

**SEMESTRAL ASSESSMENT (1)
2017**

Name : _____ Index No: ____ Class: P4__

9 May 2017

SCIENCE

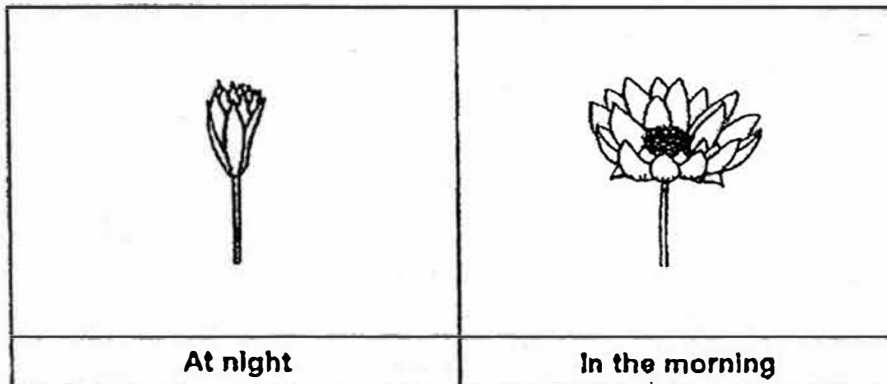
Att: 1 h 45 min

Section A	58
Section B	44
Your score out of 100	
Parent's signature	

SECTION A (28 x 2 marks)

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). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet (OAS) provided.

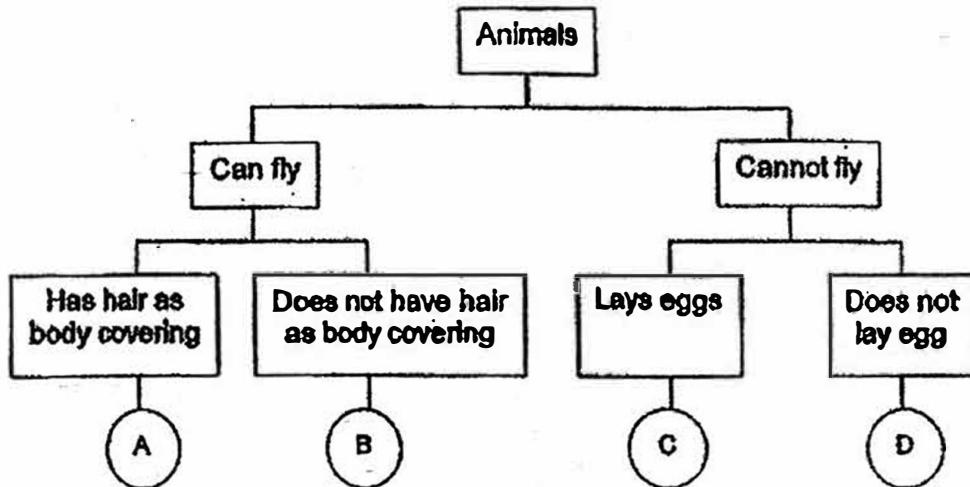
1. The flower shown below closes at night and only opens in the early morning.



Which one of the following characteristics of living things does the above flower show?

- (1) Living things die.
- (2) Living things reproduce.
- (3) Living things need air, food and water to survive.
- (4) Living things respond to changes in its surroundings.

2. The flow chart below shows how some animals are classified into groups A, B, C and D.



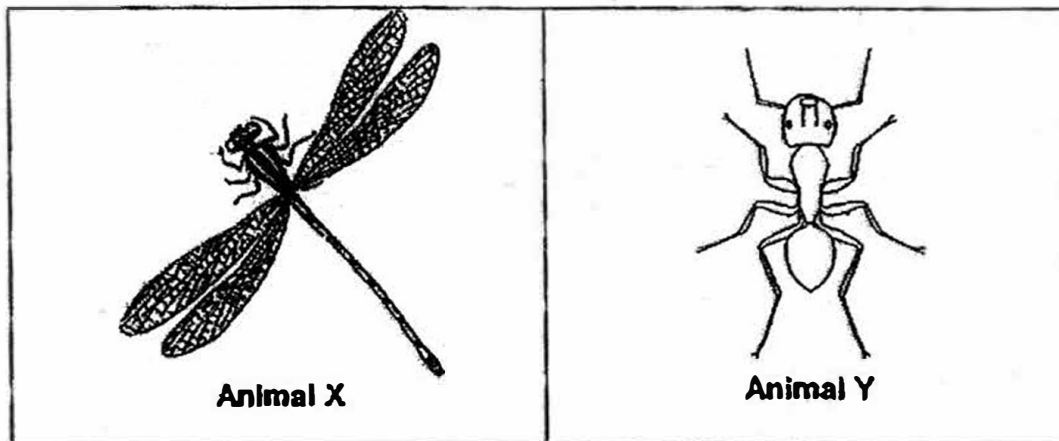
The diagram below shows a bat.



Which of the groups, A, B, C or D does the bat belong to?

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

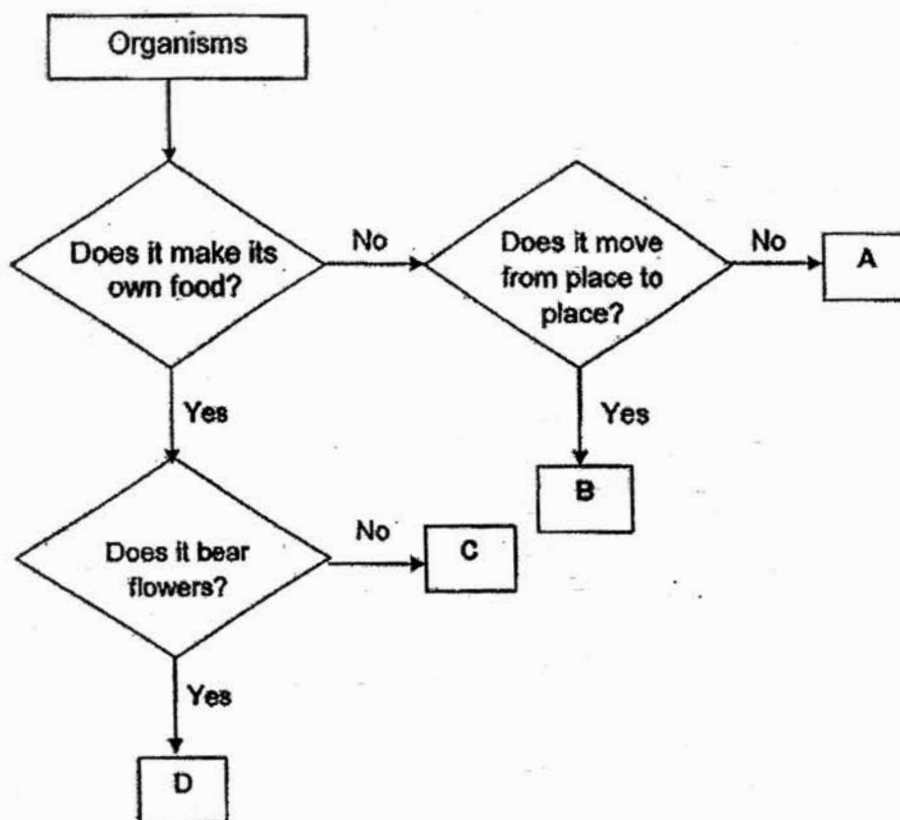
3. The diagrams below show animals X and Y.



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

- (1) Both animals X and Y are insects because they have six legs.
 - (2) Both animals X and Y are not insects because they do not have three body parts.
 - (3) Only animal Y is an insect because it has feelers but animal X does not have feelers.
 - (4) Only animal X is an insect because animal X has wings but animal Y does not have wings.
4. Which one of the following is a characteristic of all fungi?
- (1) All fungi can be eaten.
 - (2) All fungi reproduce by seeds.
 - (3) All fungi cannot make their own food.
 - (4) All fungi cannot be seen with our naked eyes.

