

MARKER CODE			



STUDENT ENROLMENT NUMBER (SEN)									

FORM 2 COMMON EXAMINATION

2017

SCIENCE

QUESTION AND ANSWER BOOKLET

Time Allowed: 2 Hours

INSTRUCTIONS

1. This paper has **FIVE SECTIONS**. ALL Sections are **COMPULSORY**.

SECTION A	Science Skills	15 Marks
SECTION B	Living World	20 Marks
SECTION C	Physical World	25 Marks
SECTION D	Material World	25 Marks
SECTION E	Planet Earth and Beyond	15 Marks
2. Write your **Student Enrolment Number (SEN)** on the top right hand corner of this page and on page 28.
3. Answer ALL questions in the spaces provided.
4. Use black or blue pen for written answers and a pencil for drawings.
5. Write clearly and work neatly.
6. Check that this booklet contain pages 2-31 in the correct order. Pages 28-30 has been deliberately left blank.

YOU MUST HAND IN THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

TOTAL MARKS

100

SECTION A:**SCIENCE SKILLS****(15 MARKS)****PART ONE: Multiple Choice (5 marks)**

Circle the letter of the best answers.

If the best answer is A then circle A. If you want to change your answer from A to C, then put a cross on A and then circle C.

For example:  B  D

1. Which of the following lab equipment is used to measure the volume of a liquid more accurately?

A.



B.



C.



D.



2. The diagram shows an activity to boil a liquid in the lab. What is wrong with the way it is carried out?



- A. The liquid should be boiled in a beaker.
 B. The amount of liquid is too much to boil safely.
 C. The flask should be held with a pair of tongs.
 D. A gas burner should never be used.

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3. You are given the following statement in an investigation. “Which brand of diapers can hold more water?”

The statement given is an example of a :

- A. Aim
 - B. Inference
 - C. Law
 - D. Hypothesis
4. What should you do first if you spill some chemicals on your hands?
- A. Put some raw eggs on it.
 - B. Put Band-Aid on it
 - C. Wash hands with running water.
 - D. Tell the teacher.
5. There are many laboratory safety symbols you have learnt. The symbol given below means _____.



- A. Radioactive materials
- B. Toxic chemicals
- C. Corrosive materials
- D. Electrical Hazards.

PART TWO: Matching (5 marks)

Match **COLUMN A** to **COLUMN B** by writing the correct letter with its correct description on the line before each term.

COLUMN A

COLUMN B

- | | | | |
|----|--------------------------|----|--|
| 1. | _____ Meniscus | A. | Explanation to verify aim of experiment. |
| 2. | _____ Caustic soda | B. | Any factor that can be changed or control in an experiment. |
| 3. | _____ Control experiment | C. | A corrosive substance. |
| 4. | _____ Conclusion | D. | The curved surface of a liquid in a tube. |
| 5. | _____ Variables | E. | All observations during experiment. |
| | | F. | Experiment raised under normal conditions without the variables. |

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PART THREE: Short Answers (5 marks)

1. An experiment was carried out by Form 2 Science students. The aim was to find out whether sugar dissolves quickly in cold or hot water.
- a. In the box given, draw using a pencil all equipment and materials to show how you will do the experiment. Label your drawing.



(2 marks)

- b. Name **TWO** (2) variables that must be kept the same to give a reliable result.

Variable 1: _____

Variable 2: _____

(1 mark)

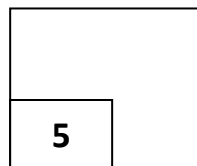
- c. What experimental **ERROR**(S) are most likely to affect your results?

Error I: _____

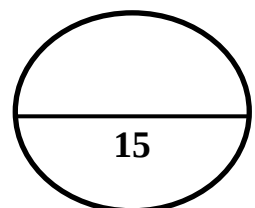
Error II: _____

(2 marks)

P.5



S.A



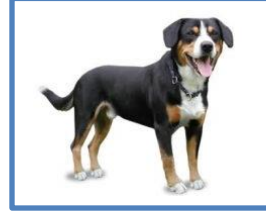
SECTION B:**LIVING WORLD****(20 MARKS)****PART ONE: Multiple Choice (5 marks)**

1. What gas is needed by animal cells to respire?
 - A. Nitrogen
 - B. Water vapour
 - C. Oxygen
 - D. Carbon dioxide.

2. Some plants “climb” on tall trees to survive. What type of feature do these plants show?
 - A. Digestive features
 - B. Adaptive features
 - C. Reproductive features
 - D. Survival features

3. One of the main difference between Protists and Monera organisms is that:
 - A. Monera is unicellular, Protists is multicellular.
 - B. Monera multiply sexually, Protists multiply asexually.
 - C. Monera is a plant, Protists is an animal.
 - D. Monera have no nucleus, Protists have a nucleus.

