed the disc at the starting point, then

(M)

used a ruler, bent to **point A**, to **flick** at the disc as shown in the diagram below. The distance travelled by the disc, D , is measured and recorded in the table below. He repeated the experiment with discs of different masses.

View from Top



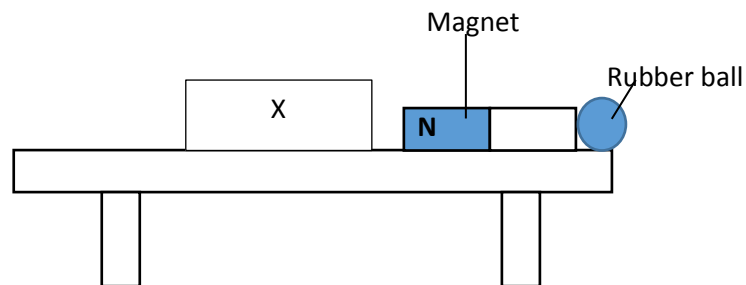
Mass in g	Distance, D (travelled in cm)		
	1 st	2 nd	3 rd
10	43	38	41
20	32	33	35
30	20	24	18

- (a) What is the relationship between mass of the disc and the distance travelled by the disc? (1 m)

- (b) List two variables that should be kept constant to ensure a fair test. (2 m)

- (c) Give a reason why Kim Seng repeated the experiment two more times for each of the discs? (2 m)

- (35)* Study the diagram below. When Janani placed object X near the magnet, (M) the rubber ball was pushed off the table.

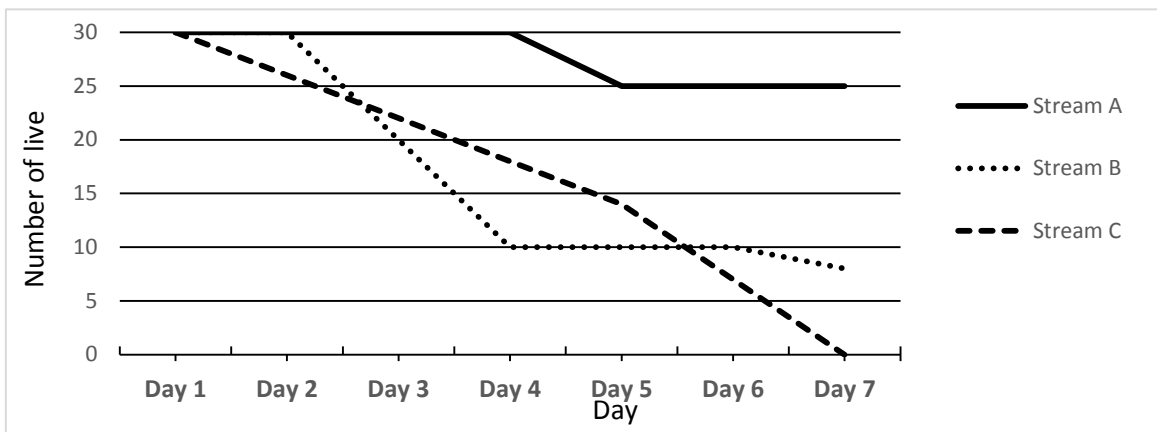


- (a) Name the two forces that caused the rubber ball to fall from the table to the ground? (2 m)

- (b) Identify object X and explain how it was able to push the ball off the table. (2 m)

- (c) The rubber ball bounced off the ground when it reached the bottom and bounced off several more times before coming to a stop. Kim Seng noticed that the maximum height that the bouncing rubber ball reached decreased after every bounce. Explain why this was so.
(2 m)

- (36)* In an experiment, three cages with the same number of identical live fish were lowered separately into three streams A, B and C. The number of live fish in the cages was counted over a week. The graph below shows the results.

