



Centre Number	Candidate Number

MINISTRY OF EDUCATION AND HUMAN RESOURCE DEVELOPMENT

## SOLOMON ISLANDS YEAR 9 EXAMINATION

# 2018

## SCIENCE

### QUESTION AND ANSWER BOOKLET

THURSDAY 8<sup>TH</sup> NOVEMBER 9:00 AM

TIME: 2 Hours plus 10  
Minutes reading time.

This Exam Paper consists of THREE (3) sections. **ATTEMPT ALL QUESTIONS**

	MARKS	TIME
<b>SECTION A: 20</b> Multiple Choice Questions	20	20 minutes
<b>SECTION B: 4</b> Short Answer Questions	50	50 minutes
<b>SECTION C: 4</b> Long Answer Questions	30	50 minutes
<b>TOTAL:</b>	<b>100</b>	<b>120 minutes</b>

#### INSTRUCTIONS

1. Do not open this Booklet until you are told to do so.
2. Write both your Centre Number and Candidate Number in the box provided at the top right hand corner of this page and the back flap at the end of this booklet.
3. Before you answer the questions, read through the instructions carefully.
4. Do NOT use correction fluid.
5. Mobile phones are NOT allowed in the Examination room.

Check that this booklet contains pages **2 - 22** in the correct order and that none of these pages are blank. Page **21** have been left blank deliberately.

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

**THIS BOOKLET CONTAINS 22 NUMBERED PAGES.**

**SECTION A:      MULTIPLE CHOICE QUESTIONS****(20 MARKS)**

**ANSWER ALL THE QUESTIONS IN THIS SECTION. WRITE YOUR BEST ANSWER IN THE BOXES ON THE FOLD-OUT FLAP PROVIDED AT THE BACK OF THIS BOOKLET. EACH QUESTION IS WORTH ONE (1) MARK.**

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Study the table below of a cross section of the Earth's crust and answer questions (1 and 2).

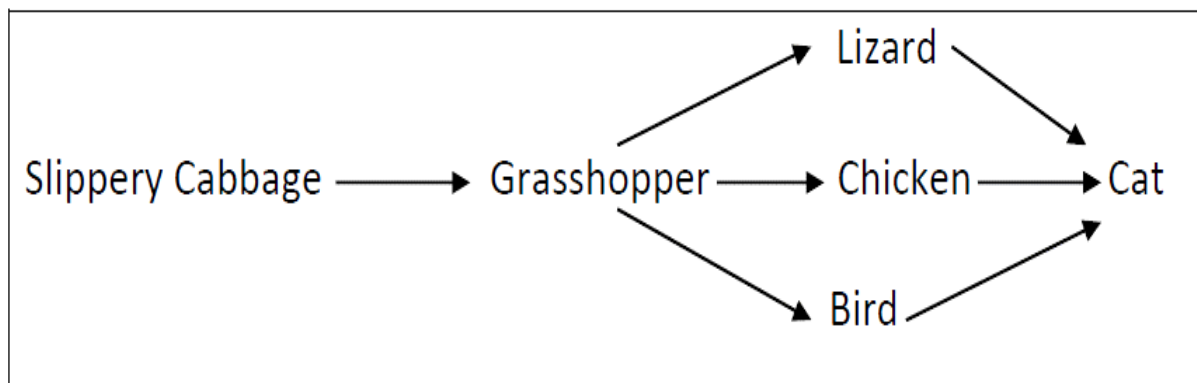
<b>Distance from the Crust</b>	<b>Thickness</b>	<b>Region</b>
0 – 35km	30.65km	1
35 – 70km		2
70 – 2885km	2885km	3
2885 – 5155km	2270km	4
5155 – 6371km	1216km	5

- The region **3** is called the;
  - inner core.
  - outer core.
  - inner mantle.
  - outer mantle.
- The region **5** is made of mostly the element;
  - Si
  - C
  - Fe
  - O
- The element with an Atomic Number of 6 is;
  - Iron.
  - Oxygen.
  - Silicon.
  - Aluminium.
- A group II metal combined with an unknown gas to form a compound. If the metal and the gas combined in a one to one (1:1) ratio, in what Group of the periodic table is the gas likely to belong?
  - Group II.
  - Group IV.
  - Group VI.
  - Group VII.