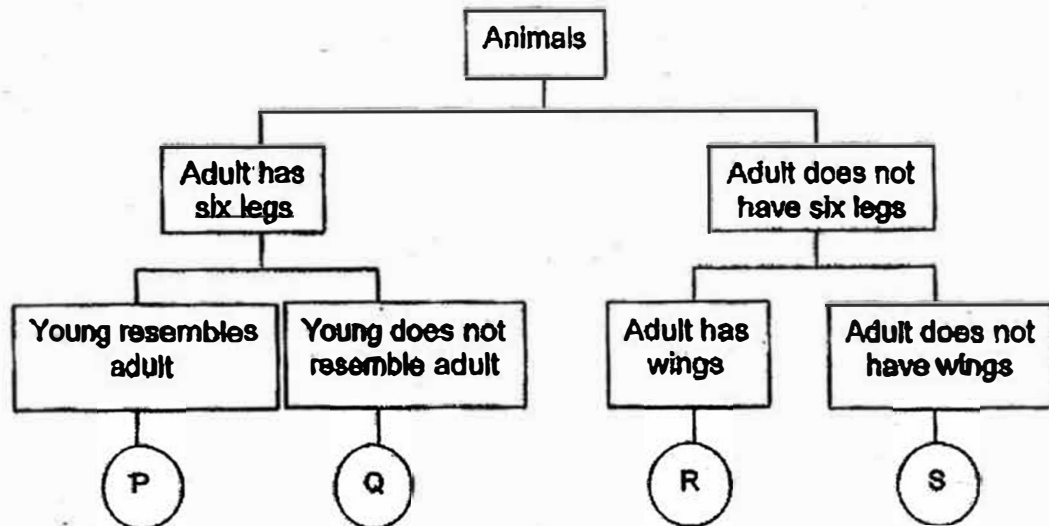
5. The flow chart below shows how some organisms are classified.



Which one of the following organisms are likely to be mushroom and bird's nest fern?

	Mushroom	Bird's nest fern
(1)	A	C
(2)	B	A
(3)	C	D
(4)	D	B

6. The flow chart below shows how some animals are classified into groups P, Q, R and S.



The diagrams below show the young and adult of animal X.



Young

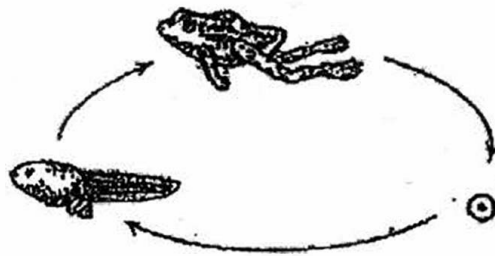


Adult

Which one of the following groups does animal X belong to?

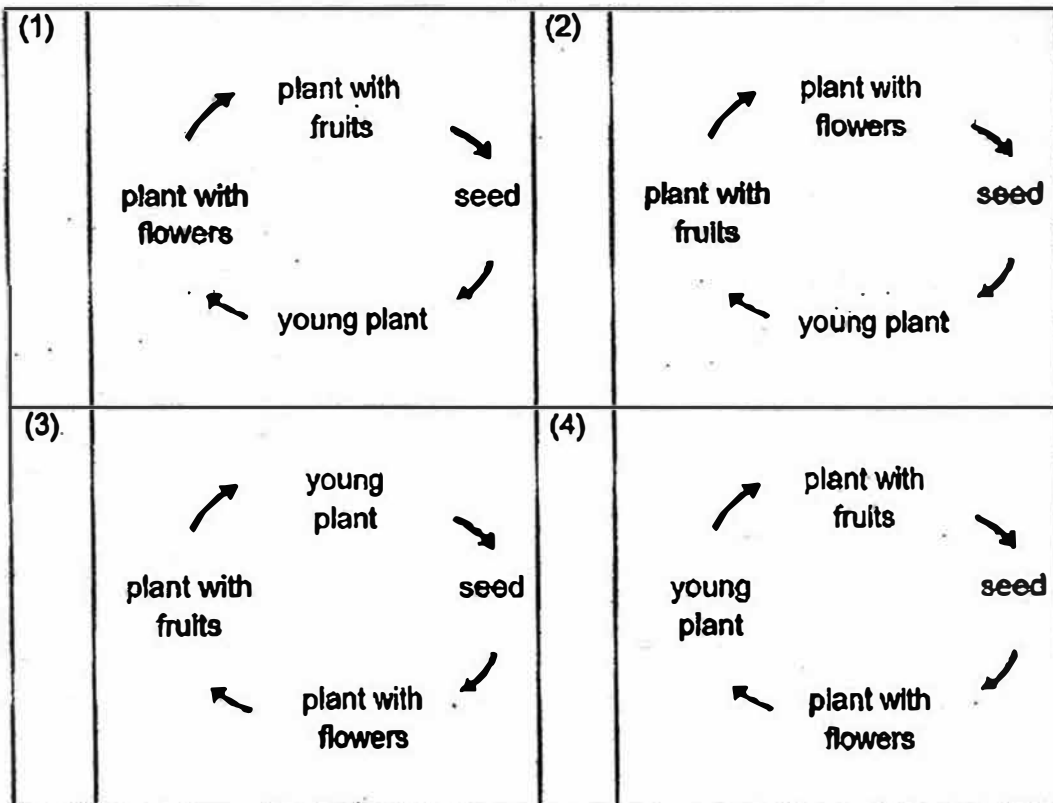
- (1) P
- (2) Q
- (3) R
- (4) S

7. The diagram below shows the life cycle of a frog.

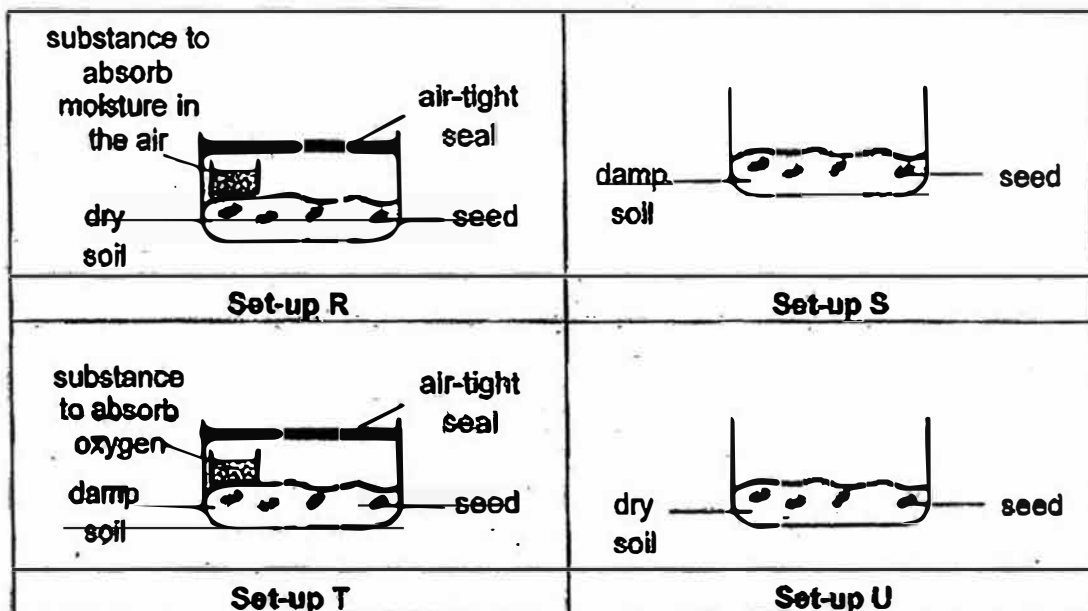


Which one of the following is true about the life cycle of the frog?

- (1) It has an egg stage.
 - (2) It has a pupal stage.
 - (3) The young does not feed.
 - (4) It has a four-stage life cycle.
8. Which one of the following shows the correct stages of development of a flowering plant?



9. The diagrams below show four set-ups with equal number of green bean seeds placed in different conditions.



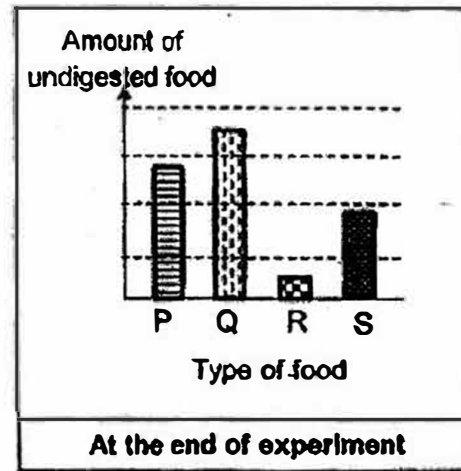
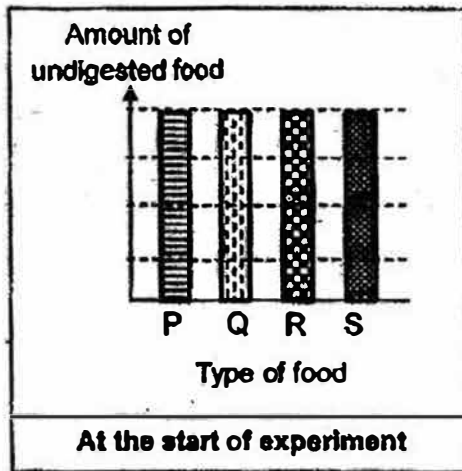
In which one of the following set-ups will the seeds germinate?

