MAHA BODHI SCHOOL
2021 SEMESTRAL ASSESSMENT 1
PRIMARY FOUR SCIENCE
(BOOKLET A)

Name : _____ ( )

Class : Primary 4 _____

Date : 17 May 2021

Total Duration for Booklets A and B: 1 h 30 min

INSTRUCTIONS TO CANDIDATES:

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Shade your answers in the Optical Answer Sheet (OAS) provided.

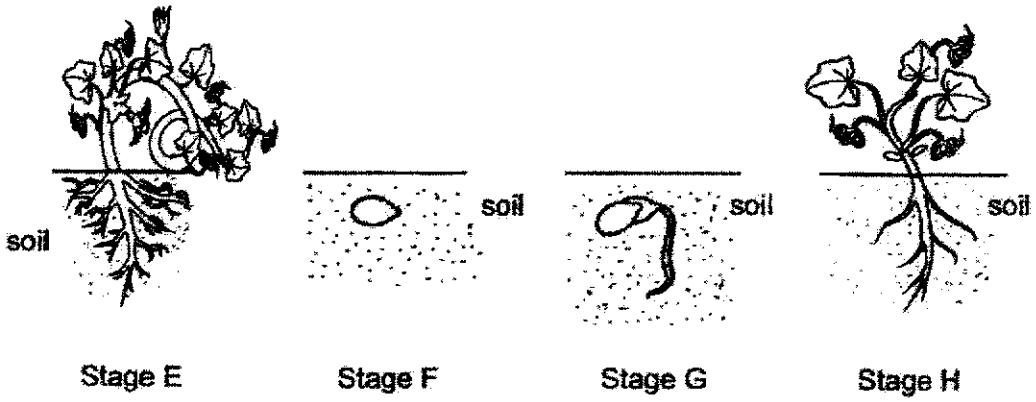
This booklet consists of **16** printed pages.

BOOKLET A : [24 x 2 marks = 48 marks]
For each question from 1 to 24, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade your answer on the Optical Answer Sheet.**

1. Which of the following is a function of the stem?

   (1) makes food for the plant
   (2) holds the plant firmly to the ground
   (3) absorbs water and minerals for the plant
   (4) supports the plant and holds the leaves upright

2. The stages of the growth of a flowering plant are shown below.

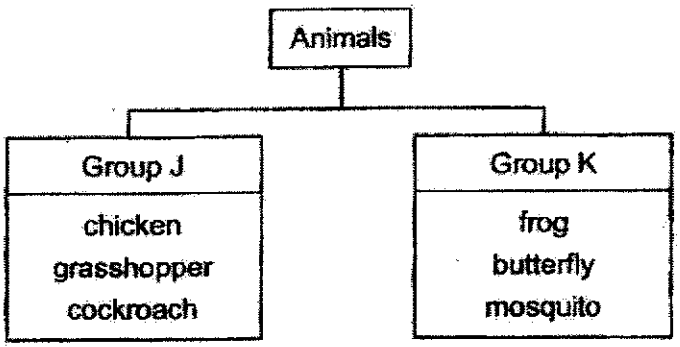


Stage E Stage F Stage G Stage H

Which of the following shows the correct order of growth?

(1) E → H → F → G
(2) F → G → H → E
(3) F → H → E → G
(4) G → F → E → H

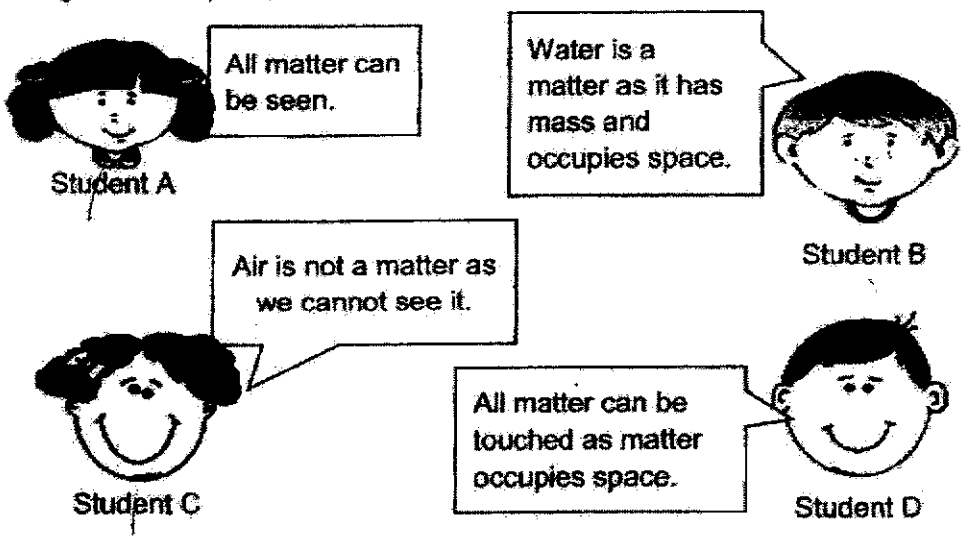
3. The animals are classified into two groups using the chart shown below.



Which of the following shows the correct heading for groups J and K?

	Group J	Group K
(1)	3-stage life cycle	4-stage life cycle
(2)	Has a larva stage	Does not have a larva stage
(3)	Has an egg stage	Does not have an egg stage
(4)	Young resembles the adult	Young does not resemble the adult

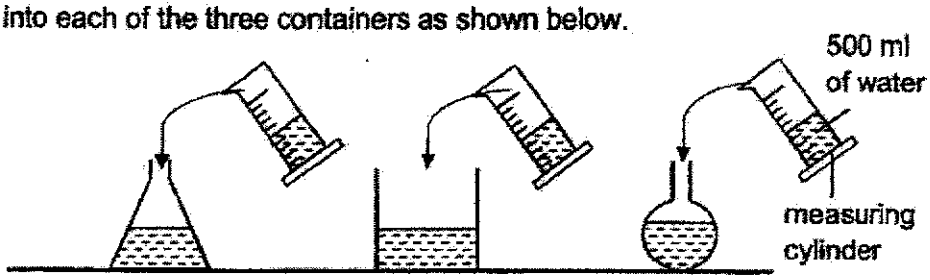
4. Study the concept cartoon below.