5. Both calcium and oxygen have a valency of 2. What will be the formula for calcium oxide?
- A. CaO.
  - B. Ca<sub>2</sub>O.
  - C. CaO<sub>2</sub>.
  - D. Ca<sub>2</sub>O<sub>2</sub>.
6. A correct energy - pathway diagram can be drawn or illustrated as;
- A. Sun → Cabbage → Caterpillar → Grasshopper.
  - B. Sun ← Cabbage ← Caterpillar ← Grasshopper.
  - C. Grasshopper → Cabbage → Sun → Caterpillar.
  - D. Caterpillar ← Grasshopper ← Sun ← Cabbage.
7. To produce **static electricity**, which component of a substance will be transferred?
- A. Atoms.
  - B. Proton.
  - C. Electrons.
  - D. Neutrons.
8. Which of the following common materials is a good conductor of electricity?
- A. Wire fence.
  - B. Plastic bag.
  - C. Plastic ruler.
  - D. Traditional basket.
9. The flow of electrical charge is known as;
- A. energy.
  - B. power.
  - C. voltage.
  - D. current.
10. Which **invention** uses the creation of electricity from a magnet?
- A. Motor.
  - B. Generator.
  - C. Microphone.
  - D. Galvanometer.

11. Patrick has difficulty focusing on close objects but could see clearly distant objects. Which of the following should the optician (eye doctor) recommend for Patrick to correct his vision with?
- A. Plain glasses.
  - B. Magnifying glasses.
  - C. Converging lenses (convex).
  - D. Diverging lenses (Concave).

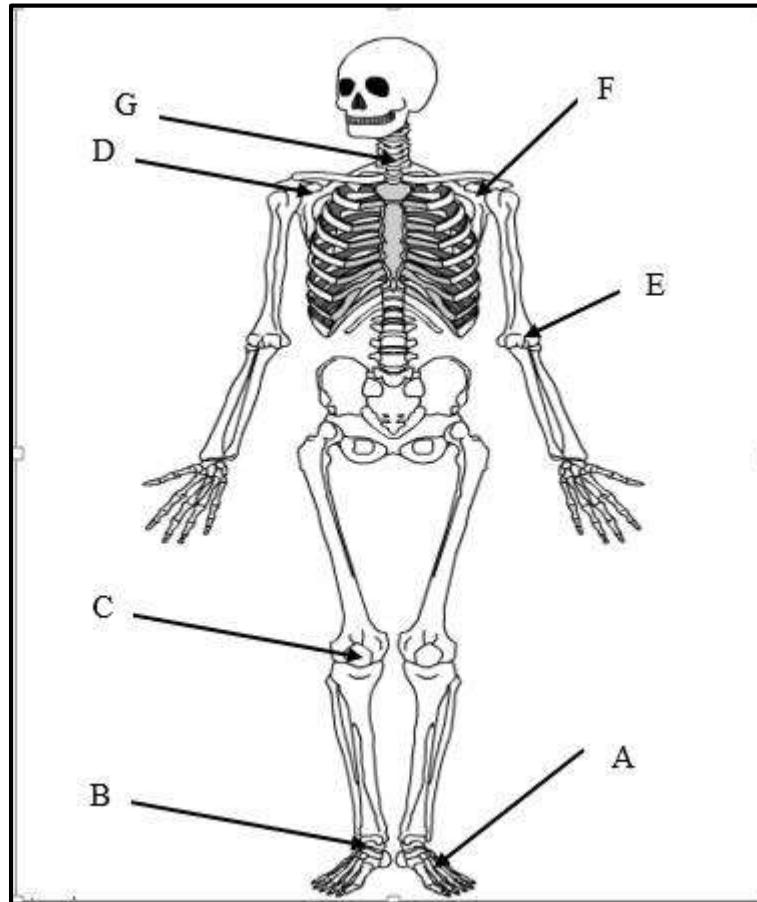
Study the food web below and answer questions (12 and 13).



12. In the above food web, which consumer is a **predator**?
- A. Cat.
  - B. Bird.
  - C. Lizard.
  - D. Chicken.
13. The organism that is able to convert  $\text{CO}_2$  from the atmosphere and  $\text{H}_2\text{O}$  from the soil to sugar ( $\text{C}_6\text{H}_{12}\text{O}_6$ ) would be;
- A. lizard.
  - B. chicken.
  - C. grasshopper.
  - D. slippery Cabbage.
14. The process of successful combination of the male gamete (sperm) and the female gamete (egg) is called;
- A. ovulation.
  - B. fertilization.
  - C. reproduction.
  - D. spermatogenesis.