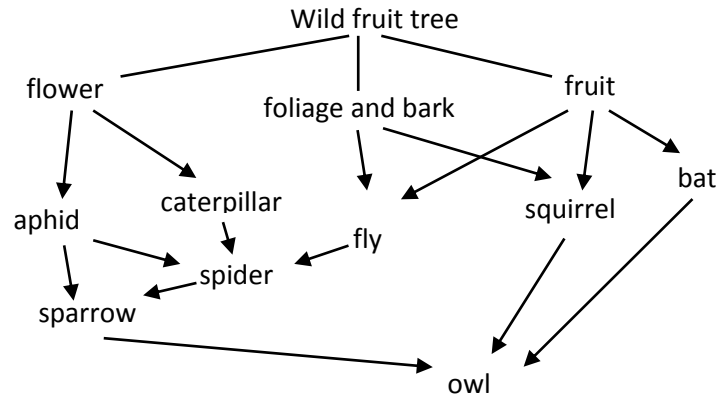


Study the statements below and indicate in the box with a tick (✓) whether they are 'True', 'False' or 'Not possible to Tell'. (4 m)

	Statement	True	False	Not possible to tell
(a)	All the fish that died from the experiment had died because of pollutants.			
(b)	The fish could have died because of lack of food.			
(c)	The greatest decrease in number of fish in a day occurred in Stream C.			
(d)	Stream A had the least amount of pollutants.			

(37)* The food web below shows a food web in a particular habitat.

(M)

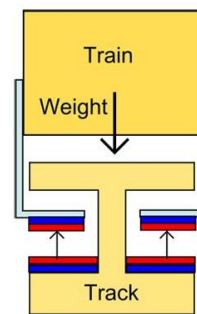


(a) Which animal would be most affected if the flowers of the tree were not pollinated? Explain your answer. (2 m)

(b) How might removing the entire population of squirrels in that habitat affect the wild fruit tree. (2 m)

(38)* The diagram below shows a train that does not have wheels.

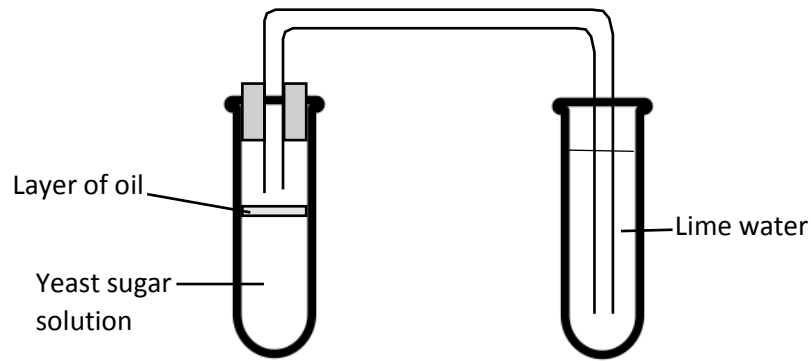
(M)



Simple diagram of the cross-section of train and track

The train moves at high speed above 400 km/h. Explain how this is possible. (3 m)

- (39)* The diagram below shows an experiment to investigate the factors that affect the survival of yeast.
 (M) the survival of yeast.

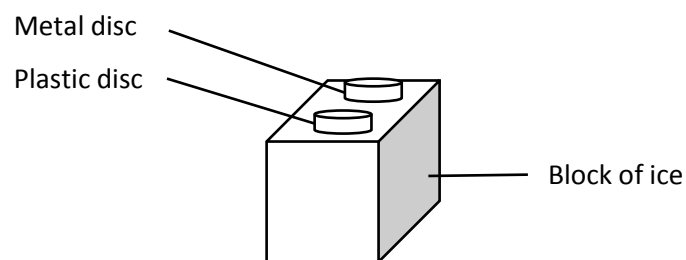


The yeast and the glucose solution was placed in water baths of different temperature. The result of the experiment is shown in the table below.