4. You are given the following materials:

Chicken**Seeds****Dog**

Which of the following show the correct **food chain** that can be drawn using the materials above?

- A. Seeds → Chicken → Dog
- B. Chicken → Seeds → Dog
- C. Seeds → Dog → Chicken
- D. Dog → Chicken → Seeds

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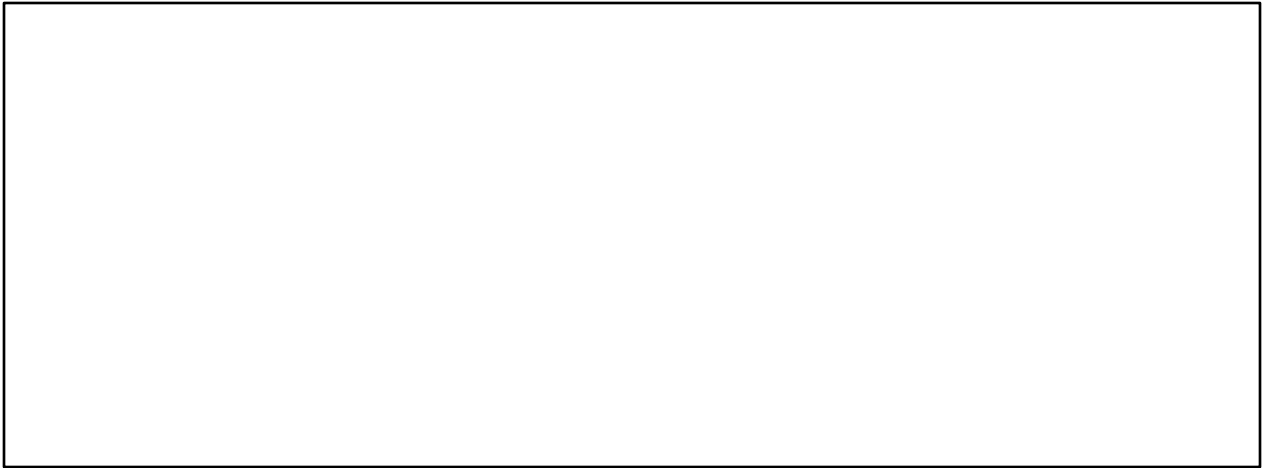
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5. Inter-cropping is a common farming practice in Tonga. What is **ONE** (1) advantage of this practice?
- A. It is less expensive to practice
 - B. It does not use chemical fertilizers.
 - C. It helps to prevent pests from attacking crops.
 - D. It makes the soil more fertile.

PART TWO: Short Answers and Drawing (7 marks)

1. In the space, use a PENCIL to draw a plant cell. Label the following structures.

- Cell Wall
- Nucleus
- Chloroplast
- Vacuole



(3 marks)

2. Use the diagram drawn above to answer the following questions.

a. Name **TWO** (2) structures which cannot be found in an animal cell.

Feature 1: _____

Feature 2: _____

(2 marks)

b. What is the function of a chloroplast?

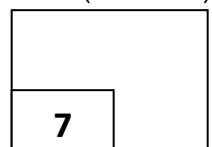
Function: _____

(1 mark)

3. Name the substance found in the cell wall.

(1 mark)

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PART THREE: Long Answers (8 marks)

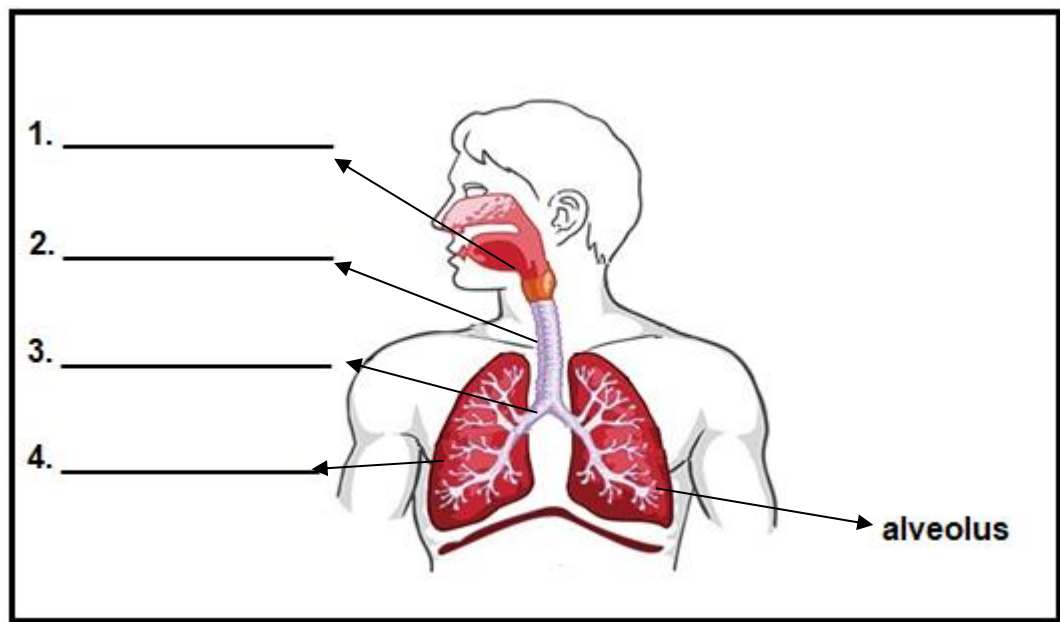
1. Beside each of the terms below, give an example of each from a multicellular animal you have studied.