15. Which organ enables us to detect light?
- A. Eyes.
  - B. Ear.
  - C. Nose.
  - D. Mouth.
16. The opening to the uterus is the;
- A. cervix.
  - B. uterus.
  - C. vagina.
  - D. ovary.
17. Which **component** of blood is responsible for the transportation of Oxygen around the body?
- A. Plasma.
  - B. Lymphocytes.
  - C. Red Blood Cells.
  - D. White Blood Cells
18. The structure in the eyes that is responsible for focusing an image is;
- A. pupil.
  - B. retina.
  - C. fovea.
  - D. yellow spot.
19. Which of the following correctly describes the movement of blood in the **pulmonary circulatory system**?
- A. lungs → Right Atrium → Right Ventricle → Lungs.
  - B. lungs → Pulmonary Vein → Pulmonary Artery → Lungs.
  - C. Right Ventricle → Right Atrium → Left Atrium → Left Ventricle.
  - D. Right Ventricle → Pulmonary Artery → Lungs → Pulmonary Vein → Left Atrium.

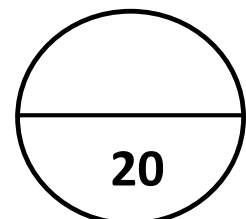
Study the diagram below which shows joints in the human skeletal system and answer question 20.



20. The letters that correctly show a **hinge joint** would be;

- A. B & E
- B. C & E
- C. G & C
- D. B & F

TOTAL MARKS FOR MC: Q1-20



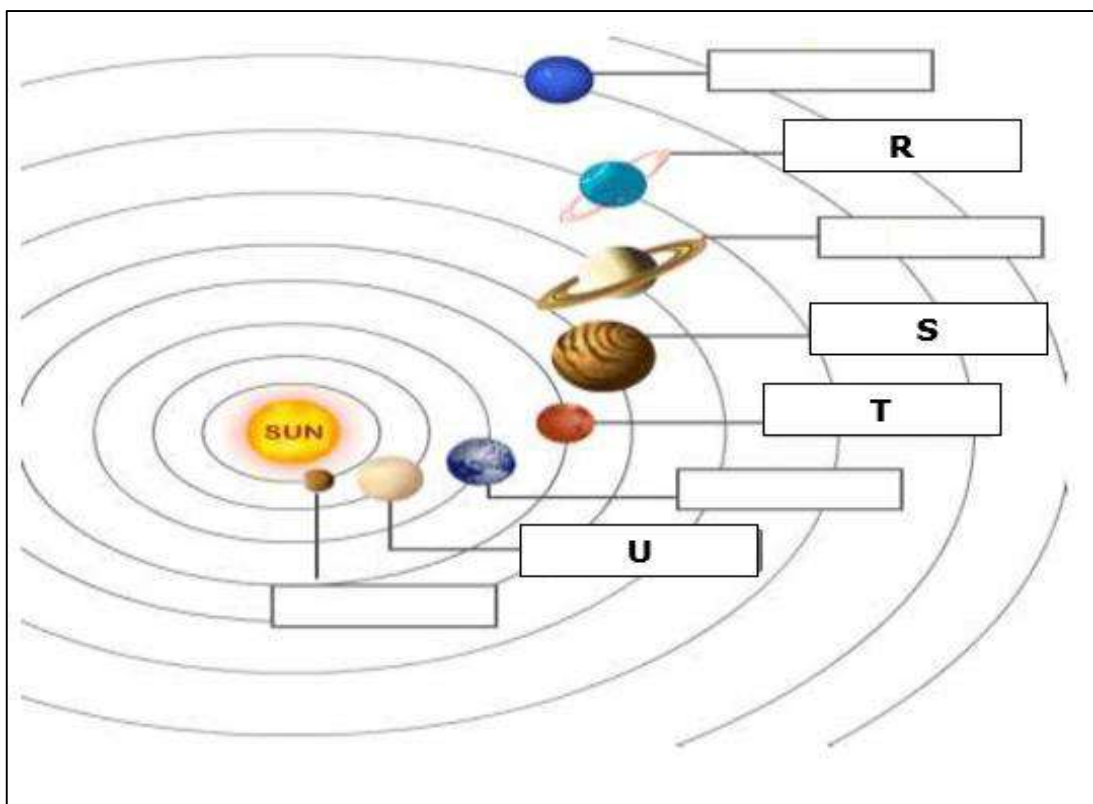
**THIS SECTION IS WORTH 50 MARKS. ANSWER ALL QUESTIONS IN THE SPACE PROVIDED. IF YOU NEED MORE SPACE TO WRITE YOUR ANSWERS, USE THE PAGE(S) PROVIDED AT THE BACK OF THIS BOOKLET.**

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**QUESTION 21.    RESOURCES    (16 MARKS)**

**A.    Origin of Elements**

The diagram below shows the planets within the Solar system. Use this diagram to answer the question 21 (A1).