- (1) R
 - (2) S
 - (3) T
 - (4) U
10. Which one of the following shows the organs in the human respiratory system?
- (1) gullet, lungs, nose
 - (2) gullet, lungs, mouth
 - (3) nose, heart, windpipe
 - (4) lungs, nose, windpipe
11. Which one of the following correctly matches the system to its function?

	System	Function
(1)	Skeletal system	Removes excess water from our body
(2)	Muscular system	Allows us to move different parts of our body
(3)	Respiratory system	Carries useful substances to all parts of our body
(4)	Circulatory system	Takes air into our body

12. Four different types of food, P, Q, R and S, were mixed with some digestive juices and left on the table in the science lab for two hours.

The graphs below show the amount of undigested food left at the start and at the end of two hours.



Based on the above graphs, which type of food, P, Q, R or S, took the longest time to digest?

- (1) P
- (2) Q
- (3) R
- (4) S

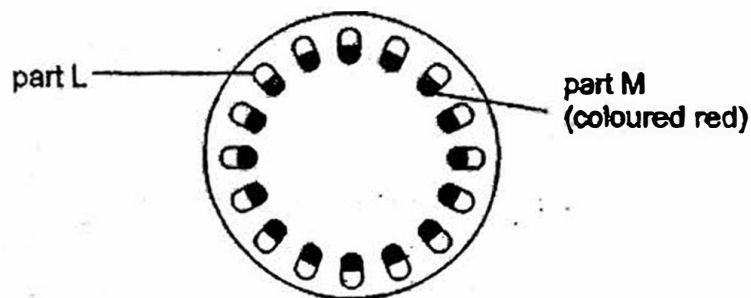
13. Amy wanted to find out how the amount of digestive juice affects the rate of digestion of food.

Which of the following variables should be kept constant in order to ensure a fair test?

- A Type of food
- B Amount of food
- C Amount of digestive juice
- D Time taken for the food to be broken down completely

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

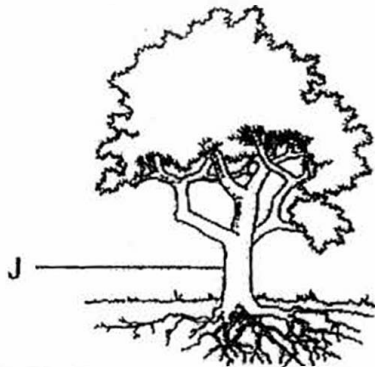
14. Jenny placed a plant in a beaker of red coloured water for three hours. After three hours, she cut a section of the stem of the plant and observed that some parts were coloured red as shown in the diagram below.



Which one of the following correctly identifies parts L and M?

	Part L	Part M
(1)	Food-carrying tube	Food-carrying tube
(2)	Food-carrying tube	Water-carrying tube
(3)	Water-carrying tube	Water-carrying tube
(4)	Water-carrying tube	Food-carrying tube

15. The diagram below shows a tree with part J.



Three pupils made the following statements about part J :

Amy: Part J holds the plant upright.

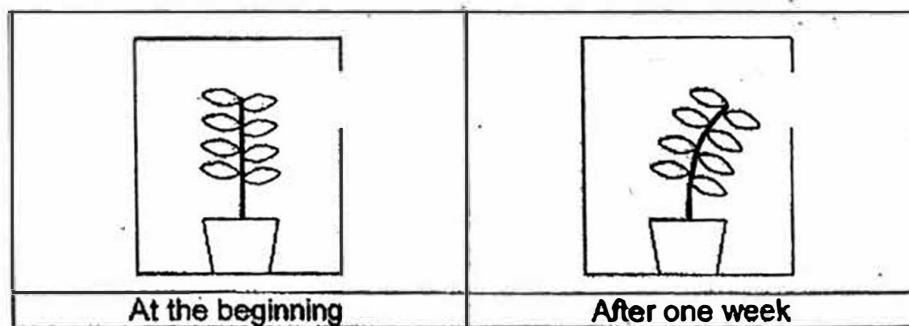
Caleb: Part J takes in water from the ground.

Dennis: Part J transports water from the leaves to all parts of the plant.

Which of the following pupils made the correct statements about part J?

- (1) Amy only
- (2) Amy and Dennis only
- (3) Caleb and Dennis only
- (4) Amy, Caleb and Dennis

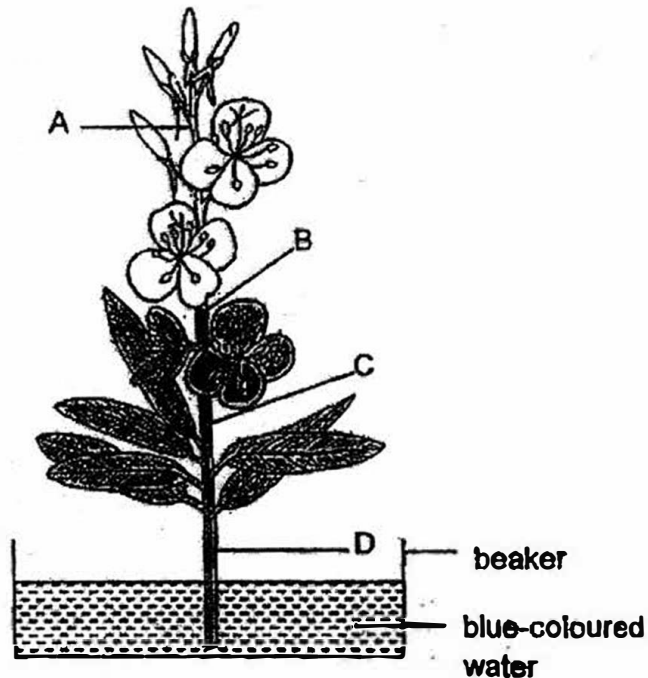
16. A plant was placed in a black box with a hole. The diagrams below show the plant at the beginning of the experiment and at the end of one week, respectively.



Which one of the following best explains the above observation after one week?

- (1) The plant has a weak stem.
- (2) The stem could not support the leaves of the plant.
- (3) The roots are not receiving enough water for the plant.
- (4) The leaves grew towards the opening to obtain more sunlight to make food.

17. A plant with damaged stem was placed in a beaker of blue-coloured water and left near a window for twenty-four hours. The diagram below shows the plant after twenty-four hours. The parts of the plant that had been stained blue were indicated by the shaded parts as shown below.



Based on the diagram above, at which one of the following parts, A, B, C, or D, was the stem damaged?

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

18. The table below shows some information on the properties of materials J, K, L, and M. A tick (✓) indicates the presence of the property.

Material	Flexible	Waterproof	Breaks easily	Does not allow light to pass through
J	✓		✓	✓
K	✓	✓		✓
L		✓	✓	
M		✓		✓

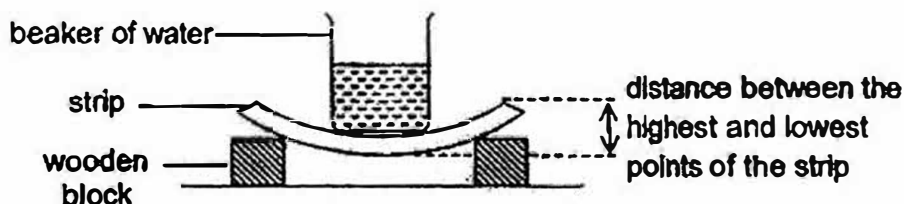
The umbrella shown below is used to shelter the user from the rain and sunlight.



Which one of the following shows the most suitable materials for making parts X and Y of the umbrella?

	Part X	Part Y
(1)	J	L
(2)	K	M
(3)	L	K
(4)	M	J

19. Ling Ling set up an experiment as shown below to investigate a property of three strips, P, Q and R, which were made of different materials.



She added different amounts of water into the beaker ~~rested~~ on each strip until the distance between the highest and lowest points of the strip reached 2 cm.

Based on her results, she concluded that strip P was the most flexible and strip Q was the least flexible.

Which of the following results did she observe in order to draw the conclusion above?

