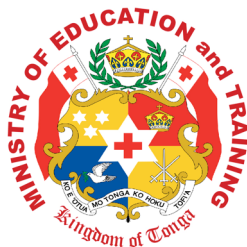


MARKER CODE				



STUDENT ENROLMENT NUMBER (SEN)									

SECONDARY ENTRANCE EXAMINATION

2024

SCIENCE

QUESTION AND ANSWER BOOKLET

Time Allowed: 2 Hours + 10 minutes reading

INSTRUCTIONS:

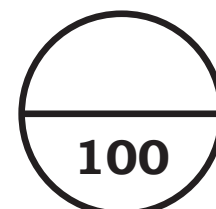
1. Write your **Student Enrolment Number (SEN)** on the top right-hand corner of this page and on page **27**.
2. This paper has **FOUR SECTIONS**. ALL Sections are COMPULSORY.

SECTIONS	TOPIC	SCORES	STUDENTS' SCORES
ONE	LIVING WORLD	35	
TWO	PHYSICAL WORLD	25	
THREE	MATERIAL WORLD	20	
FOUR	PLANET EARTH AND BEYOND	20	
TOTAL SCORES		100	

3. Answer **ALL** questions in the spaces provided.
4. You are **not** allowed to use a calculator.
5. Use a black or blue ball point pen for your written answer. Use a pencil **ONLY** for drawings.
6. Write legibly and work neatly.
7. If you need more spaces for answers, ask the supervisor for extra paper. Write your **Student Enrolment Number (SEN)** on the extra papers used.
8. Check that this booklet contain pages **2 - 27** in the correct order and that page **24 - 26** have been deliberately left blank.

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

TOTAL SCORES



QUESTION 1: CELL THEORY AND MICROORGANISMS

PART A: MULTIPLE CHOICE

Circle the letter of the **BEST** answer.

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

For example: ~~A~~ B C D

1. Organisms that are made of only one single cell is known as _____.

- A. multicellular
- B. unicellular
- C. a cell
- D. a tissue

Competency level 1	
1	
0	
NR	

2. Cells divide to produce gametes, repair damaged cells and _____.

- A. allow reproduction
- B. give protection
- C. enable growth
- D. do cycling

Competency level 1	
1	
0	
NR	

3. Covid-19 was a worldwide disease caused by a microorganism known as a _____.

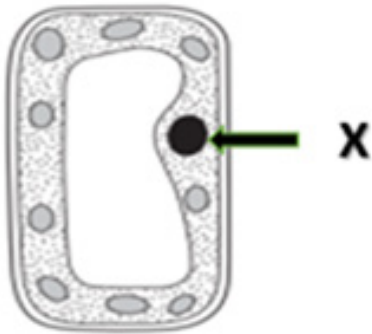
- A. fungi
- B. bacteria
- C. cold
- D. virus

Competency level 1	
1	
0	
NR	

PART B: DIAGRAM INTERPRETATION

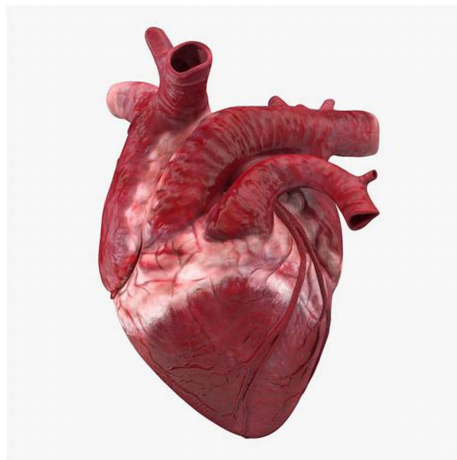
Use the diagrams given to help you answer the questions that follow.