*Fig D: 'Diagram' showing the arrangement of planets in the solar system.*

1. Give the names of the **planets** labelled:

R: \_\_\_\_\_

T: \_\_\_\_\_

(2 marks)

2. Write the chemical formula for the TWO (2) compounds below.

Sodium Carbonate: \_\_\_\_\_

Magnesium Hydroxide: \_\_\_\_\_

(2 marks)

**B. Mineral Resource**

List FOUR (4) **characteristics** of minerals that qualify them to become minerals in the spaces provided below.

i. \_\_\_\_\_

ii. \_\_\_\_\_

iii. \_\_\_\_\_

iv. \_\_\_\_\_

(4 marks)

**C. Properties of Metals.**

The uses of metals depend on their properties. Write down the properties that correspond to these descriptions in the table below.

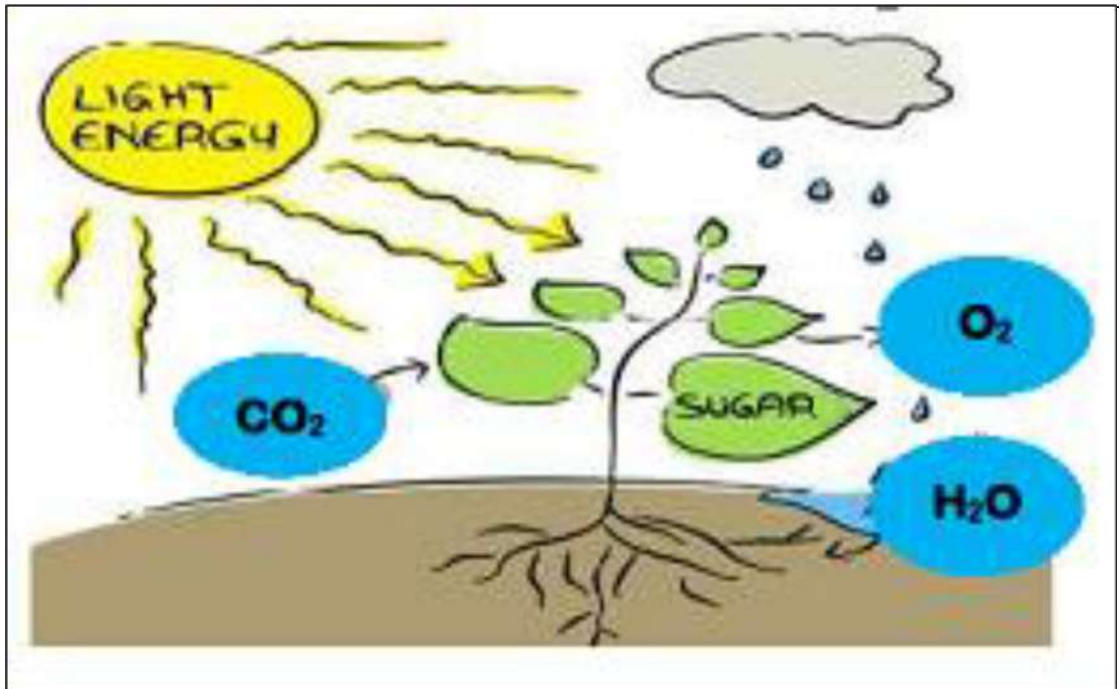
	Description	Properties of metals
i.	Can be pulled/stretched into wires	
ii.	Can be beaten or flattened into different shapes.	
iii.	Allows heat and electricity to flow.	
iv.	This is because the lattice arrangement of atoms offers a very regular/smooth surface.	

(4 marks)



D. Energy Resources

Study the diagram below that shows the process of photosynthesis and answer questions (a and b).



a. List any TWO (2) raw materials essential for the photosynthesis process.

i. \_\_\_\_\_

ii. \_\_\_\_\_

(2 marks)

b. List TWO (2) products of the photosynthesis process.

i. \_\_\_\_\_

ii. \_\_\_\_\_

(2 marks)

TOTAL MARKS FOR SECTION B: Q21:

16

**QUESTION 22. ELECTRICITY AND LIGHT (10 MARKS)**

**A. Static Electricity**

1. Peter took his plastic ruler and rubbed it against a paper towel. When he had done this, he brought the plastic ruler near the hairs on his arm. Surprisingly, he saw and felt the hairs on his arm sticking upwards towards the ruler.