- i. Cells : _____
- ii. Tissues : _____
- iii. Organ : _____

(3 marks)

2. The diagram below shows the human respiratory system. Label the structures shown by the numbers 1-4.

a.



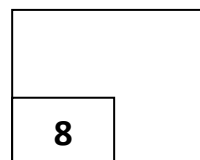
(2 marks)

- b. Some smokers suffer from shortage of breath similar to asthma (mahaki hela).

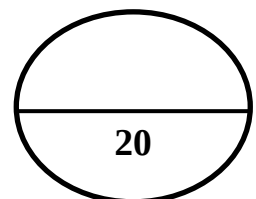
Explain how cigarette smoke can cause this condition.

(3 marks)

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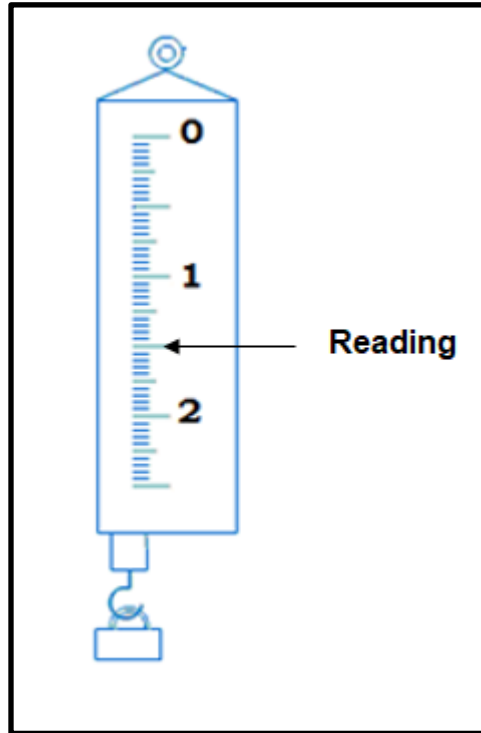
S.B



SECTION C:**PHYSICAL WORLD****(25 MARKS)****PART ONE: Multiple Choice (5 marks)**

Circle the letter of the best answer.

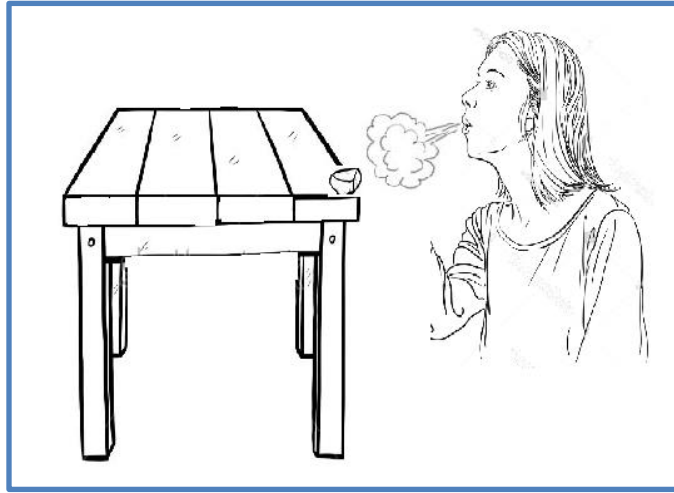
1. What is the reading of the force shown in the spring balance below?



- A. 1.75 N
B. 1.30 N
C. 0.175 N
D. 1.60 N
2. The energy of a stretched rubber band can be used to do work. This type of energy is called _____.
- A. Gravitational potential energy
B. Kinetic stored energy
C. Elastic potential energy
D. Frictional potential energy

QUESTION 3 AND QUESTION 4

A stone is placed on the edge of a table as shown in the diagram. When you blow on the stone, the rock falls to the floor.



