



Centre Number	Candidate Number

MINISTRY OF EDUCATION AND HUMAN RESOURCE DEVELOPMENT

## SOLOMON ISLANDS YEAR 9 EXAMINATION

2020

SCIENCE

### QUESTION AND ANSWER BOOKLET

THURSDAY 12<sup>th</sup> NOVEMBER 9.00AM

Time: 2 Hours plus 10 minutes  
Reading time

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

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

#### INSTRUCTIONS

- DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
- WRITE BOTH YOUR CENTRE NUMBER AND CANDIDATE NUMBER IN THE BOX PROVIDED AT THE TOP RIGHT HAND CORNER OF THIS PAGE AND AT THE END OF THIS BOOKLET.
- BEFORE YOU BEGIN EACH PART, READ THROUGH THE INSTRUCTIONS CAREFULLY.
- WRITE YOUR BEST ANSWERS TO **SECTION A** IN THE BOXES PROVIDED AT THE END OF THIS BOOKLET.
- WRITE YOUR ANSWERS TO **SECTIONS B AND C** IN THE SPACES PROVIDED IN THIS BOOKLET.
- DO NOT USE CORRECTION FLUID.
- MOBILE PHONES ARE NOT ALLOWED IN THE EXAMINATION ROOM.

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

**THIS BOOKLET CONTAINS 26 NUMBERED PAGES**



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

**ANSWER ALL THE QUESTIONS IN THIS SECTION. WRITE YOUR BEST ANSWERS IN THE BOXES PROVIDED AT THE END OF THIS BOOKLET. EACH QUESTION IS WORTH 1 MARK.**

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**Study the diagram below and answer question 1.**



*Fig A: 'Diagram showing a planet in the solar system'.*

1. You would correctly identify this planet as;
- A. Venus
  - B. Saturn
  - C. Uranus
  - D. Mercury

**The table below shows some information about the different layers of the Earth.**

Layer of the Earth	<b>(I)</b>	<b>(II)</b>	<b>(III)</b>	<b>(IV)</b>
Depth (km)	200	2700	2300	1200
Density (gcm <sup>-3</sup> )	2.6-3.0	3.3-9.0	12.3-13.3	13.6
Temperature (°C)	1050	3700	2200-4500	
Description	Solid thin layer; made up of light weight rocks, soil and the common elements.	Solid layer made up of a very thick layer of rock minerals particularly rich in silicates, iron and magnesium	The layer is in a liquid state, which is believed to be made up of nickel and iron under high temperatures	The layer is in a solid state because of very great pressure.

2. The layer of the Earth represented by **(II)** in the *table on page 1* is the;
- A. Crust.
  - B. Mantle.
  - C. Inner core.
  - D. Outer core.

**Minerals are beautiful and attractive because they are colourful.**

3. What environmental **condition** makes minerals colourful?
- A. Soil
  - B. Light
  - C. Water
  - D. Chemical
4. The **activity** that breaks down larger rock particles to smaller rock particles is called;
- A. erosion.
  - B. flooding.
  - C. pollution.
  - D. weathering.
5. Which **metal property** enables roofing iron materials to be hammered into sheets?
- A. Density
  - B. Ductility
  - C. Malleability
  - D. Conductivity

A Year 9 student carried out an experiment investigating on how a nail corrodes or rusts. The student observed the following results:

- (i) fresh water and nail in open test-tube (full rusting occurred)
- (ii) fresh water and nail in closed test-tube (no rusting occurred)
- (iii) boiled water and nail in open test-tube (less rusting occurred)
- (iv) nail in open clean and dried test-tube (no rusting occurred)

6. From the experiment above, the student concluded, the factors responsible for corrosion of the nail are;

- A. oxygen and moisture.
- B. test-tube and oxygen.
- C. oil and carbon dioxide.
- D. carbon dioxide and moisture.

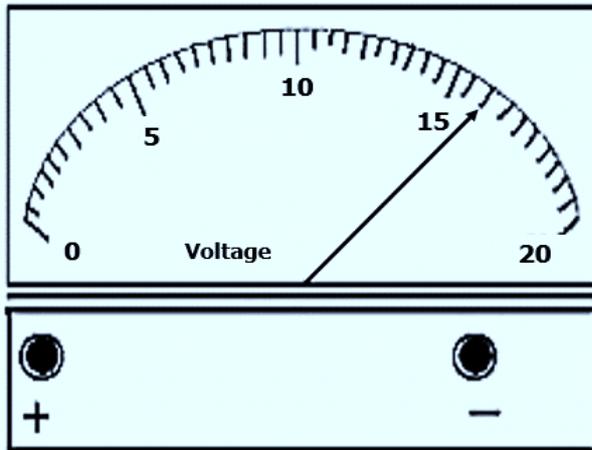
7. The energy the hydro-power station converts comes from the;

- A. sun
- B. wind
- C. water
- D. wave

8. The particle which possess a **positive** charge is;

- A. a proton.
- B. an atom.
- C. a neutron
- D. an electron.