4. Describe the function of organelle **X**.



	Competency level 2	
	2	
	1	
	0	
	NR	

5. The heart is a very important organ in the human body. Describe the functions of the heart



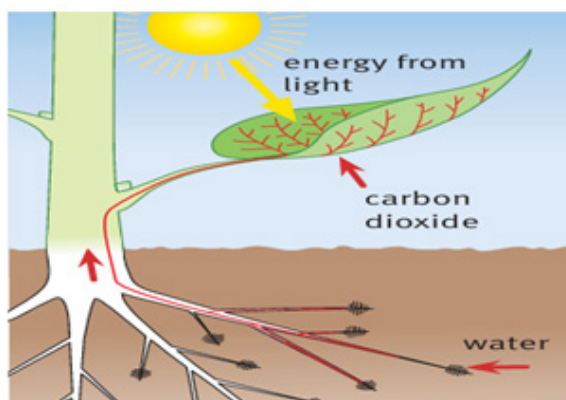
	Competency level 2	
	2	
	1	
	0	
	NR	

6. The common cold is known as influenza. Describe **ONE (1)** way of preventing this disease from spreading in your school.



Competency level 2	
2	
1	
0	
NR	

7. Explain how the process of photosynthesis works in plants.

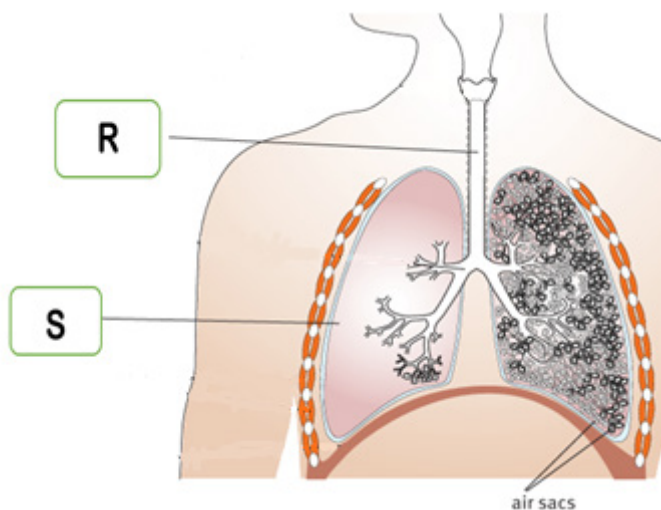


Competency level 3	
3	
2	
1	
0	
NR	

QUESTION 2: HUMAN ORGAN SYSTEMS AND HEALTH ISSUES

PART A: DIAGRAM INTERPRETATION

8. Study the diagram of the respiratory system below to help you answer the questions that follow.



- a. Name the part labelled **R**.

Competency level 1	
1	
0	
NR	

- b. Describe the structure of part **S**.

Competency level 2	
2	
1	
0	
NR	

- c. Outline the process that is taking place in the air sacs

Competency level 2	
2	
1	
0	
NR	

PART B: SHORT ANSWERS

9. State **ONE (1)** symptom of ulcer in humans.

10. Describe **ONE (1)** way of reducing the effects of diabetes in humans.

Competency level 1	
1	
0	
NR	

Competency level 2	
2	
1	
0	
NR	

PART C: LONG ANSWER

11. Discuss the activities that can help people in Tonga to stay healthy.

[illegible]

Competency level 4	
4	
3	
2	
1	
0	
NR	

QUESTION 3: PLANTS AND ANIMALS IN TONGA

PART A: DEFINITION

12. Define the following terms

a. **Adaptation:**

Competency level 1	
1	
0	
NR	

b. **Habitat:**

Competency level 1	
1	
0	
NR	

PART B: MATCHING

13. Match the following groups of ORGANISM in Column **X** with their correct EXAMPLE in Column **Y**

Column X

Column Y

- a. Vertebrates
- b. Invertebrates
- c. Angiosperms
- d. Gymnosperms

- A. Hibiscus
- B. Pine
- C. Fungi
- D. Birds
- E. Insects

Competency level 1	a	b	c	d
1				
0				
NR				

PART C: FLOW DIAGRAM

14. Draw a food chain of **THREE (3)** feeding levels to show the flow of energy

Competency level 2	
2	
1	
0	
NR	

PART D: LONG ANSWER

15. Explain the importance of preserving mangroves in Tonga.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Competency level 3	
3	
2	
1	
0	
NR	

Competency level 4	
4	
3	
2	
1	
0	
NR	

PART A: DIAGRAM INTERPRETATION

-
- A black portable cassette player with a telescopic antenna, connected to a power source via a black cable. The device has a carrying handle and various control buttons and knobs. The power source is a small, light-colored rectangular unit with two circular outlets.