Amount of water in beaker (ml)			
	P	Q	R
(1)	30	90	60
(2)	30	60	90
(3)	60	90	30
(4)	90	30	60

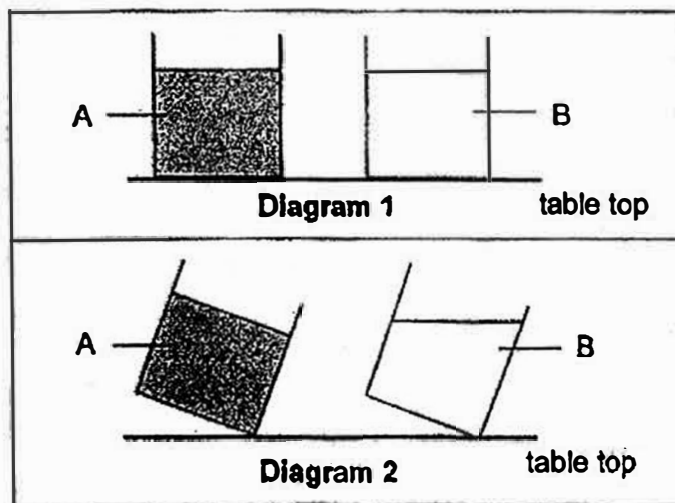
20. The table below shows some properties of substances X, Y and Z. A tick (✓) indicates the presence of the property.

Property	Substance X	Substance Y	Substance Z
Has mass	✓	✓	
Has a definite volume		✓	
Takes the shape of the container that it is placed in	✓		

Which one of the following correctly represents substances X, Y and Z?

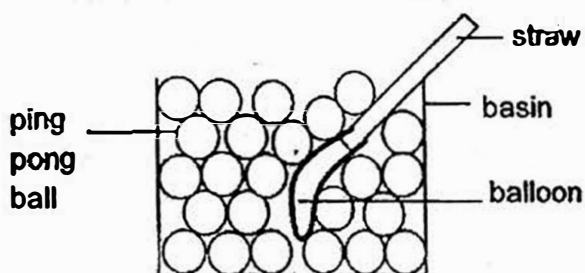
	Substance X	Substance Y	Substance Z
(1)	air	rock	shadow
(2)	oil	rock	heat
(3)	oxygen	water	air
(4)	water	light	oxygen

21. Diagrams 1 and 2 below show two identical beakers containing substances A and B when placed on a table top and when tilted at an angle, respectively.



Based on the observation above, which one of the following statements about substances A and B is correct?

- (1) Substance A has a greater mass than substance B.
 - (2) Substance A is a liquid while substance B is a solid.
 - (3) Substance A has a definite shape but not substance B.
 - (4) Substance A cannot be compressed but substance B can be compressed.
22. Meimei placed a balloon attached to a straw into a basin and then filled the basin with ping pong balls to the brim, as shown in the diagram below.

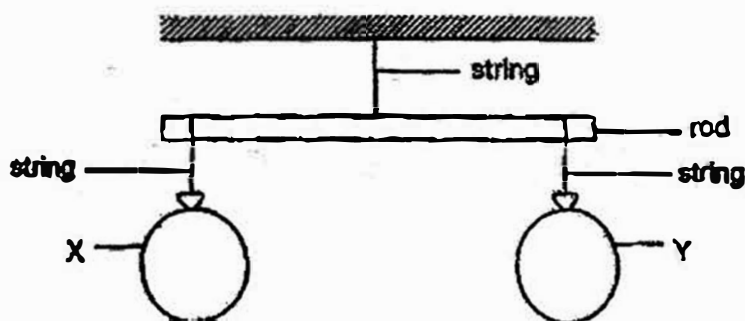


When Meimei blew into the straw, she observed that some of the ping pong balls spilled out of the basin.

Which one of the following best explains her observation?

- (1) Each ping pong ball has a definite shape.
- (2) The air in the balloon has no definite shape.
- (3) The inflated balloon occupied more space in the basin.
- (4) The air in between the ping pong balls has no definite volume.

23. Two identical balloons, X and Y, were filled with equal amounts of air and then attached to a rod, as shown in the diagram below.



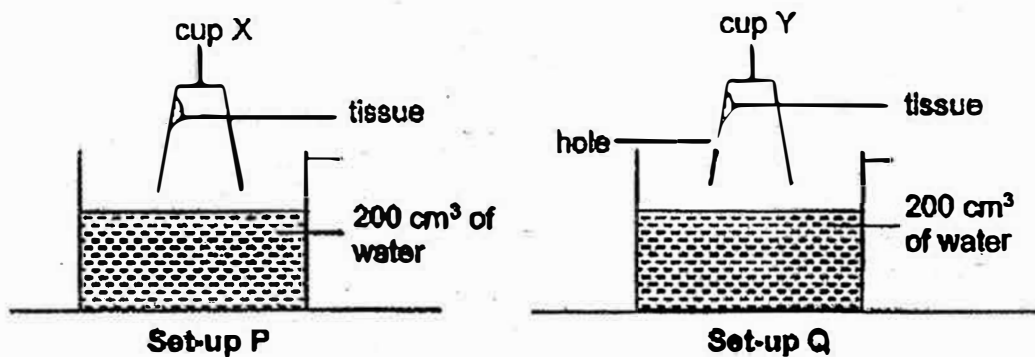
An additional 20 cm^3 of air was pumped into balloon X.

Which of the following observations is/are correct after additional 20 cm^3 of air was pumped into balloon X?

- A Balloon Y decreased in size.
- B The rod remained horizontal.
- C The rod tilted downwards at balloon X.
- D Balloon X was bigger in size than balloon Y.

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

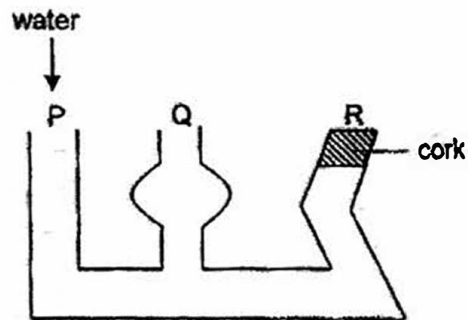
24. Susan conducted an experiment using set-ups, P and Q, as shown below. She attached a piece of dry tissue in each cup at the same position. She made a hole in cup Y. Then she inverted and pushed each cup into a basin of water.



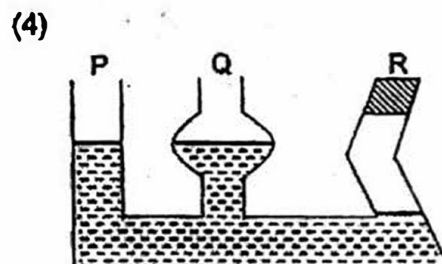
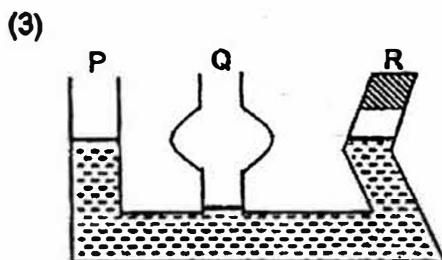
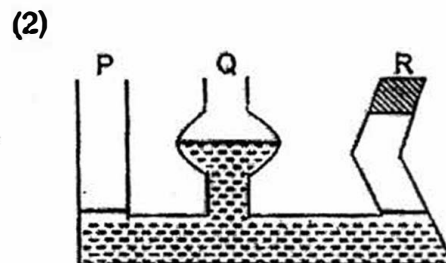
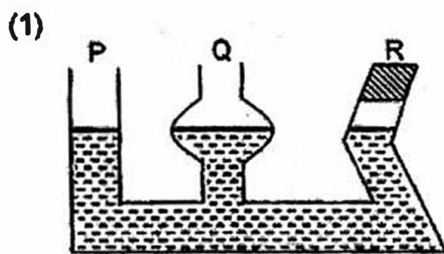
Which one of the following shows the correct observation?

- (1) Water entered cup X but not cup Y.
- (2) More water entered cup X than cup Y.
- (3) The tissue in both cups, X and Y, remained dry.
- (4) The water levels in both basins, P and Q, dropped.

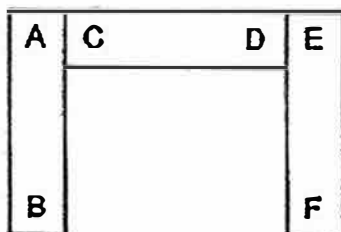
25. The diagram below shows a vessel with openings P, Q and R. Opening R was sealed with a piece of cork.



When water was poured into the vessel through opening P, which of the following shows the correct water levels in each opening of the vessel?