Set-up	Temperature of water baths (°C)	Observation of limewater
A	35	Turns chalky
B	70	Remains clear

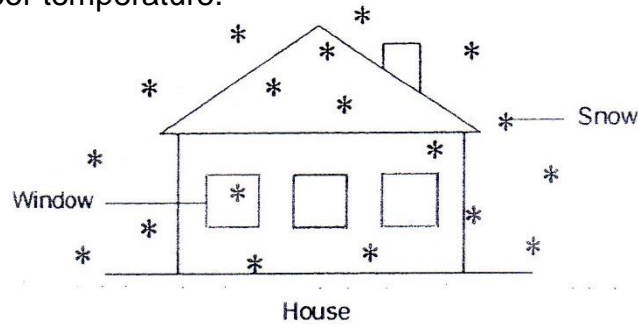
- (a) What is the purpose of the water baths? (1m)

- (b) A metal disc and a plastic disc of identical shape and size were both placed on a block of ice as shown in the diagram.



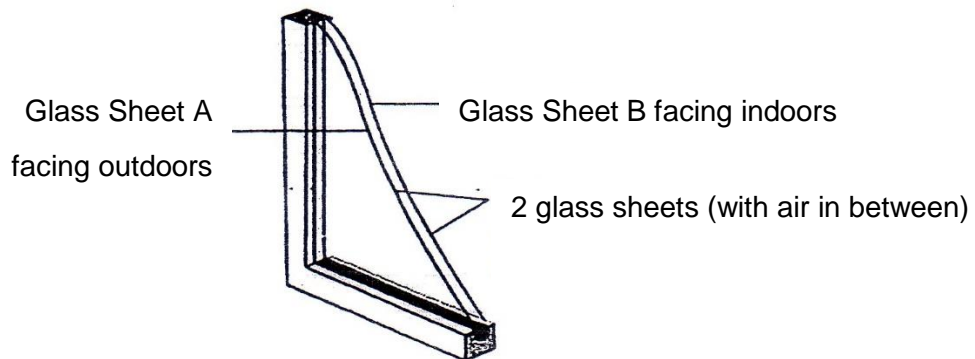
Which disc will feel cooler to the touch after 5 minutes? Explain. (2 m)

- (40)* In winter, houses are heated so that the indoor temperature is higher than the outdoor temperature.



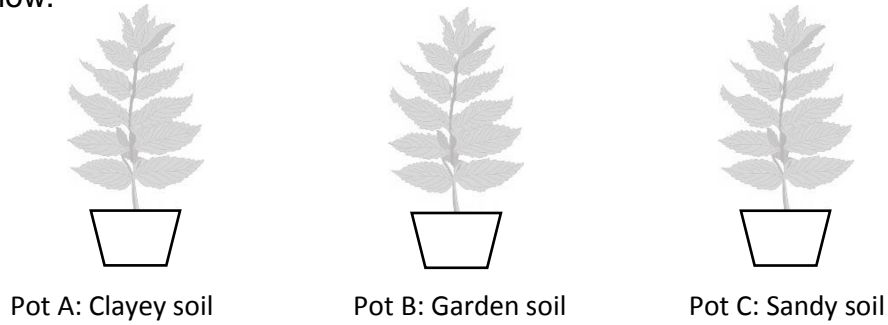
- (a) When the window is made of a single sheet of glass, condensation occurs on the inner surface of the glass facing indoors. Explain why this happens. (2m)

A double-glass window consisting of two sheets of glasses separated by a layer of air is shown in the diagram below. This is to slow down the rate of condensation on the inner surface of Glass Sheet B facing indoors.



- (b) Explain why double-glass windows can **slow down the condensation rate** on the inner surface of the Glass Sheet B. (2m)

- (41)* Sarah filled 3 pots with the same amount of soil as shown in the diagram below.



She planted a species of plant P in each pot and placed them side by side on a table near the window. She watered each plant with the same amount of water daily.

- (a) What other variable(s) should she keep the same to ensure that it is a fair test. (2m)

The table below shows the measurements and observations that Sarah made after 1 week.

Pot	Number of leaves		Height of plant / cm		Colour of leaves	
	Start	End	Start	End	Start	End
A	12	14	50	55	Green	Yellow
B	12	19	50	60	Green	Green
C	12	16	50	62	Green	Green

- (b) Based on the results, which type of soil is least suitable for plant P. Explain your answer. (2m)

- The End -