Competency level 2	
2	
1	
0	
NR	

-

[illegible]

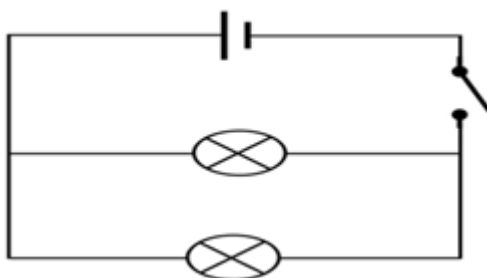
Competency level 3	
3	
2	
1	
0	
NR	

QUESTION 3: ELECTRICITY AND MAGNETISM

PART A: LABELLING DIAGRAMS

4. Use the electric circuit below to label the following parts:

- switch
- battery



c. State the type of electric current shown in the diagram above.

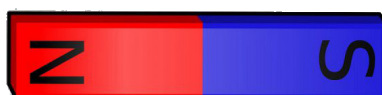
Competency level 1	
1	
0	
NR	
Competency level 1	
1	
0	
NR	
Competency level 1	
1	
0	
NR	

PART B: DRAWING

5. Soane, a Class 8 student, carried out the following steps in an experiment with a bar magnet and iron filling.

1. Place a bar magnet on the desk and place an A4 piece of paper on top of it	
2. Sprinkle iron filings on the paper and tap the paper gently over the magnets.	

Use the bar magnet below to draw the pattern of the iron filling that Soane would have observed.



Competency level 2	
2	
1	
0	
NR	

QUESTION 4: FORCES AND MOTION

PART A: TRUE OR FALSE

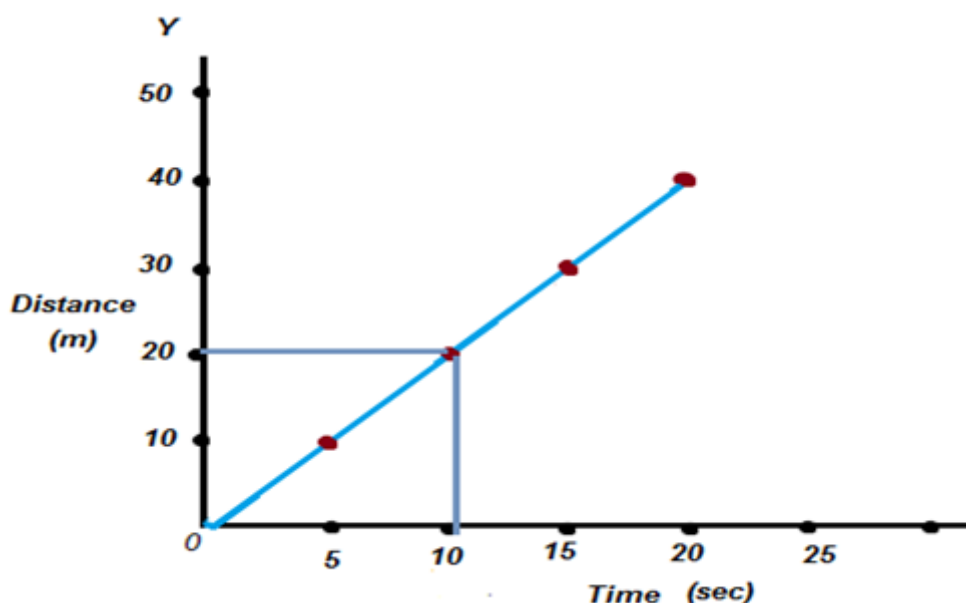
Write **T** if the statement is true or **F** if the statement is false in the spaces provided

6. _____ Frictional force always works against the direction of motion.
7. _____ Speed is measured by how much distance something travels over a period of time.
8. _____ When a car's speed is accelerating, it means the speed is slowing down