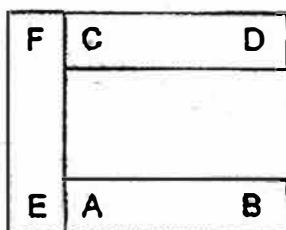


26. The diagram below shows an arrangement of four magnets. The poles of the magnets are labelled A, B, C, D, E and F respectively.

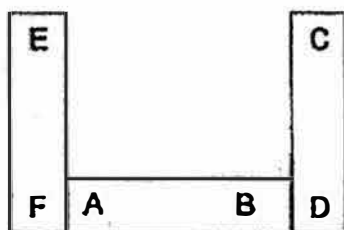


Which one of the following arrangements of the four magnets is possible?

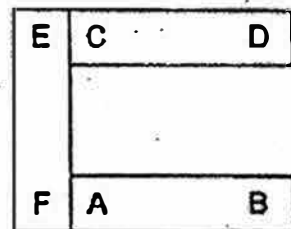
(1)



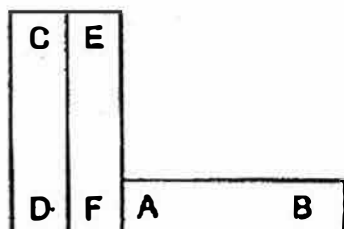
(2)



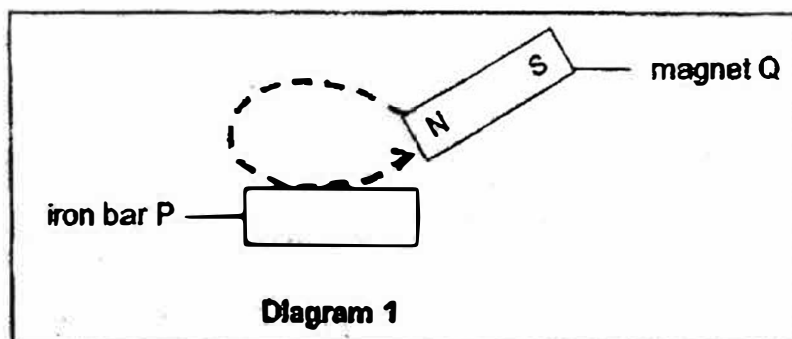
(3)



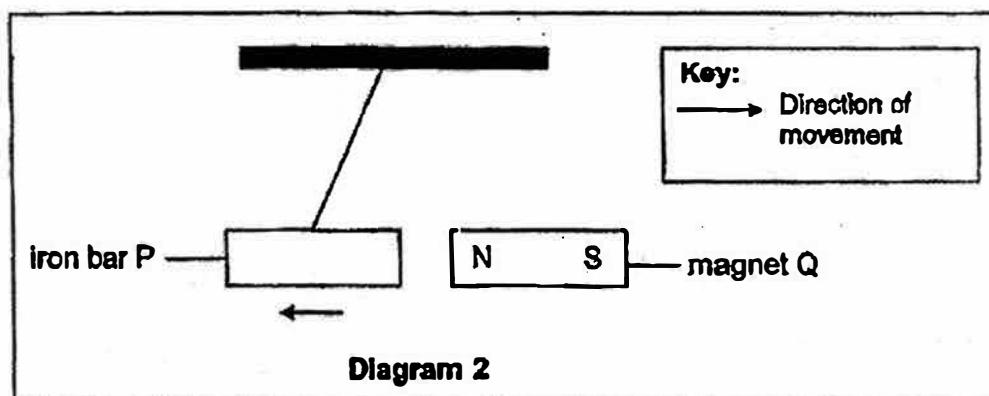
(4)



27. Lily magnetised an iron bar P using the stroking method as shown in Diagram 1 below.



Then she attached the magnetised iron bar P to a string and placed magnet Q near to it. She observed that iron bar P moved in the direction as shown in Diagram 2 below.

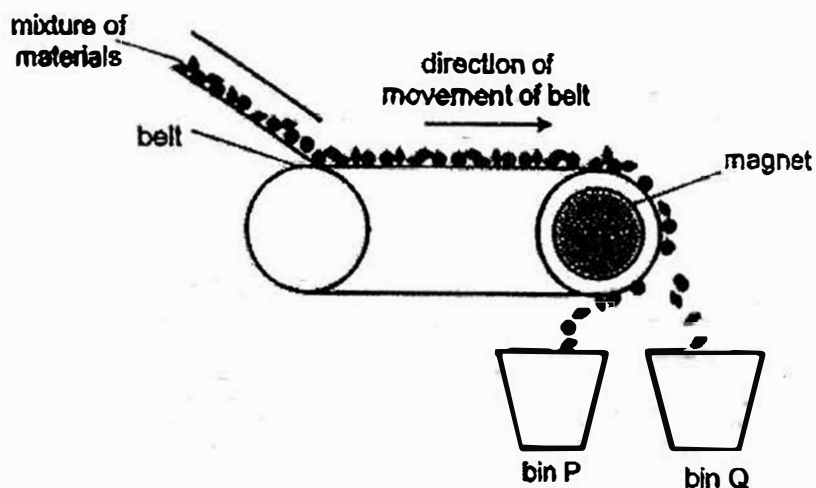


Which of the following actions would cause iron bar P to move further away from magnet Q?

- A Heat iron bar P over a flame.
- B Drop iron bar P onto the ground for a few times.
- C Stroke iron bar P with the magnet for a greater number of times.

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

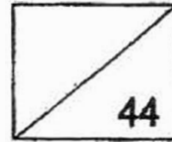
28. The diagram below shows a way to separate a mixture of materials.



Which of the following shows the materials that can be found in bins P and Q?

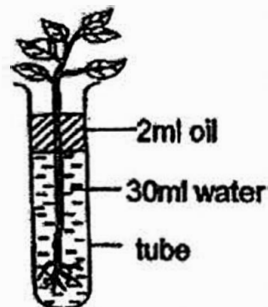
	Bin P	Bin Q
(1)	iron, nickel	aluminium, plastic
(2)	cobalt, plastic	copper, steel
(3)	nickel, cobalt	iron, plastic
(4)	plastic, aluminium	cobalt, nickel

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**SECTION B (44 marks)**

For questions 29 to 41, write your answers clearly in the spaces provided. The number of marks available is shown in brackets [] at the end of each question or part question.

29. Susan placed different types of plants in three identical tubes of water, P, Q and R. One of the plants was a plastic plant. The diagram below shows one of the set-ups.



The three set-ups were left near the window for three days.

The table below shows the amount of water left in each set-up at the start and end of the experiment.

Set-ups	Amount of water left in the tube (ml)	
	Day 1	Day 3
P	30	15
Q	30	30
R	30	20

- (a) Which one of the set-ups, P, Q or R, contained the plastic plant? Give a reason for your answer. [1]

- (b) Susan repeated the experiment with set-up P but wrapped the roots of the plant with a plastic bag.

Would the amount of water left in the tube be less than 15ml, greater than 15ml or remain the same at 30ml at the end of the experiment? Give a reason for your answer. [1]

Continue on next page

Continue from previous page

Susan prepared four more similar set-ups. The table below shows the information on the four set-ups, W, X, Y and Z.

Set-up	Type of plant	Location where set-up is placed	Number of leaves	Amount of water in the tube at the start of the experiment (ml)
W	Plant M	open field	20	30
X	Plant M	open field	40	30
Y	Plant N	open field	40	30
Z	Plant N	classroom	20	20

(c) Which set-ups, W, X, Y and Z, should Susan compare if she wants to investigate :

(i) if the type of plant affects the amount of water taken in by the plant? [1]

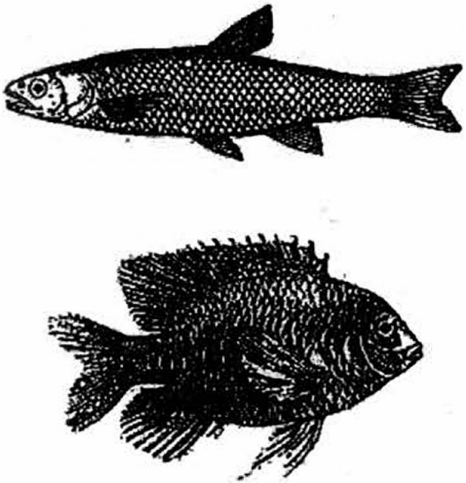
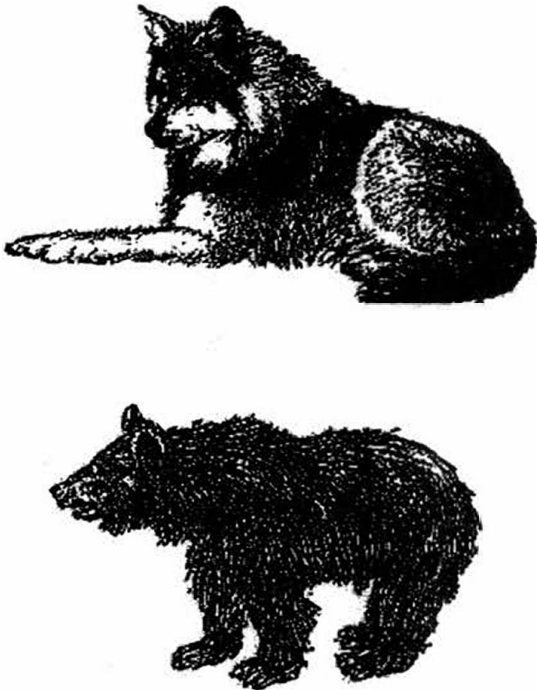
Set-up _____ and set-up _____

(ii) if the number of leaves affects the amount of water taken in by the plant? [1]

Set-up _____ and set-up _____

Score	2
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30. Melissa classified four animals, which are not drawn to scale, into two groups as shown below.