3. What is the energy changes that takes place when the rock falls?
 - A. Chemical potential energy $\longrightarrow$ movement
 - B. Chemical potential $\longrightarrow$ Gravitational potential $\longrightarrow$ movement
 - C. Elastic potential energy $\longrightarrow$ movement
 - D. Solid potential energy $\longrightarrow$ movement

4. Where did the energy come from?
 - A. Blowing on the stone and the table top.
 - B. The force of gravity acting on table.
 - C. The table top and the rock.
 - D. Man blowing and falling rock.

5. What helps to reduce friction on the moving parts of a motor vehicle?
 - A. The engine of the vehicle
 - B. The paddle-wheel
 - C. The clutch and brake
 - D. Roller bearings.

PART TWO: Cloze (5 marks)

Complete the following statements by filling the blank spaces with the most suitable word.

1. On a windy day, a moving bicycle must try to overcome two forces. These are _____ (between the wheel tyre and the road) and _____ (pushing back the rider and bicycle.)
(2 marks)
2. Gravity is _____ on the Earth than on the Moon. This affects _____(N) but not _____ (kg).

(3 marks)

PART THREE:**LONG ANSWERS****(15 MARKS)**

1. The diagram shows a bird flying up into the sky.



- a. On the diagram, use arrows ($\longrightarrow$) to show the direction of the following forces on the bird.

- i. Air resistance
- ii. Force of gravity
- iii. Force of wings

(3 marks)

- b. What type of body structure helps the bird to overcome air resistance?

 (1 mark)
P.13

4

2. The diagram shows a match stick striking on a match box.



Use the diagram to answer the following questions.

- a. What form of energy does the match stick have?

(1 mark)

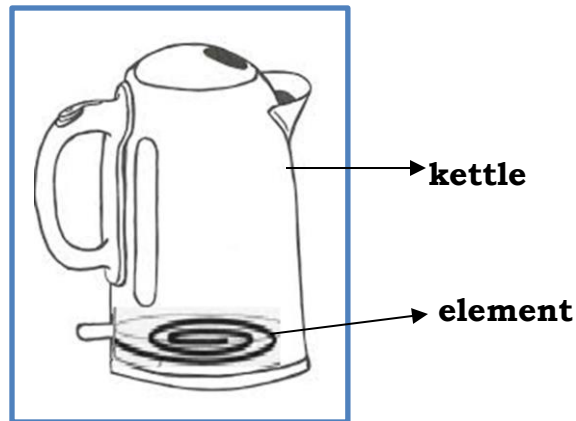
- b. What force causes the match stick to light up when stroked?

(1 mark)

- c. Draw an arrow diagram in the box below to show the energy change as the match stick strikes the match box.

(2 marks)

3. The diagram shows an electric kettle to boil water.



- a. Why is the element placed on the bottom of the kettle?

Reason: _____

(1 mark)

- b. On the diagram below draw how heat move inside the kettle as water is heated.



(2 marks)

- c. What method of heat movement is shown above?

 (1 mark)

- d. Give a reason or evidence that work was done on the water.

 (1 mark)

4. The diagram shows a young man standing on an old wooden floor.



- a. What are the pair of forces acting on the man?

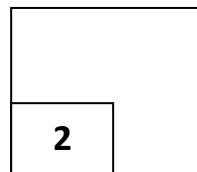
(1 mark)

- b. Why is the man not moving?

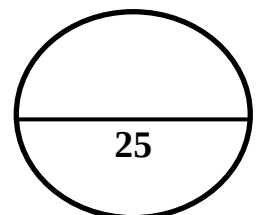
Reason: _____

(1 mark)

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S.C

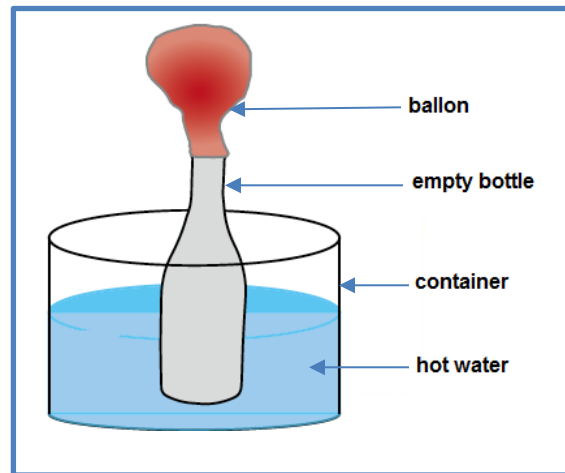


SECTION D:**MATERIAL WORLD****(25 MARKS)****PART ONE: Multiple Choice (5 marks)**

1. An object has a mass of 25grams and a volume of 5cm^3 . What is the density of the object?
 - A. 0.5 g/cm^3
 - B. 5 g/cm^3
 - C. 125 g/cm^3
 - D. 30 g/cm^3

2. What causes your ears to hurt when you dive under deep water?
 - A. Bacteria enter your ears causing them to hurt.
 - B. There is not enough oxygen to breath.
 - C. Higher pressure under water pushes against your ears.
 - D. The forces acting on you are balanced.