Competency level 1	
1	
0	
NR	
Competency level 1	
1	
0	
NR	
Competency level 1	
1	
0	
NR	

PART B: GRAPH INTERPRETATION

9. The graph below shows the motion of a bicycle. Use the graph to calculate the speed of the bicycle.



Competency level 2	
2	
1	
0	
NR	

PART A: DIAGRAM INTERPRETATION



A diagram illustrating the refraction of light. A blue pencil is partially submerged in a clear glass beaker filled with water. The pencil is tilted, and the part inside the water appears bent at the surface. Two labels with leader lines identify the 'pencil' and the 'beaker of water'.

[illegible]

Competency level 3	
3	
2	
1	
0	
NR	

PART B: SHORT ANSWERS

11. In stormy weather, lightning is seen before the thunderstorm is heard.
Describe why this happens.



Competency level 2	
2	
1	
0	
NR	

PART C: FILLING IN GAPS

Fill in the space with the **correct** word.

12. Soft surfaces absorb sounds while hard, flat surfaces _____ sound.

Competency level 1	
1	
0	
NR	

QUESTION 1: COMPOSITION OF MATTER

PART A: MULTIPLE CHOICE

Circle the letter of the **BEST** answer

1. Atoms are made up of the following:

- A. Protons, neutrons and nucleus
- B. Neutrons, electrons and shells
- C. Protons, neutrons and electrons
- D. Electrons, shells and nucleus

Competency level 1	
1	
0	
NR	

2. Water(H_2O) is a very good example of _____

- A. atoms
- B. molecules
- C. mixtures
- D. pure substance

Competency level 1	
1	
0	
NR	

3. The name of the 4th element in the periodic table is _____

- A. Calcium
- B. Sodium
- C. Magnesium
- D. Beryllium

Competency level 1	
1	
0	
NR	

PART B: SHORT ANSWERS

4. Describe homogenous mixtures.

Competency level 2	
2	
1	
0	
NR	

5. Outline the features of the periodic table

Competency level 2	
2	
1	
0	
NR	

QUESTION 2: CHEMICAL AND PHYSICAL PROPERTIES OF MATTER

PART A: SHORT ANSWER

6. Different substances are used to make materials for everyday use because of their physical properties. This pot has a plastic handle. Describe the physical properties of plastic.



Competency level 2	
2	
1	
0	
NR	

PART B: LONG ANSWER

7. One way of separating mixture is filtration. Explain how filtering separate mixtures

Competency level 3	
3	
2	
1	
0	
NR	

QUESTION 3: CHEMICAL CHANGES

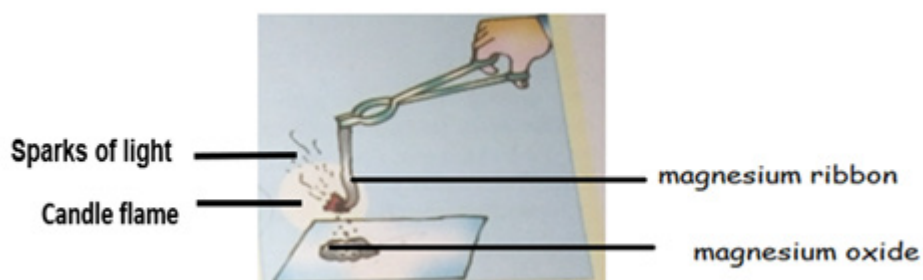
PART A: FILLING IN GAPS

Fill in the spaces with the **correct** word.

8. Matter is any substance that has _____ and can take up space.
9. Conservation of matter is to _____ the loss of the amount of matter in a substance.

PART B: SHORT ANSWER

10. Burning magnesium is an example of an Oxidation reaction.



Describe the chemical reactions in burning magnesium.

Competency level 1	
1	
0	
NR	
Competency level 1	
1	
0	
NR	

Competency level 2	
2	
1	
0	
NR	

PART C: LONG ANSWER

11. Makeleta was very hungry and decided to cook some chicken. Discuss how she would increase the rate of reaction to cook the chicken faster.