**Fill in the table below by describing electron movement and the charge the ruler possesses before and after rubbing.**

ACTIVITY	ELECTRON MOVEMENT	CHARGE
Before rubbing		
After rubbing		

(4 marks)

**B. Electric Circuits and Appliances**

1. Explain what a parallel circuit is;

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(2 marks)

2. The two terms, conductors and insulators are useful in electricity. Explain the difference between **conductors** and **insulators**.

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(2 marks)

**C. Property of light**

1. Refraction refers to the property of light when it enters one medium from another. Explain the term **refraction**.

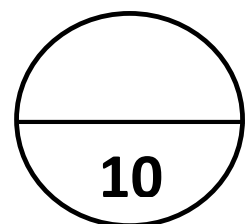
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(2 marks)

TOTAL MARKS FOR SECTION B: Q 22



**QUESTION 23. CONSIDERING OUR FUTURE (10 MARKS)**

**A. Local environmental concerns**

1. Describe the following environmental terms.

i. Environment

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(2 marks)

ii. Ecosystem

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(2 marks)

2. In the table below, write either renewable or non-renewable for the given materials.

No.	Materials	Resource
i.	Coconut	
ii.	Gold	

(2 marks)

**B. South Pacific Environmental concerns**

Commonly, people in the Pacific are harvesting their timber resources mainly for round logs and sawn timbers exported for financial benefits.

Explain TWO (2) disadvantages of this kind of practice.

(i) \_\_\_\_\_

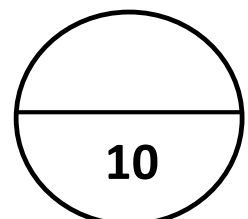
\_\_\_\_\_

(ii) \_\_\_\_\_

\_\_\_\_\_

(4 marks)

**TOTAL MARKS FOR SECTION B: Q.23**



**QUESTION 24. THE HUMAN SYSTEM (14 MARKS)**

**A. Reproduction and Growth**

List any TWO (2) signs that are likely to be felt by females during pregnancy.

- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_

(2 marks)

**B. Nutrition Lifestyle and Diseases**

Explain the main function of **carbohydrates** in the human diet.

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(2 marks)

**C. Blood Transport**

(i) State any TWO (2) functions of **blood** in the human system.

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(2 marks)

(ii) State the **function** of red blood cells and white blood cells.

(a) red blood cells: \_\_\_\_\_

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(b) white blood cells: \_\_\_\_\_

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(2 marks)

(iii) Explain the function of **Haemoglobin**.

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(2 marks)

D. Movement and Coordination.

Heart attack occurs when there is a **block** inside the arteries that supplies blood to the heart.

(i) Explain the cause of the **block** that occurs inside the arteries.

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(2 marks)

(ii) Describe the characteristics of the **alveoli** that facilitate gas exchange.

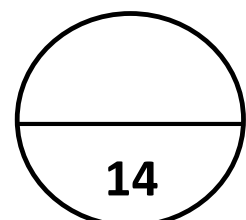
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(2 marks)

TOTAL MARKS FOR SECTION B: Q.24



**SECTION C: LONG ANSWER QUESTIONS****(30 MARKS)**

**THIS SECTION IS WORTH 30 MARKS. ANSWER ALL QUESTIONS IN THE SPACE PROVIDED. IF YOU NEED MORE SPACE TO WRITE YOUR ANSWERS, USE THE BLANK PAGE PROVIDED AT THE END OF THIS BOOKLET.**

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**QUESTION 25. RESOURCES (10 MARKS)****A. Origin of elements**

**Complete the table below by drawing the electronic structure (diagram) for Beryllium (Be) and Sodium (Na) given their atomic number and mass numbers.**

<b>Name of Element</b>	<b>Atomic No:</b>	<b>Mass No:</b>	<b>Electronic Structure (diagram):</b>
Be	4	8	
Na	11	23	

**(4 marks)**

**B. Mineral Resources**

A group of Form 3 students were asked to investigate the behaviour of Magnesium (Mg), Zinc (Zn), Aluminium (Al) and Iron (Fe) in cold and hot hydrochloric (HCl) acid. Given equal sizes and shape of these metals;

- (i) Which of the metals would react the **least**?