Which student has described matter correctly?

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

5. Devi used a measuring cylinder to measure 500 ml of water. She poured the water into each of the three containers as shown below.



Which property of liquids is Devi demonstrating?

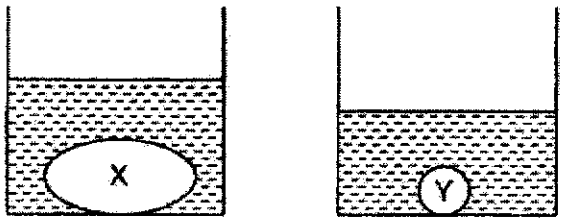
(1) Liquids have mass.

(2) Liquids have definite volume.

(3) Liquids cannot be compressed.

(4) Liquids do not have definite shape.

6. The diagram below shows the water level after two different objects, X and Y, were dropped into two identical containers containing 30 ml of water each.



Based on the above observation, what can you conclude about X and Y?

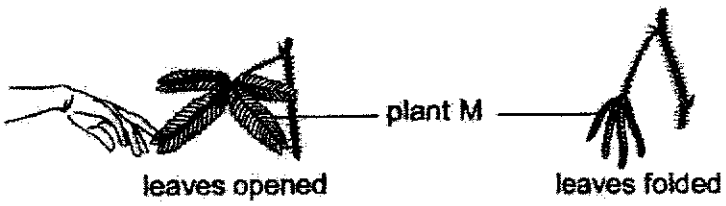
(1) X is heavier than Y.

(2) Y is heavier than X.

(3) X occupies more space than Y.

(4) Y occupies more space than X.

7. Plant M folds its leaves when it is touched.



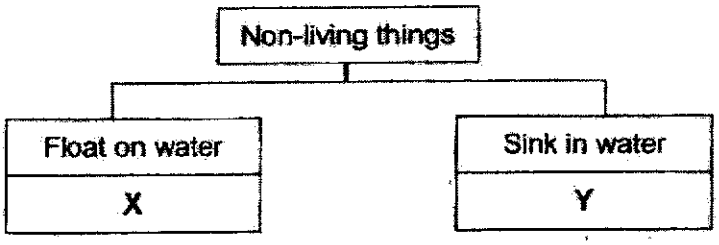
Based on the observation above, plant M shows that living things _____.

(1) are able to grow
(2) are able to reproduce
(3) need air, food and water to survive
(4) respond to changes in its surroundings

8. Which statement is correct about non-flowering plants and fungi?

(1) Both are harmful to man.
(2) Both reproduce by spores.
(3) Both do not produce their own food.
(4) Both belong to the same group of living things.

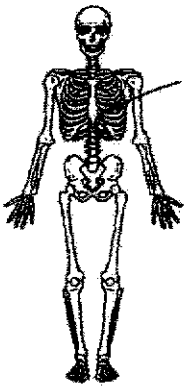
9. Study the classification chart below.



What can X and Y possibly be?

	X	Y
(1)	glass marble	eraser
(2)	wooden block	eraser
(3)	metal nail	wooden block
(4)	eraser	metal nail

10. Study the human skeletal system below.



Which of the following shows a function of this system?

(1) It protects the organs in the body.
(2) It takes in air from the surroundings.
(3) It carries substances around the body.
(4) It breaks down the food into simpler substances.

11. Brad placed a bar magnet near the objects listed below.

A. iron nail
B. copper pan
C. aluminium can
D. steel thumbtack

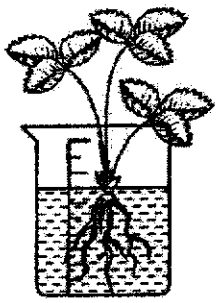
Which objects would be attracted to the bar magnet?

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

12. A freely-suspended magnet will come to rest in the _____ direction.

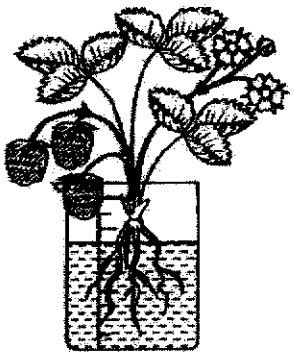
(1) east-west
(2) south-east
(3) north-east
(4) north-south

13. Nancy wants to find out if having leaves affects the amount of water absorbed by the plant. She used two set-ups. One of the set-ups is as shown below.

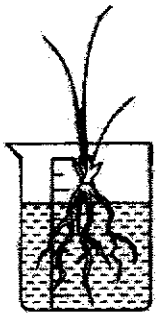


Which of the following set-ups should she use to complete her experiment?