Study the diagram given below and use it to answer question 3 and 4.



3. Why did the balloon inflate (pupula) after a while?
 - A. Air was warm and expanded.
 - B. Hot water rose inside the bottle.
 - C. The balloon is elastic and stretches.
 - D. Air was pumped into the balloon.

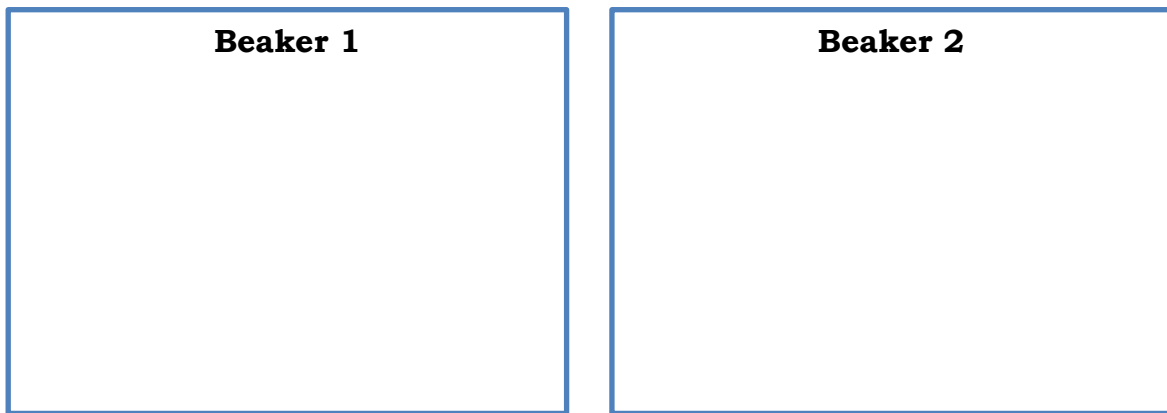
4. What does the observation show about the nature of air?
- A. Air expands when warm
 - B. Air has weight.
 - C. Air is a gas.
 - D. Air is light to move.
5. Which of the following changes is an example of a physical change?
- A. Wood is burnt during cooking.
 - B. Plants make their own food.
 - C. Respiration in living cells.
 - D. Solid sugar dissolves in water.

PART TWO: Drawing and labeling (5 marks)

1. A science class was given the following materials and information.
- two boiled eggs
 - 2 beakers of water

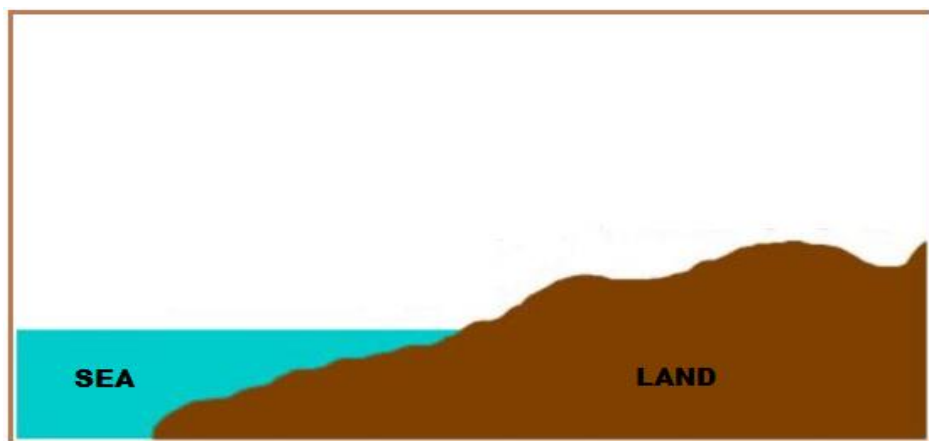
Beaker 1 holds pure water from the tank.
 Beaker 2 holds water with salt dissolved in it.
 Both volume of water were the same.

Draw and label how each egg will appear when placed in beaker 1 and beaker 2.