Metal: \_\_\_\_\_ (1 mark)

- (ii) Write the balanced chemical equation (with formula) for the reaction between magnesium and hydrochloric acid.

\_\_\_\_\_  
(2 marks)

**C. Energy Resources**

Solomon Islands is heavily dependent on fossil fuels for its energy sources.

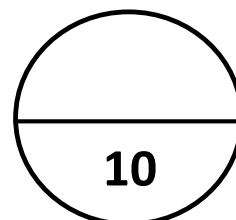
- (i) Explain what is meant by fossil fuels?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(2 marks)

- (ii) Suggest ONE (1) reason why Solomon Islands should not depend entirely on fossil fuels.

\_\_\_\_\_  
\_\_\_\_\_  
(1 mark)

TOTAL MARKS FOR SECTION C: Q.25





**QUESTION 26. ELECTRICITY AND LIGHT (6 MARKS)**

**A. Electrical circuits**

1. Using appropriate symbols, draw a **series circuit** containing the following components: a cell, connecting wires, two bulbs, ammeter and switch.



(3 marks)

2. Joy was asked to compare the brightness of bulbs in a circuit when connecting in series and parallel.

- (i) Where would Joy expect to see the bulb brighter?

\_\_\_\_\_

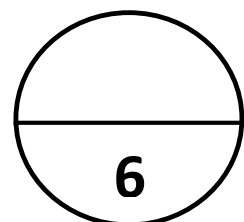
(1 mark)

- (ii) Explain the reason for her observation:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(2 marks)

TOTAL MARKS FOR SECTION C: Q.26



**QUESTION 27.      CONSIDERING OUR FUTURE      (4 MARKS)**

**A recent article on climate change reported that number of “low-lying Islands in the Pacific are slowly sinking and undergone severe coastal erosion as a result from global warming.”**

- i. Explain how global warming could have resulted in severe erosion damage to coast lines.

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(2 marks)

- ii. Give ONE (1) recommendation for the people who live on these eroding low lying islands.

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(1 mark)

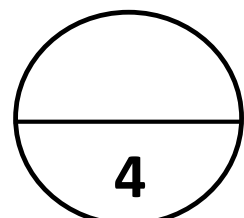
- iii. Give ONE (1) recommendation for the Government to consider what to do with these vanishing and eroding low lying islands dwellers?

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(1 mark)

**TOTAL MARKS FOR SECTION C: Q.27**



**QUESTION 28. HUMAN SYSTEMS (10 MARKS)**

**A. Reproduction and Growth**

1. In the male reproductive system, write down the **functions** of the following organs.

(i) Testis:

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(1 mark)

(ii) Semen:

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(1 mark)

2. Explain what is meant by “**vasectomy**”.

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(2 marks)

**B. Nutrition, lifestyle and diseases**

Explain the functions of the following organs in the human digestive system.

<b>Organ</b>	<b>Function</b>
(i) Gall bladder	
(ii) Small intestine	
(iii) Large intestine	

(3 marks)

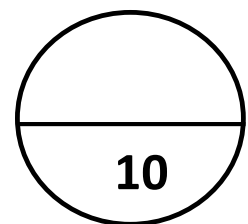
**C. Movement and Coordination**

Write down ONE (1) of the main functions of the following **endocrine glands**.

<b>Glands</b>	<b>Function</b>
Adrenal gland	
Thyroid gland	
Gonads	

(3 marks)

**TOTAL MARKS FOR SECTION C: Q.28**



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**SIY9 – SCIENCE 2018**

**CENTRE NUMBER**

**CANDIDATE NUMBER**

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**ANSWER SHEET  
MULTIPLE CHOICE**

Write clearly the letter of the correct answer in the box provided. Make sure your answer is put alongside the right question number

1

11

2

12

3

13

4

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20

**FOR MARKER USE**

SECTION	MARKS	MARKER	SCRIPT CHECKER
<b>A</b>	<b>20</b>		
<b>B: Q21</b>	<b>16</b>		
<b>B: Q22</b>	<b>10</b>		
<b>B: Q23</b>	<b>10</b>		
<b>B: Q24</b>	<b>14</b>		
<b>C: Q25</b>	<b>10</b>		
<b>C: Q26</b>	<b>6</b>		
<b>C: Q27</b>	<b>4</b>		
<b>C: Q28</b>	<b>10</b>		
<b>TOTAL</b>	<b>100</b>		
<b>Marker / Checker Initial</b>			