(1)



(2)



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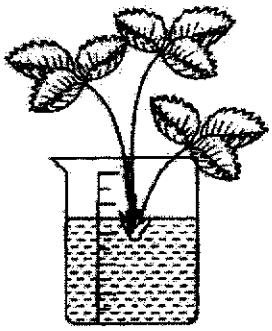
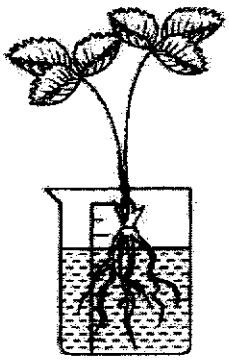
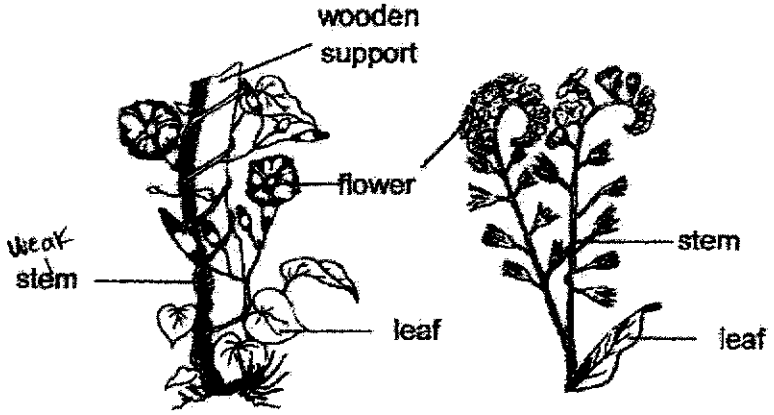


(4)



14. A group of pupils observed two different plants as shown below and made the following statements.



Andrew: The stem of plant A is weaker than the stem of plant B.

Brenda: Plant B is able to make its own food but plant A cannot.

Charlie: Only one of the plants is able to bear fruits.

Which of the pupil(s) is/are correct?

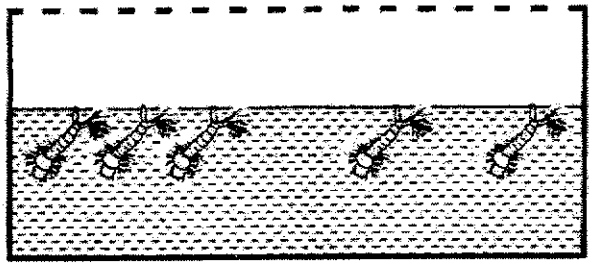
(1) Andrew only

(2) Brenda only

(3) Andrew and Charlie only

(4) Brenda and Charlie only

15. A container of mosquito larva was observed over a period of time.



The number of mosquito larva is recorded and shown in the table below.

Day	1	2	3	4	5	6	7
No. of larva	25	20	17	14	10	6	2

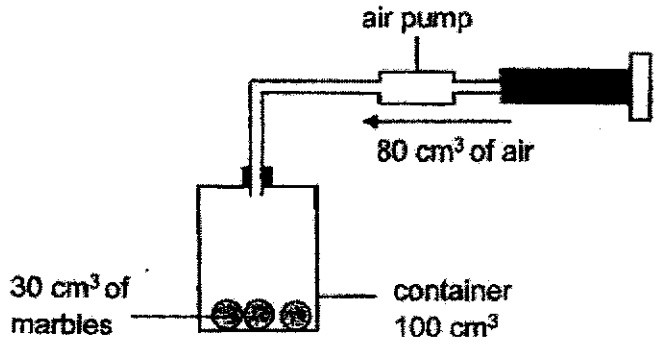
A pupil made a few statements about what could have happened to the mosquito larva in the set-up.

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

A. The number of larva decreased as they turned into pupa.
B. The number of larva decreased as some of them died.
C. The number of larva increased as more eggs were laid.

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

16. Melvin created a set-up using a container with a volume of 100 cm^3. He put three marbles with a total volume of 30 cm^3 inside the container. An air pump was fitted into the container. He then pumped in 80 cm^3 of air using the pump.



What is the volume of the air in the container now?

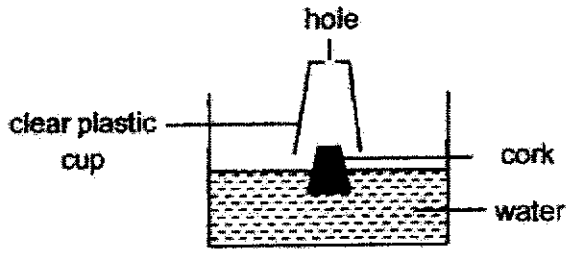
(1) 70 cm^3

(2) 150 cm^3

(3) 180 cm^3

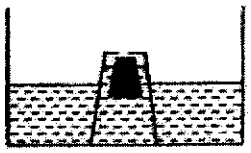
(4) 210 cm^3

17. Peter placed a piece of cork in a basin of water. Next, he made a hole at the bottom of a clear plastic cup and placed it over the piece of cork as shown in the diagram below. Then, he pushed the cup down into the water.

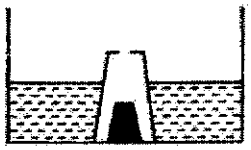


Which one of the following diagrams best represents what he would observe?

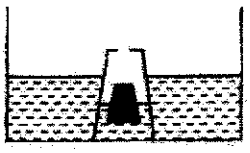
(1)



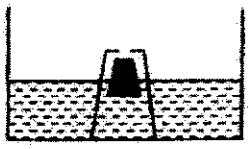
(2)



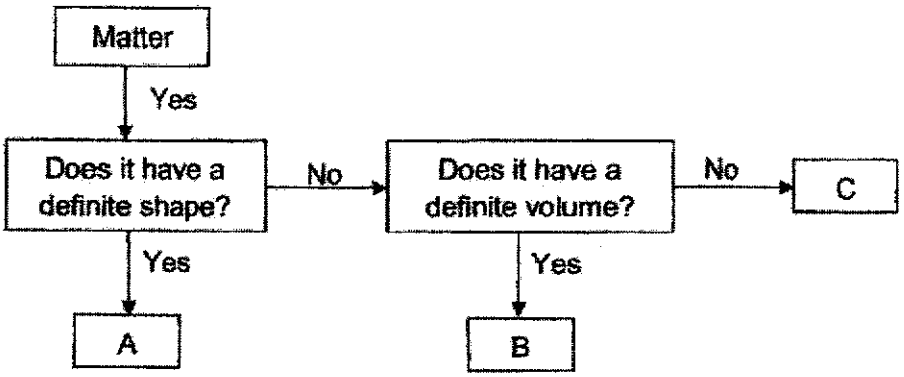
(3)