(2 marks)

2. Draw on the box below a diagram to show how a land breeze is formed. Use arrows to show this Land Breeze.

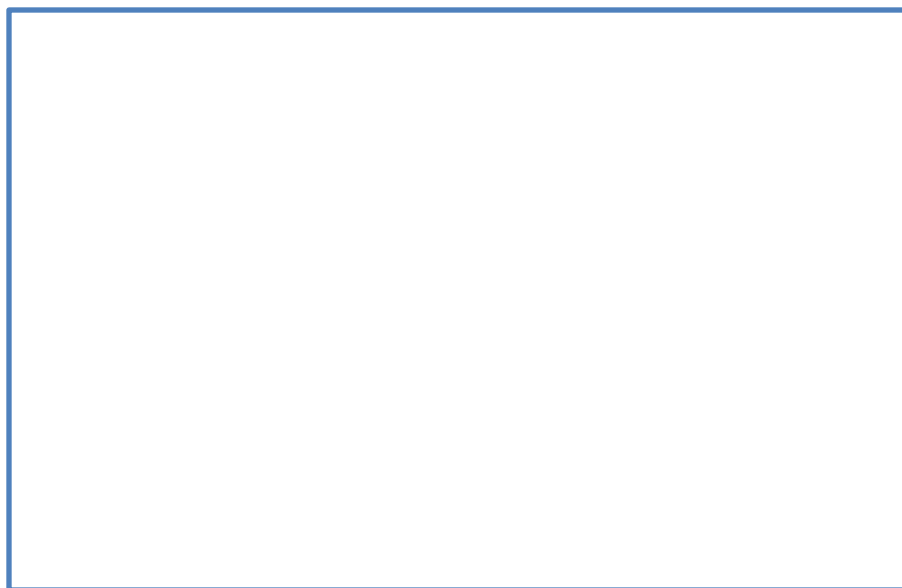


(2 marks)

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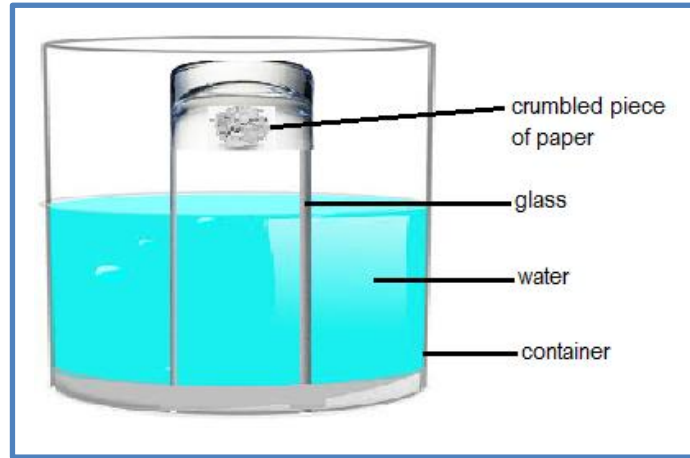
3. Draw and label the particle structure of a solid conductor to show how heat moves in it.



(1 mark)

PART THREE: Long Answer (15 marks)

1. The diagram shows a crumbled piece of paper glued to the bottom of an empty glass. The glass was then inverted and immersed in a container of water.



The glass was removed letting the water drip.

Answer the following questions:

- a. What was in the glass at the start?

_____ (1 mark)

- b. Did the crumbled paper feel wet or dry after the glass was removed?

_____ (1 mark)

- c. Explain why the crumbled piece of paper felt that way (as stated in (b) above).

 _____ (2 marks)

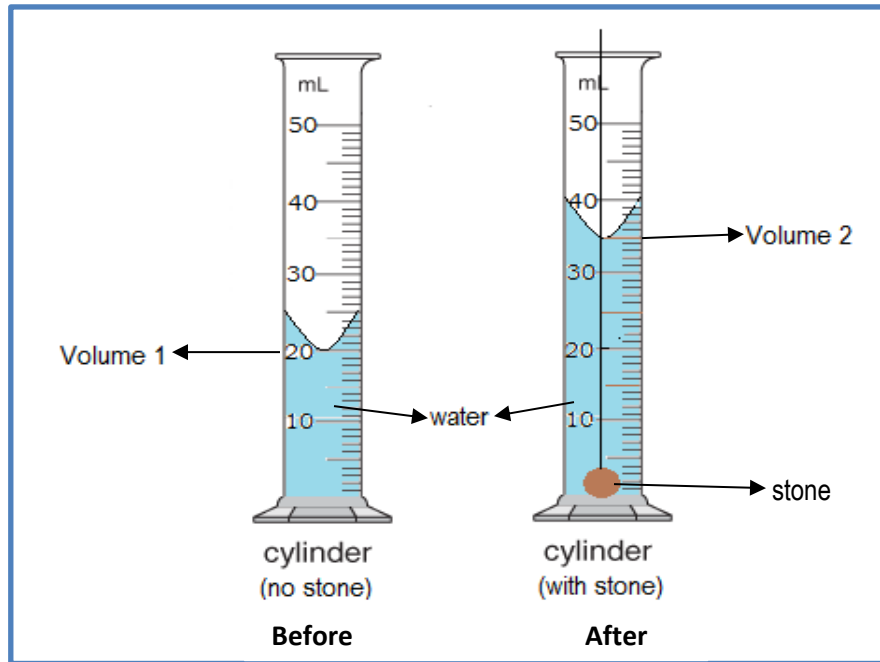
- d. What does this tell you about the nature of air?