Fish	Mammal
	

- (a) Based on the above diagrams, describe clearly one observable difference between the fish and mammal. [1]

Fish	Mammal

Melissa made the following observations on animal K:

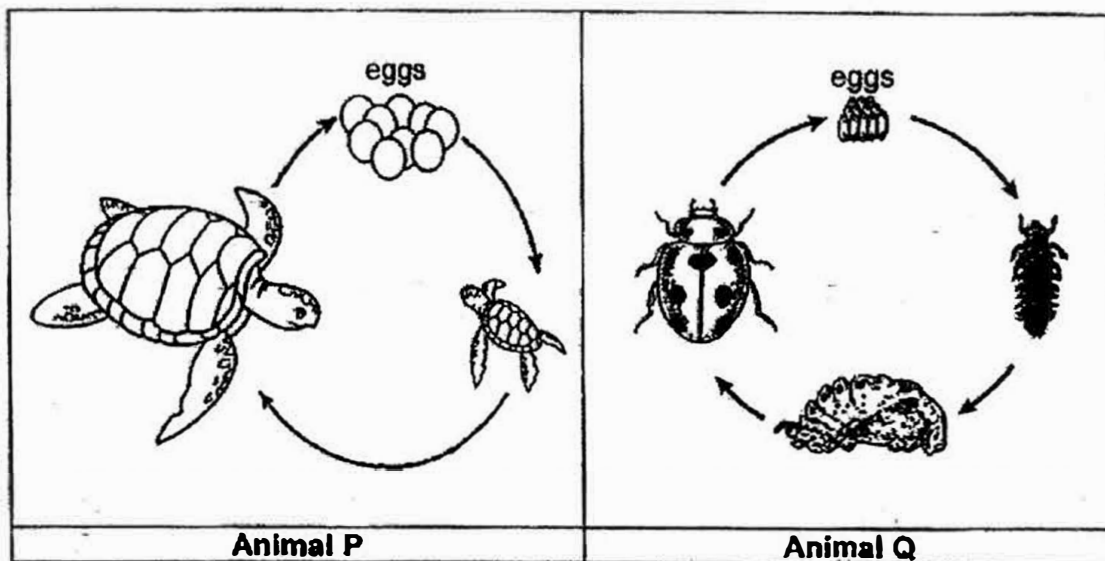
- Lives in water
- Has short hair
- Breathes through lungs

- (b) Based on the information above, in which group, 'Fish' or 'Mammal', does animal K belong to? Explain your answer clearly. [2]

Score	3
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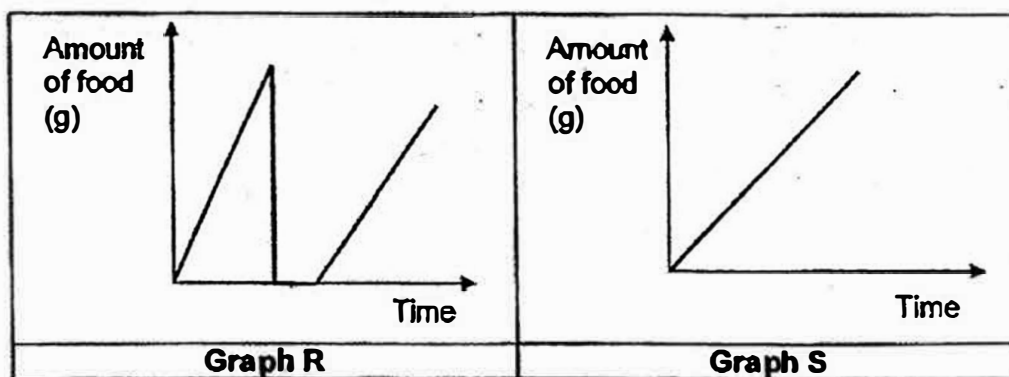
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31. The diagrams below show the life cycles of animals P and Q.



- (a) Based on your observations on the above diagrams, state one difference between the two life cycles. [1]
(Note: Do not compare shape, size and number of stages.)

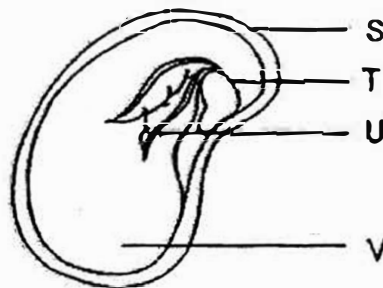
The graphs below show the amount of food taken in by animals P and Q in one life cycle.



- (b) Which one of the graphs, R or S, represents the amount of food taken in by Animal Q as it grows? Explain your answer. [2]

Score	3
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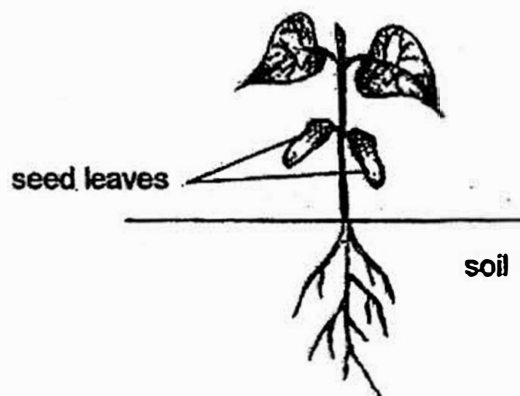
32. The diagram below shows the cross-section of a seed.



- (a) Which part, S, T, U or V, represents the 'seed leaf'? [1]

- (b) State one function of the seed leaf. [1]

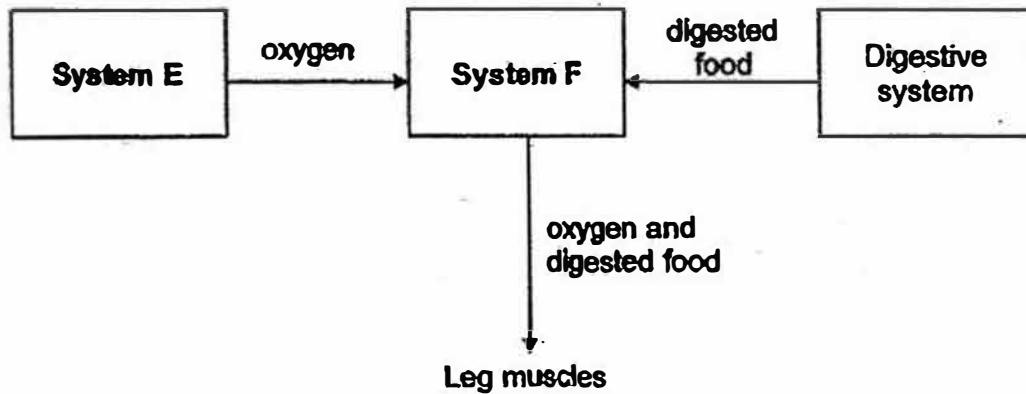
The diagram below shows a young plant which has just germinated from a seed.