(4)



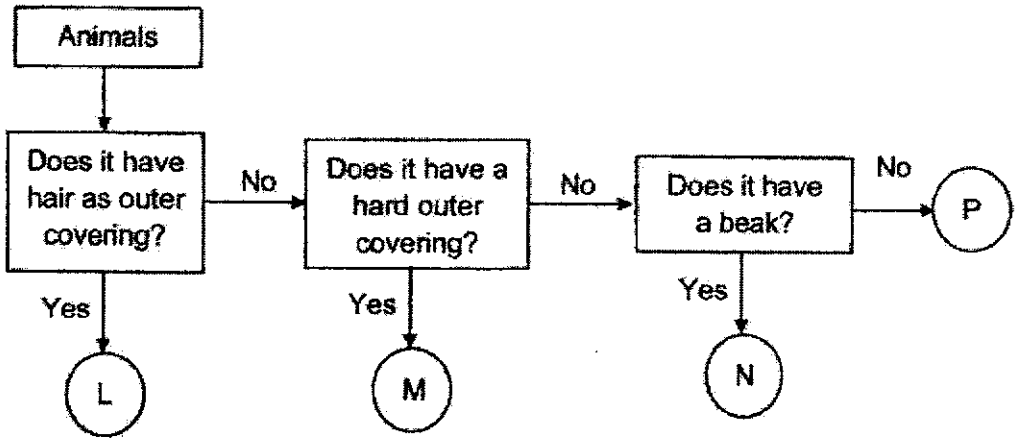
18. The following flowchart is used to classify three matters A, B and C.



What could matter A, B and C be?

	A	B	C
(1)	oil	book	ice
(2)	ice	oil	air
(3)	ice	oil	book
(4)	oil	book	air

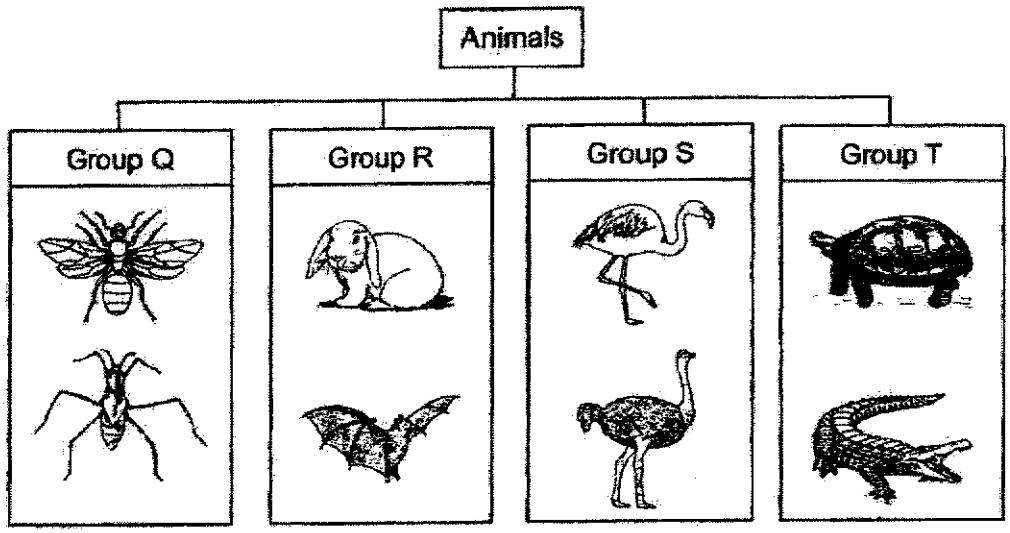
19. Study the flow chart below.



Which of the following shows the correct animal groups for L, M, N and P?

	L	M	N	P
(1)	mammal	fish	insect	bird
(2)	mammal	insect	bird	fish
(3)	bird	insect	mammal	fish
(4)	insect	fish	bird	mammal

20. Study the classification chart below.



Ron made some observations about animal U:

A. It is able to fly.
B. It reproduces by laying eggs.
C. It has 3 pairs of legs and 3 body parts.

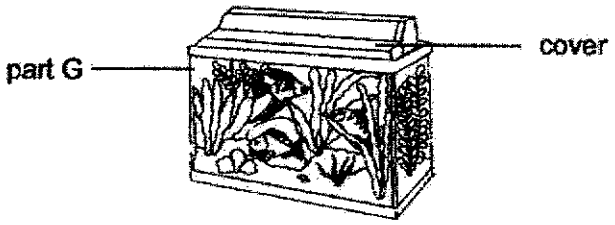
Which group, Q, R, S or T, should animal U be classified in?

(1) Q
(2) R
(3) S
(4) T

21. The table below shows the properties of four materials, W, X, Y, Z.

	W	X	Y	Z
Able to bend easily	✓	x	x	✓
Absorbs water	✓	✓	x	x
Allows light to pass through	✓	x	✓	x

John wants to set up a container for his fish. He wants to be able to see his fishes without lifting the cover.



Which material, W, X, Y or Z, should John use to make part G of the container?