_____ (1 mark)

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5	

2. The diagram shows one method which can be used to find the volume of a stone (irregular object).



Use the diagram to answer the questions.

- a. What was the volume of the water **before** the stone was dropped into the cylinder.

(1 mark)

- b. What happened to the water when the stone was added?

(1 mark)

- c. What is the **volume** of the stone? Show how you got the answer.

(2 marks)

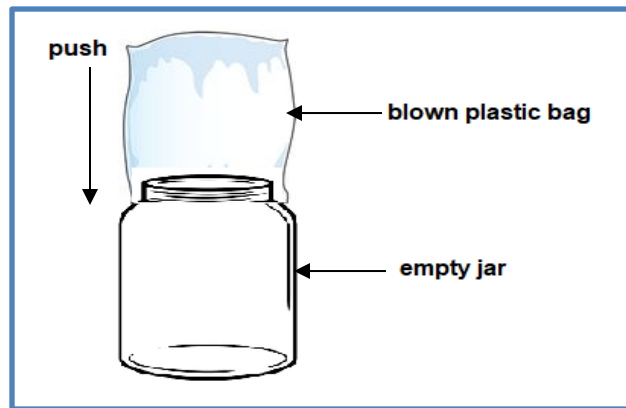
- d. Explain why you reached that **conclusion**.

(2 marks)

- e. What is this **method** of finding the volume of an irregular object called?

(1 mark)

3. Study the diagram and use it to answer the questions.



You were asked to “try to push the plastic bag” into the jar without tearing it.

- a. Is it possible to push the bag into the jar?

(1 mark)

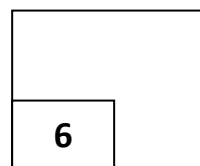
- b. Explain why?

(1 mark)

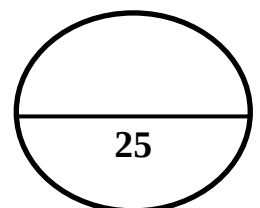
- c. What property of air does this activity show you?

(1 mark)

P.23



S.D

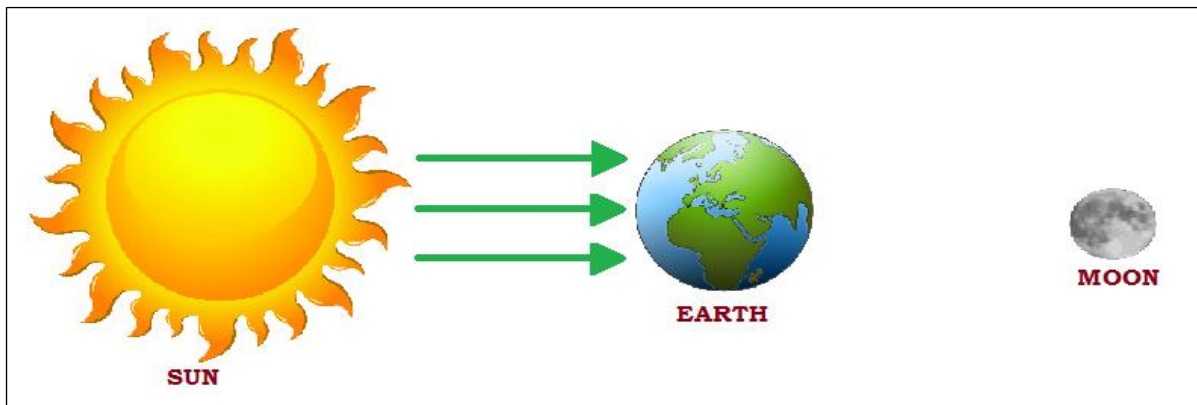


SECTION E **PLANET EARTH AND BEYOND** **(15 MARKS)**

PART ONE: Multiple Choice (5 marks)

1. What stops the Moon from flying out into space?
 - A. The moon has an axis which is tied to Earth.
 - B. A force of attraction between Moon and Earth due to Gravity.
 - C. The atmosphere layer around the Earth holds the Moon.
 - D. The moon is the Earth's only natural satellite.