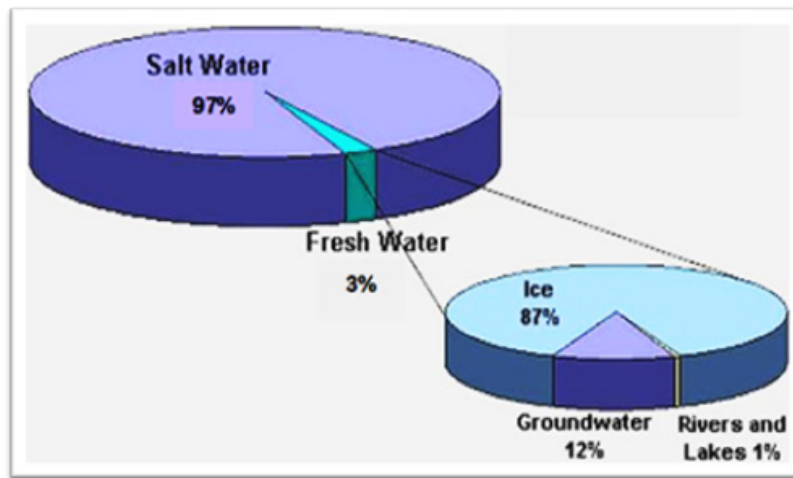
This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Competency level 4	
4	
3	
2	
1	
0	
NR	

QUESTION 1: PLANET EARTH

PART A: DIAGRAM INTERPRETATION

1. Use the diagram below to help you fill in the **correct** word in the spaces.



- a. Only _____% of the Earth's water is fresh water
- b. Most of the fresh water on the Earth's surface is _____.
- c. Water is _____ distributed on our planet Earth.

Competency level 1	
1	
0	
NR	
Competency level 1	
1	
0	
NR	
Competency level 1	
1	
0	
NR	

PART B: PHOTO INTERPRETATION

Study the photo given to help you answer the question.



2. Describe the weather at the top of the mountain.

Competency level 2	
2	
1	
0	
NR	

PART C: LONG ANSWER

3. Explain the relationship between global warming and tropical cyclones.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Competency level 3	
3	
2	
1	
0	
NR	

QUESTION 2: GEOLOGICAL PROCESSES

PART A: DIAGRAM INTERPRETATION

Use the diagram below to help you answer the question given.



4. Describe how plate tectonic movements causes earthquakes.

Competency level 2	
2	
1	
0	
NR	

QUESTION 3: EARTH'S RESOURCE AND CONSERVATION

PART A: SHORT ANSWERS

Use the photo of a Solar panel to help you answer the question.



5. Describe the importance of the solar energy.

Competency level 2	
2	
1	
0	
NR	

PART B: LONG ANSWER

6. Explain **ONE (1)** effective method of practising “**conservation**” of resources at school.

[illegible]

Competency level 3	
3	
2	
1	
0	
NR	

QUESTION 4: MOON AND STARS

PART A: MATCHING

7. Match the following EVENTS in column **X** with the correct TIME it happens in column **Y**.

Column X		Column Y	
_____	a. Neap tide	A.	when the moon is between the sun and the Earth
_____	b. Spring tide	B.	occurs during the first quarter and the last quarter
_____	c. Solar eclipses	C.	occurs during the New moon and the Full moon.
		D.	when the moon is partially or is completely blocked from the sunlight by the shadow of the earth

Competency level 1	
1	
0	
NR	
Competency level 1	
1	
0	
NR	
Competency level 1	
1	
0	
NR	

PART B: SHORT ANSWER

8. Describe **ONE (1)** use of constellations by Tongans.

Competency level 2	
2	
1	
0	
NR	

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STUDENT ENROLMENT NUMBER (SEN)									

SECONDARY ENTRANCE EXAMINATION

2024

SCIENCE

(For Scorers Use Only)

SECTIONS	SCORES	CHECK SCORES	TOTAL SCORES
ONE			35
TWO			25
THREE			20
FOUR			20
TOTAL SCORES			100