- (c) The two seed leaves were removed and the plant was left in the garden for one week. After one week, it was observed that the plant continued to grow and increase in height. Explain the observations clearly. [2]

Score	4
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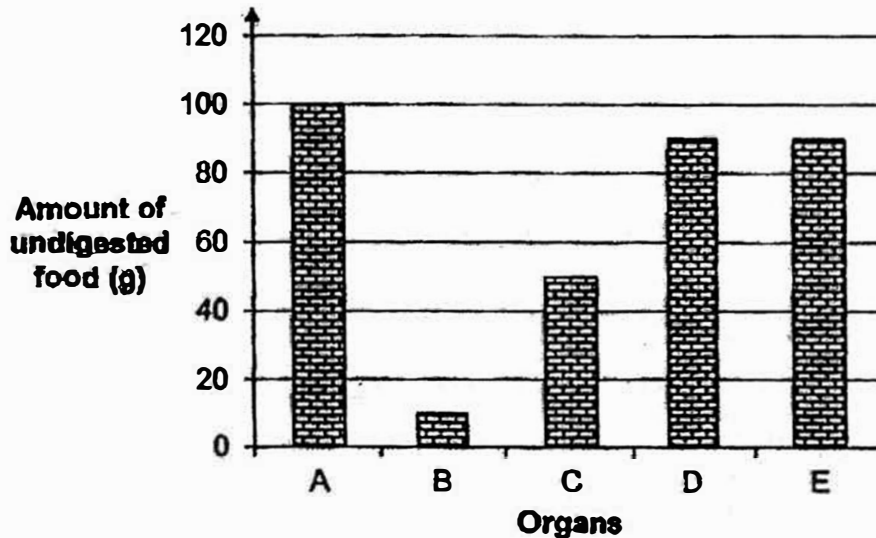
33. The flow chart below shows how some substances are transported in the human body to provide energy for the legs to bend.



- (a) Based on the above information, identify systems E and F. [2]
- (i) System E : _____ system
- (ii) System F : _____ system
- (b) Name the organ in the digestive system where the digested food leave the digestive system and enter system F. [1]

Score	3
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34. The graph below shows the amount of undigested food that has just entered the different organs in the human digestive system.



- (a) Based on the information above, which organ, A, B, C, D or E, represents the large intestine? Explain your answer. [2]

- (b) In the graph above, the amount of undigested food that just entered organs D and E are the same.

What could organs D and E possibly be? [1]

Organ D: _____

Organ E: _____

Score	3
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35. Neela planted a seed in a pot of soil and placed near the window. She observed the development of the seed into seedling over a period of time.

(a) Neela recorded her observations as shown below (not in order). Fill in the correct boxes with "2", "3" and "4" to show the correct order of the development of seed. Stages '1' and '5' have been indicated for you. [1]

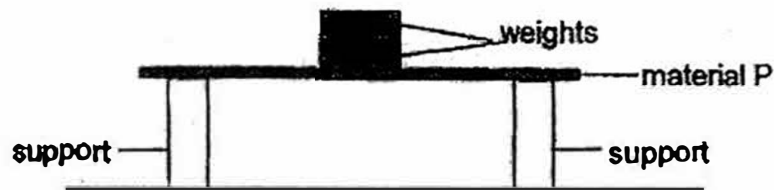
- | | |
|---|--|
| 5 | The seed leaves shrink in size and drop off. |
| | The shoot emerges from the seed. |
| | The roots emerges from the seed. |
| | The leaves appear. |
| 1 | The seed coat ruptures. |

(b) Neela planted another seed of the same type in another pot of soil and placed it in a dark cupboard instead of near the window.

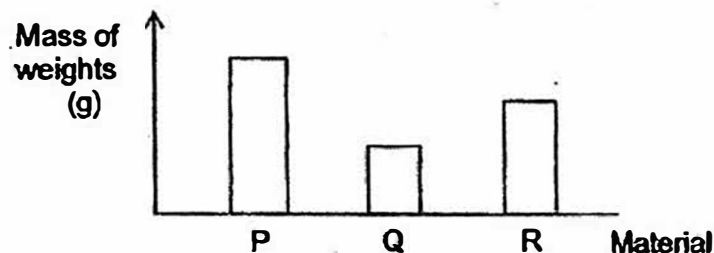
Would the seed be able to germinate? Explain your answer clearly. [2]

Score	3
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36. Sophie set up the experiment below to investigate a property of three different materials, P, Q and R. All the materials were of the same length.



For each material, weights are added onto the material until it started to break. Her results are shown in the graph below. The mass of the weights that cause each material to start to break are recorded in the graph below.



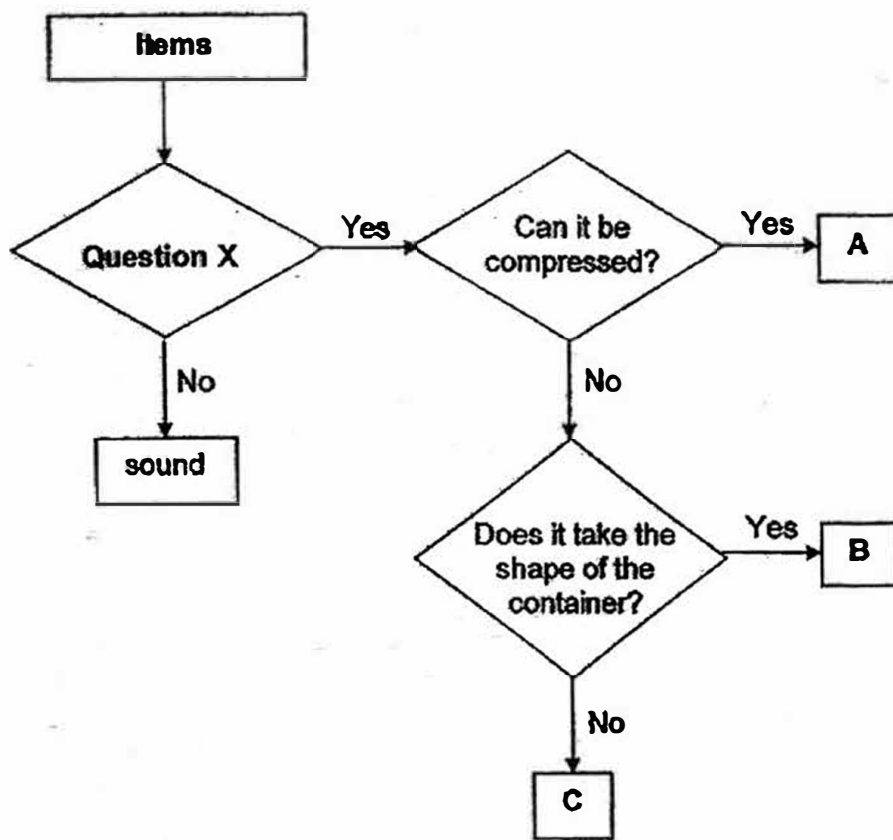
- (a) Identify the property of the materials that Sophie was testing in the above experiment. [1]

- (b) Based on the above results, Sophie chose material P to make a book shelf to store her books. Give a reason for her choice of material. [1]

- (c) Besides the length of materials, name another variable that should be kept constant in order to ensure a fair test. [1]

Score	3
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37. The flow chart below shows how some items are classified.



Answer the following questions based on the information above.

- (a) State one similarity and one difference between B and C. [2]

Similarity : _____

Difference : _____

- (b) Suggest a possible question X. [1]

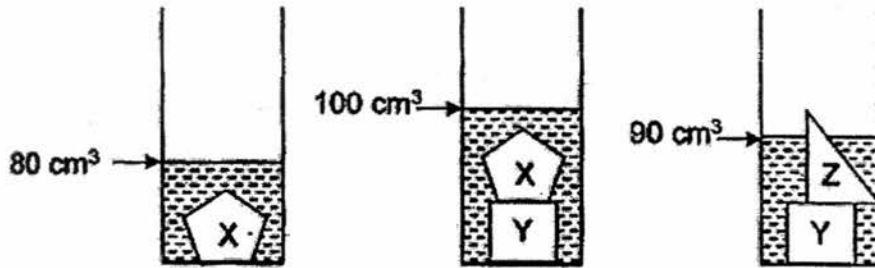
- (c) Which item, A, B or C, would represent the following correctly? [1]

(i) Oil : _____

(ii) Plasticine : _____

Score	4
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38. Sue placed different objects, X, Y and Z, in measuring cylinders each containing 50cm³ of water, as shown in the diagrams below.



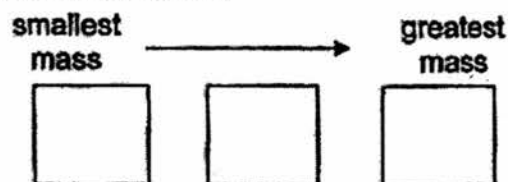
Sue also compared the mass of the objects, X, Y and Z, using a balance as shown in the diagrams below.