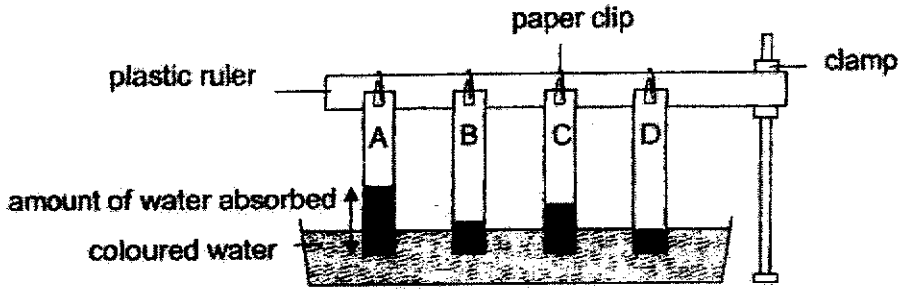
(1) W

(2) X

(3) Y

(4) Z

22. Four different materials, A, B, C and D, were placed in a basin of coloured water. All materials were of equal lengths and sizes. The diagram below shows the amount of water absorbed by each material.



Based on the results above, which material is most suitable for making a bath towel?

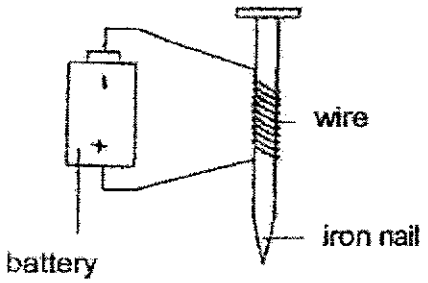
(1) Material A

(2) Material B

(3) Material C

(4) Material D

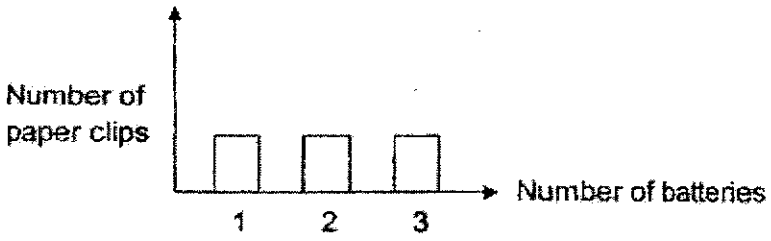
23. Amy carried out an experiment using an electromagnet as shown below.



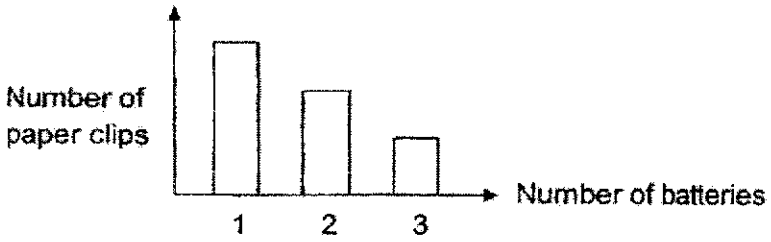
She increased the number of batteries and counted the maximum number of paper clips attracted to the electromagnet. The results of the experiment are plotted in a bar graph.

Which one of the following bar graphs would Amy get if she had successfully carried out her experiment?

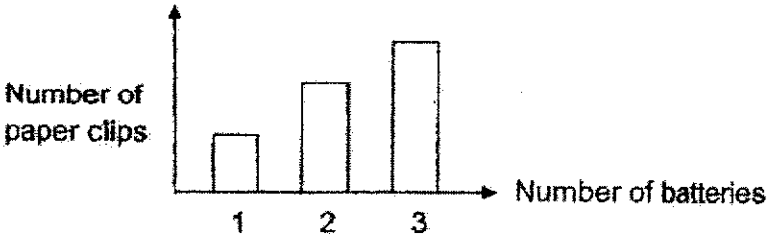
(1)



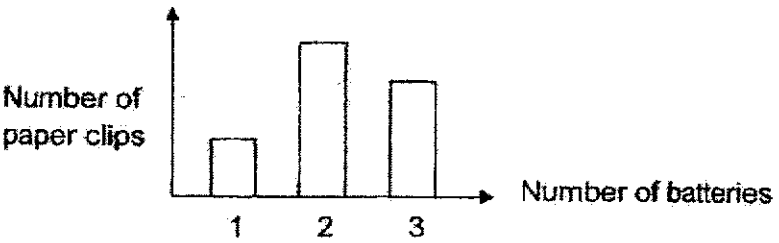
(2)



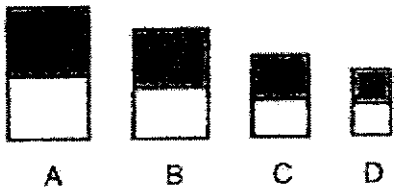
(3)



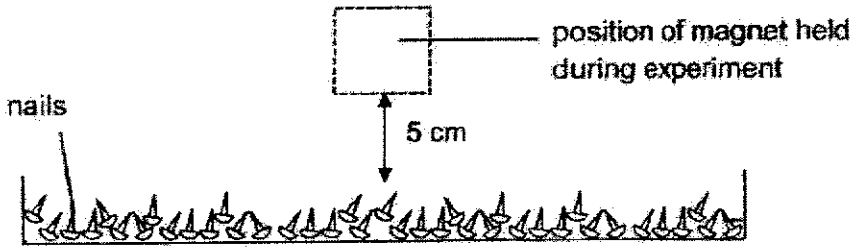
(4)



24. Gabriel had four bar magnets, A, B, C and D, of different sizes as shown below.



He held each magnet 5 cm above a bowl of nails, one magnet at a time.



He counted the number of nails attracted to each magnet and recorded his observations in the table below.

Magnet	A	B	C	D
Number of nails attracted	20	26	15	33

Which of the following can be concluded from the results above?

(1) Bigger magnets are stronger.