2. The diagram below shows the position of the Sun, Moon and Earth.



What does the diagram show?

- A. A full moon
 - B. A Solar eclipse
 - C. A lunar eclipse
 - D. A new moon

3. Soils are the product of the decomposition of rocks. What are **TWO** (2) of these factors causing this process?
 - A. Seasons and the Sun
 - B. Gravity and wind
 - C. Running water and
 - D. Temperature and rain

4. The phases of the moon is due to:
- A. Changes in seasons
 - B. Moon's orbit about Earth
 - C. Pull of Gravity
 - D. Months of the year
5. The name of the star used as a sailing guide from Niua to Vava'u is called the _____.
- A. Wings of Tafahi
 - B. Belt of Orion
 - C. Funga Sia
 - D. The black Crow

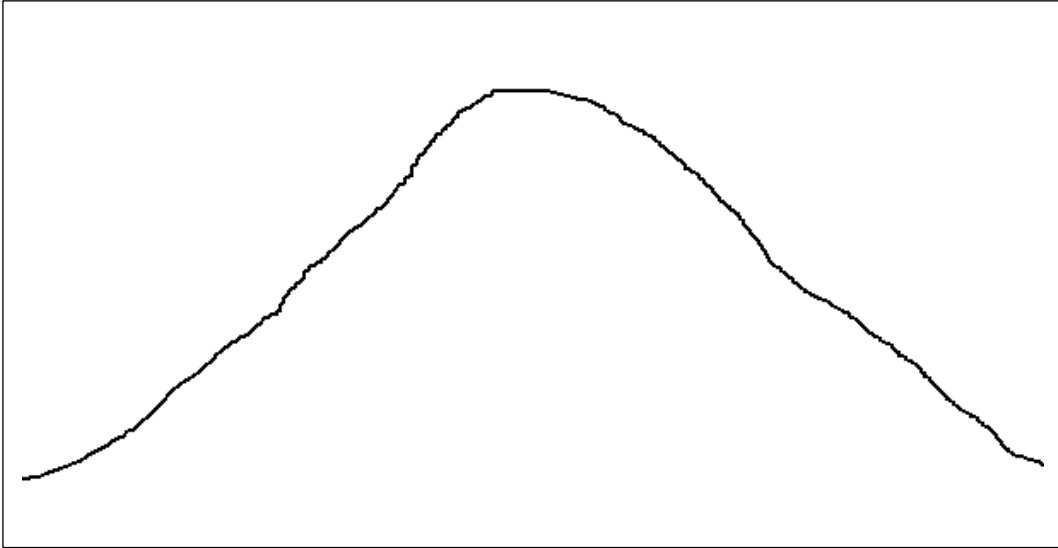
PART TWO: Cloze (3 marks)

1. The largest grouping of stars is called the _____ galaxy. (1 mark)
2. Two components of weather are _____ and _____. (2 marks)

PART THREE: Short Answers (7 marks)

1. You are given a piece of land to cultivate as shown in the diagram.

Piece of land



- a. Give **ONE** (1) “natural” process that will likely cause problems to your cultivating practice?

(1 mark)

- b. What type of cultivating practice is best to be done in the piece of land.

(1 mark)

- c. Explain how growing crops in the way that is shown on the diagram can reduce the problem in (a).

(2 marks)

2. The soil of Niuafo'ou is very rich and fertile. It is different from the soil of Tongatapu and the other islands.

- a. What factor determines the difference in the soil-type across the islands in Tonga?

_____ (1 mark)

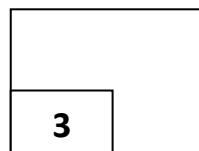
- b. Give **TWO** (2) main reasons that explain why the soils of Niuafo'ou are very rich and fertile.

1. _____

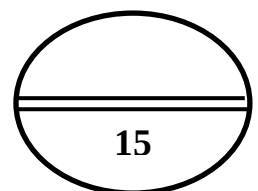
 2. _____

(2 marks)

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S.E



STUDENT ENROLMENT NUMBER (SEN)

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**SCIENCE
2017
(FOR MARKERS USE ONLY)**

SECTIONS		MARKS	CHECK MARKS	TOTAL
A	SCIENCE SKILLS	/15		
B	LIVING WORLD	/20		
C	PHYSICAL WORLD	/25		
D	MATERIAL WORLD	/25		
E	PLANET EARTH AND BEYOND	/15		
TOTAL MARKS		100		