- (a) Based on the above information, put a tick (✓) in the correct box to indicate if it is "True", "False" or "Not possible to tell" for each statement. [2]

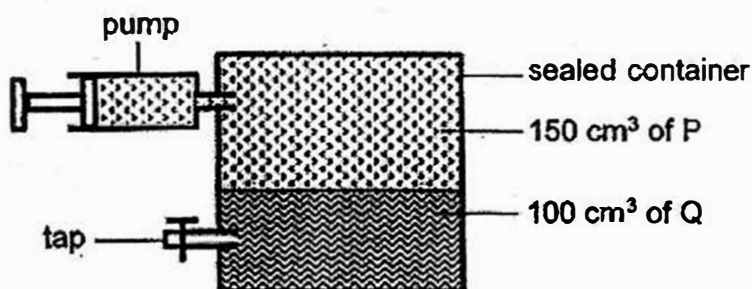
	Statements	True	False	Not possible to tell
(i)	Z has the greatest volume.			
(ii)	All the objects have definite shape.			
(iii)	All the objects occupy space in the measuring cylinder.			
(iv)	The greater the volume of the object, the greater the mass of the object.			

- (b) Arrange the objects in increasing order of mass by writing 'X', 'Y' and 'Z' in the correct boxes below. [1]



Score	3
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39. Alice conducted an experiment using the set-up as shown below.



- (a) After Alice used the tap to remove 20 cm^3 of Q from the container, she observed that the volume of P in the container was 170 cm^3 .

Identify the states (solid, liquid or gas) of substances P, Q and R. [2]

(i) Substance P : _____

(ii) Substance Q : _____

- (b) Which property of substance P did you use to obtain your answer in (a)(i)? [1]

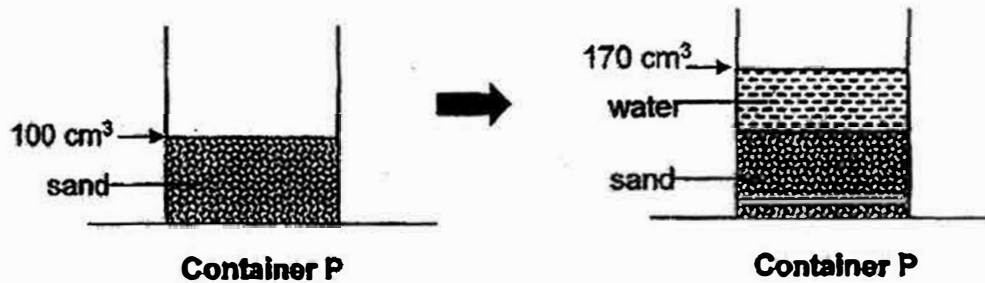
- (c) After removing 20 cm^3 of Q from the container in part (a), she used the pump to add 10 cm^3 of P into the container.

What is the final volume of substance P in the container? [1]

_____ cm^3

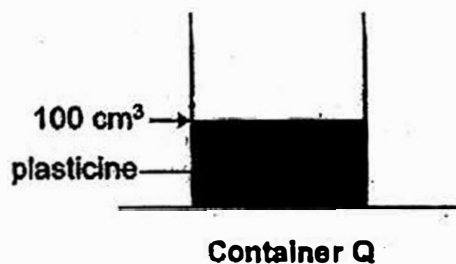
Score	4
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40. Jessie filled container P with 100 cm^3 sand and then added 100 cm^3 of water into it, as shown in the diagrams below.



- (a) Explain why the final volume of the content in container P was less than 200 cm^3 . [2]

Jessie filled another identical container Q with plasticine, as shown in diagram below.



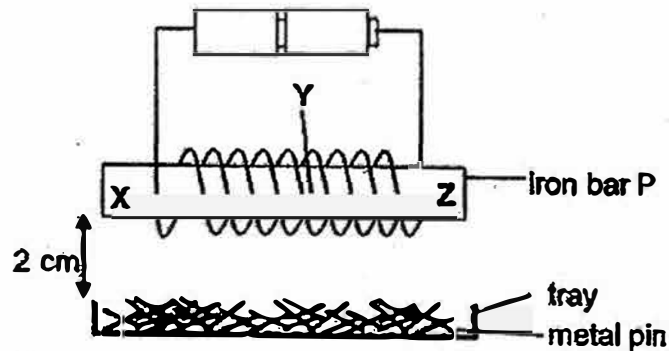
Then she poured in 100 cm^3 of water.

- (b) What would the final volume of the content in container Q be after pouring in 100 cm^3 of water? Put a tick (✓) in the correct box. [1]

- ☐ 170 cm^3
- ☐ More than 170 cm^3
- ☐ Less than 170 cm^3

Score	3
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41. Carol constructed an electromagnet using an iron bar P, as shown in the diagram below. The different parts of iron bar P were labelled X, Y and Z.



She placed a tray of pins 2 cm below the iron bar and recorded her observations for part X in the table below.

Parts of iron bar	X	Y	Z
Number of metal pins attracted to the iron bar	10		

- (a) Predict the number of metal pins attracted to parts Y and Z of the iron bar and write your answers in the above table. [1]
- (b) Using the same iron bar and same type of batteries, suggest two ways to increase the total number of pins attracted to the iron bar. [2]

(i) _____

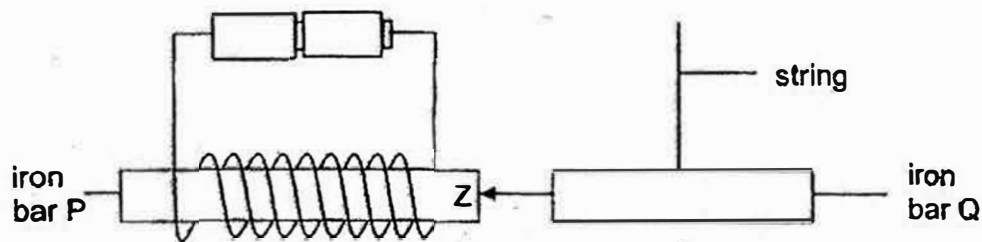
(ii) _____

Continue on next page

Score	3
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Continue from previous page

- (c) Carol placed iron bar Q, near end Z of the iron bar P, as shown in the diagram below.



Carol observed that the iron bar Q moved towards iron bar P, as indicated by the arrow in the above diagram. She concluded that iron bar Q is a magnet.

Do you agree with her? Explain your answer clearly.

[1]

EXAM PAPER 2017 (P4)

SCHOOL : RAFFLES GIRLS'

SUBJECT : SCIENCE

TERM : SA1

ORDER CALL :

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	1	1	3	1	1	1	1	2	4
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	2	2	2	1	4	2	2	1	1
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
3	3	3	3	4	1	2	1		

29)a)Q. It did not absorb any water and plants need water to survive so it is a plastic plant.

b)It would remain the same at 30ml at the end of the experiment. The plastic bag prevents the roots from absorbing water. Therefore, it will remain in the same.

c)i)X , Y ii)W , X

30)a)Fish Mammal

Has scales Has hair

b)It belongs to the group mammals. As it breathe through lungs but fish breathe through gills and it has hair but fish body covering is scales.

31)a)Animal P young resembles its adult but animal Q young does not resemble its adult.

b)Graph R. When it is at Larval stage it eats a lot but when it is a pupal stage it does not feed and when it is an adult it eats normally it begins to eat again.

32)a)V.

b)It has food stored at the seed leaf so when it is growing it will use the food. Since it does not have true leaves yet.

c)Since it has its true leaves it can make its own food, so it does not need the seed leaves.

33)a)i)Respiratory ii)circulatory

b)Small intestine.

34)a)B. It has the least amount of undigested food as most of the food is digested and absorbed at the small intestine so it is B.

b)D: stomach E: Gullet

35)a)3 , 2 , 4

b)The seed will still be able to germinate. It does not need light to germinate. It still can receive air, water and warmth.

36)a)The strength of the material.

b)P is the strongest material as it can hold the greatest mass of weights placed on P until it broke.

c)The thickness of the materials.

37)a)Similarity : Both B and C cannot be compressed .

Difference : B takes the shape of the container but C does not take the shape of the container.

b)Does it occupy space.

c)i)B ii)C

38)a)i)Not ii)True iii)True iv)False

b)X , Y , Z

39)a)i) P: Gas ii)Liquid

b)P has no definite volume.

c)170cm³

40)a)S and has small spaces in between each particle of sand so the water will fill up the spaces in between. Therefore, the water level has lesser than 200cm³.

b)More than 170cm³

41)a)Y : 0 Z: 10

b)i)She could coil more times around the iron bar.

ii)She could add more batteries.

c)No. She did not observe repulsion between the two bars. Q was only attracted to P.