(2) Smaller magnets are stronger.

(3) The strength of a magnet does not depend on its size.

(4) As the size of the magnet increases, the pull of the magnet decreases.

END OF BOOKLET A

GO ON TO BOOKLET B

MAHA BODHI SCHOOL
2021 SEMESTRAL ASSESSMENT 1
PRIMARY FOUR SCIENCE
(BOOKLET B)

Name: _____ ( )

Class: Primary 4 _____

Date : 17 May 2021

Total Duration for Booklets A and B: 1 h 30 min

INSTRUCTIONS TO CANDIDATES:

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Write all your answer in this booklet.

Booklet	Marks Obtained	Max Marks
A		48
B		32
Total		80

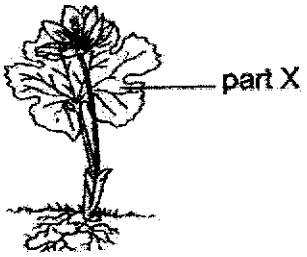
Parent's signature: _____

This booklet consists of 12 printed pages.

BOOKLET B : [32 marks]
For questions 25 to 34, write your answers in this booklet.

The number of marks available is shown in the brackets [ ] at the end of each question or part-question.

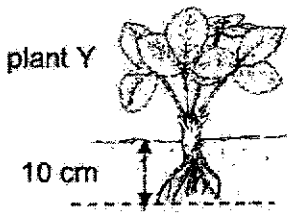
25. Study the plant below.

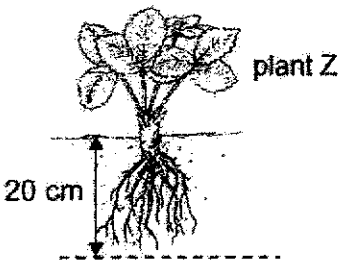


(a) (i) Identify part X of the plant. [1]

(ii) State one function of part X. [1]

(b) Two similar plants, Y and Z, of different root lengths were planted in a farm.



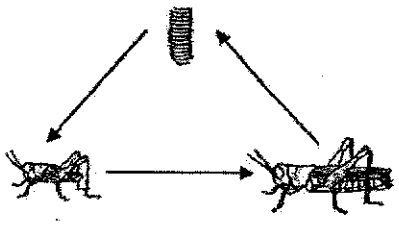


During a heavy storm, one of the plants was uprooted and died. The other plant remained in the soil and was able to stay alive.

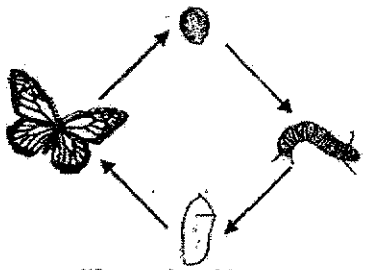
Which plant, Y or Z, was able to remain in the soil? Explain why. [2]

Marks : / 4

26. Study the life cycles of a grasshopper and a butterfly.



life cycle of grasshopper



life cycle of butterfly

(a) Based on the diagrams above, state one difference between the life cycle of a grasshopper and a butterfly. [1]

_____

_____

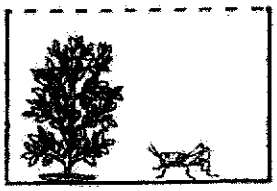
(b) When a grasshopper reproduces, it lays many eggs. State how laying many eggs helps the grasshopper to survive. [1]

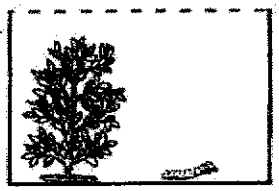
_____

_____

Marks : / 2

(c) Each of the set-ups below contains either one grasshopper nymph or one caterpillar.





None of the living things in the set-ups died. The number of uneaten leaves in the set-ups over 16 days is shown in the table below.

	Number of uneaten leaves	
Days	Set-up A	Set-up B
0	50	50
4	35	28
8	24	20
12	15	20
16	8	20

Based on the results, which set-up, A or B, contains the caterpillar? Explain your answer. [2]

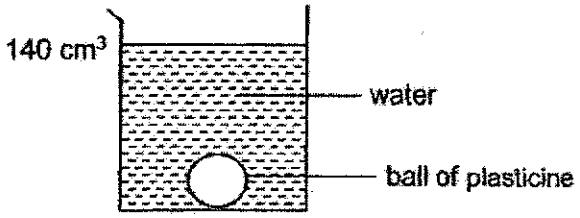
27. Classify the following into matter and non-matter. [2]

music	snow	window	shadow

Matter	Non-matter

Marks : / 4

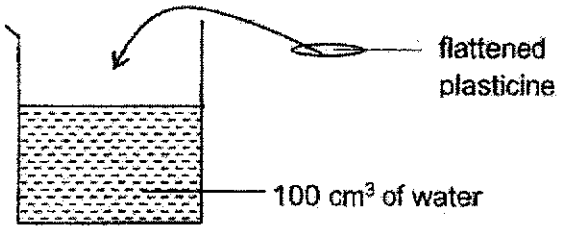
28. Ginny filled a beaker with 100 cm^3 of water. She dropped a ball of plasticine into the water and observed that the water level rose to 140 cm^3.



(a) What is the volume of the ball of plasticine? [1]

_____ cm^3

Ginny then flattened the same ball of plasticine as shown in the diagram below.



(b) Before dropping the flattened piece of plasticine into the beaker of water, Ginny predicted that the water level will rise to 140 cm^3.

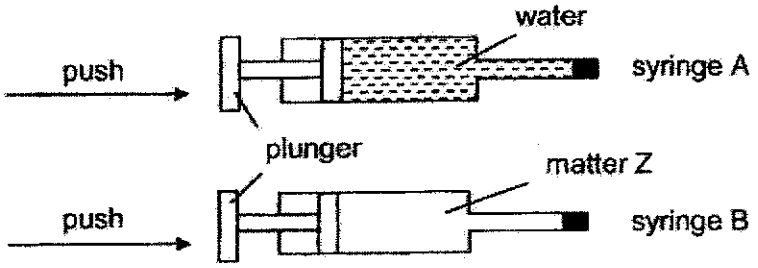
Explain why Ginny's prediction is correct. [1]

_____

_____

Marks : / 2

29. (a) Charles filled two similar syringes, A and B, with equal amount of water and matter Z respectively. Then, he sealed the ends of the syringes and tried to push the plunger in each syringe.



(i) Charles was not able to push in the plunger for syringe A. What property of water does this shows? [1]

_____

_____

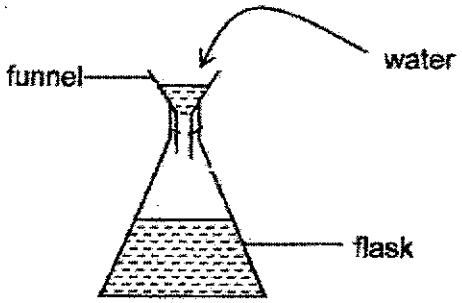
(ii) For syringe B, Charles was able to push in the plunger. Identify the state of matter Z. [1]

_____

_____

Marks : / 2

(b) In another experiment, Charles placed a funnel over the opening of a flask. He poured water into the flask through the funnel quickly and observed that the water could not flow into the flask after a while.

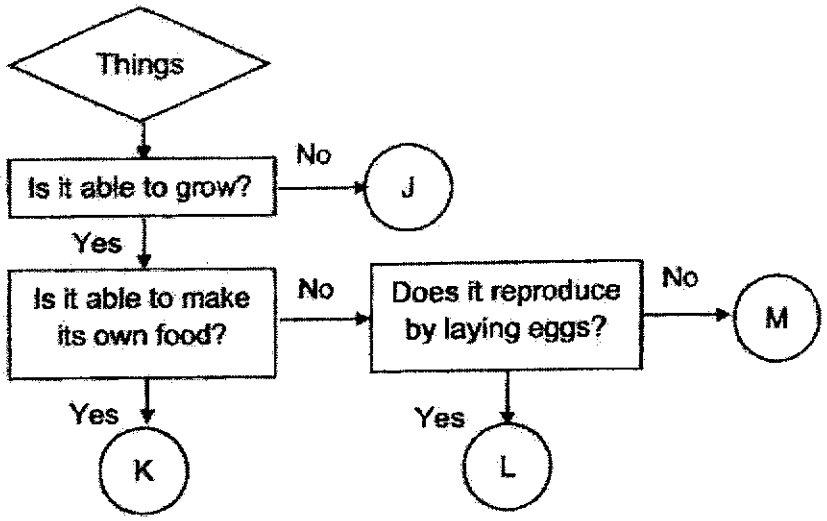


(i) Give a reason why the water in the funnel could not flow into the flask after a while. [1]

(ii) Without making any holes or removing anything from the set-up, state one action Charles should do to enable all the water in the funnel to flow into the flask. [1]

Marks : /2

30. Study the flow chart below.



(a) Based on the flow chart, state the similarity between K and L. [1]

(b) Jamie says that frogs belong to J.
Do you agree with her? Give a reason why. [1]

(c) Based on the flow chart above, both animals E and F shown below belong to the group L.

Animal E   Animal F

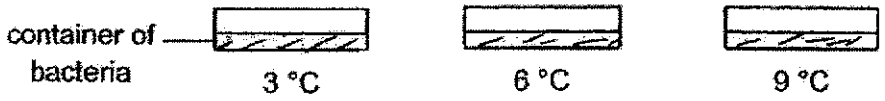
Based on the pictures of animal E and F, do you agree that they belong to the same animal group? Explain your answer. [2]

Marks : / 4

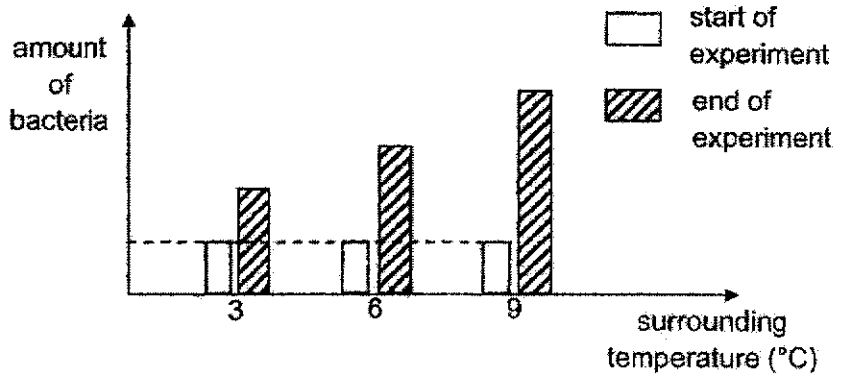
31. (a) Bacteria can be harmful or useful to living things.

State one other characteristic of bacteria. [1]

(b) An experiment was conducted to find out how surrounding temperature affects how fast bacteria reproduce. The set-ups are shown below.



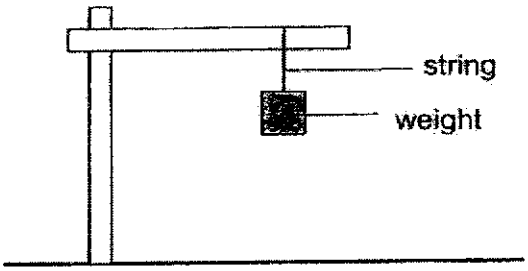
All three containers were placed in rooms at different temperatures for the same amount of time. The amount of bacteria in each container at the start and at the end of the experiment is shown in the graph below.



What is the relationship between the surrounding temperature and how fast the bacteria reproduce? [1]

Marks : / 2

32. Nadia carried out an experiment as shown below. She used three strings made of different materials X, Y and Z.



For each string, she kept adding weights until the string broke. She recorded the results in the table below. A tick (✓) shows that the material breaks when different weights were added.

Weight	Material X	Material Y	Material Z
80g		✓	
150g	✓		
200g			✓

(a) (i) Which property of the material is Nadia testing? [1]

_____

(ii) In order to tie the string around the weight easily, what is another property of the material the string must have? [1]

_____

(b) Which material, X, Y or Z, should Nadia use to make a wallet that could hold 170g of coins without breaking? Explain your answer. [2]

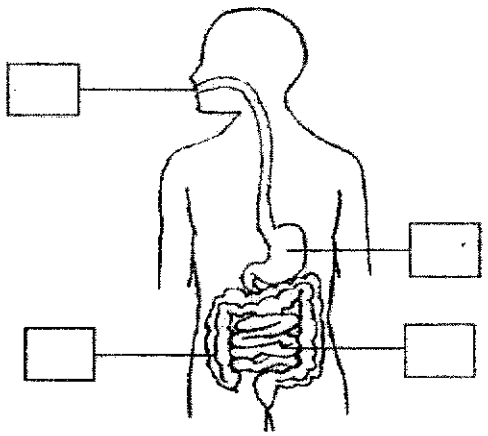
_____

_____

_____

Marks : / 4

33. The diagram below shows the human digestive system.



(a) (i) Put a tick (✓) in the boxes of the organs in which digestion of food takes place. [1]

(ii) State a function of the mouth during the digestion process. [1]

_____

_____

(b) The table below shows the amount of food digested by an organ of the digestive system.

	organ A	organ B	organ C	organ D
Amount of food digested (units)	5	18	50	0

Andrew claims that organ D is a large intestine. Explain why he is correct. [1]

_____

_____

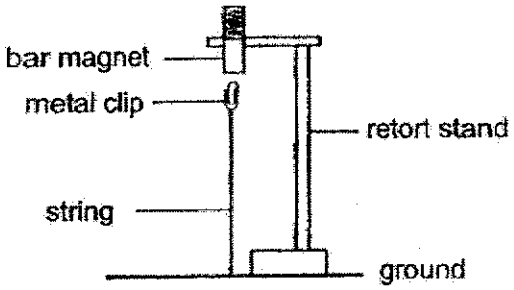
_____

Marks : / 3

34. Tim used a bar magnet to attract some staples.

(a) Give a reason why more staples were attracted to the ends of the bar magnet as shown in the diagram above. [1]

(b) Tim then set up an experiment as shown below.



(i) Explain why the metal clip did not drop to the ground. [1]

(ii) If Tim replaced the metal clip with a plastic clip, would the plastic clip remain in the air like the metal clip? Give a reason for your answer. [1]

Marks : / 3

~ END OF PAPER ~

SCHOOL : MAHA BODHI SCHOOL
LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : SA 1

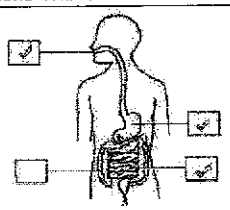
BOOKLET A

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

BOOKLET B

<table>
<tr><td>25</td><td>a)
i) Leave
ii) Plant Z. The roots of plant Z are deeper into the soil than plant Y. This way, plant Z is more firmly anchored to the ground than plant Y thus Z can remain the soil.</td></tr>
<tr><td>26</td><td>a) Grasshopper has 3-stage life cycle while a butterfly has a 4-stage life cycle.
b) This ensures that even if some of the eggs do not survive, some eggs will survive and hatch into the young.
c) Setup B. From day 8 to day 16, the number of uneaten leaves in setup B stayed constant as when the caterpillar turns into pupa, it does not eat.</td></tr>
<tr><td>27</td><td><table><tr><td>Matter</td><td>Non-matter</td></tr><tr><td>Snow
window</td><td>Music
Shadow</td></tr></table></td></tr>
<tr><td>28</td><td>a) 40
b) The ball of plasticine is a solid and solid has a definite volume.</td></tr>
<tr><td>29</td><td>a) i) water cannot be compressed.
ii) Gas

b) Air trapped in the flask occupies space and does not allow water to enter</td></tr>
<tr><td>30</td><td>a) Both K and L can grow
b) No. J is not a living thing as it is not able to grow thus since frog is a living thing and can grow, J cannot be a frog.
c) No. Animal E has scales as the outer-covering while animal F has feathers as outer-covering. Animal E is a reptile and animal F is a bird.</td></tr>
<tr><td>31</td><td>a) Bacteria cannot be seen with the naked eye
b) As the surrounding temperature increases, the bacteria reproduce faster.</td></tr>
<tr><td>32</td><td>a) i) Strength</td></tr>
</table>

	ii) Flexible b) Material Z. To make a wallet to hold 170g of coins without breaking, it must be strong. Material Z is the strongest material, and it is the only material which can hold 170g of weight without breaking.
33	 a) i) b) The large intestine does not digest food, it absorbs water from digested food.
34	a) The ends of the bar magnets are its poles. The pole of a magnet has the strongest magnetism and can attract more staples. b) i) The bar magnet is attracting the metal clip to itself, as the metal clip is magnetic iii) No. The magnet only attracts magnetic items. Plastic is not magnetic material, but metal is, so the plastic clip is not able to be attracted by the magnet.