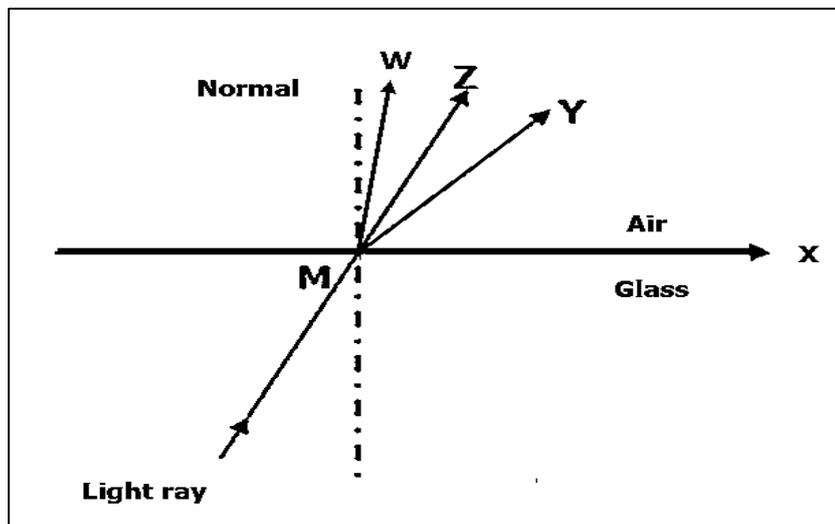
Study the diagram below and answer question 9.



9. The reading shown by the voltmeter above is:

- A. 15.5 V
- B. 16.0 V
- C. 16.5 V
- D. 17.0 V

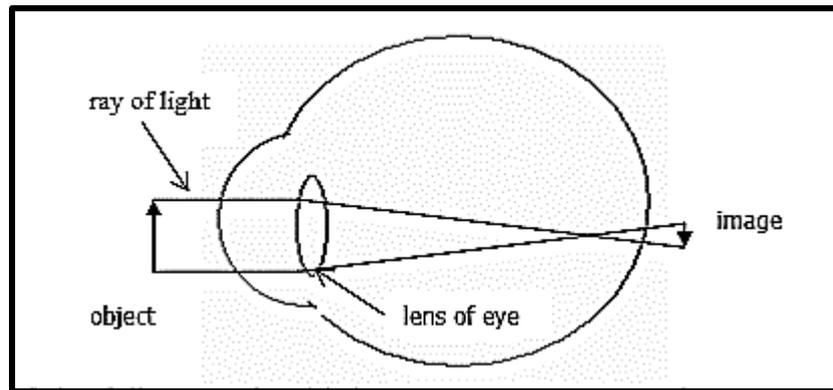
10. A ray of light passes from glass to air as illustrated in the diagram below.



The path of the ray of light after it has been **refracted** is shown by;

- A. ray MX
- B. ray MW
- C. ray MY
- D. ray MZ

11. Elizabeth went to an optician (eye specialist) to have her eyes checked. Below is a sketch of Elizabeth's eye, to show her the cause of her blurry vision.

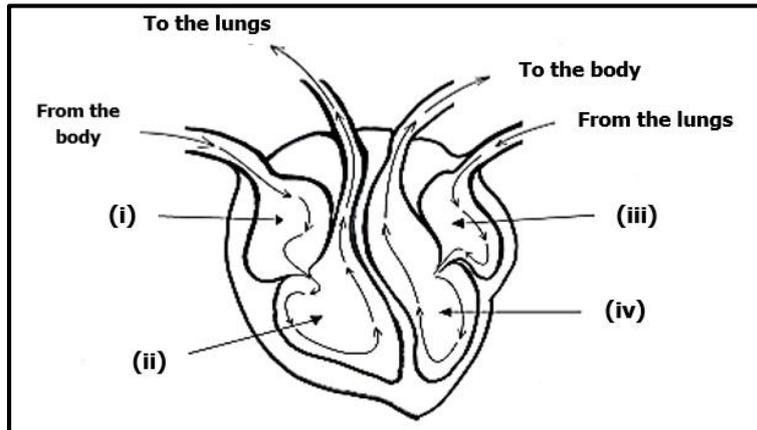


- Which of the following should the optician recommend to Elizabeth to correct her vision?
- A. Plain glasses
  - B. Diverging lenses
  - C. Converging lenses
  - D. Magnifying glasses
12. All of these are **abiotic factors** found in the local marine ecosystem, EXCEPT;
- A. fish
  - B. sand
  - C. waves
  - D. current
13. Plants use the sun's **energy** through what process?
- A. Erosion
  - B. Respiration
  - C. Transpiration
  - D. Photosynthesis
14. The major environmental issue or problem facing low-lying atoll islands in the South Pacific is;
- A. Logging.
  - B. poor health.
  - C. sea-level rise.
  - D. food insecurity.

15. The main gas responsible for causing the green-house effect is;
- A. oxygen.
  - B. nitrogen.
  - C. hydrogen.
  - D. carbon dioxide.
16. The cause of global warming is the;
- A. sea level rise in the coastal areas.
  - B. trapping of heat in the atmosphere.
  - C. sinking of low lying atolls in the pacific.
  - D. ice-melting in the north and south poles.
17. The **structure** responsible to supply air for breathing of a growing baby in the mother's womb is the;
- A. urethra.
  - B. placenta.
  - C. sperm duct.
  - D. umbilical cord.

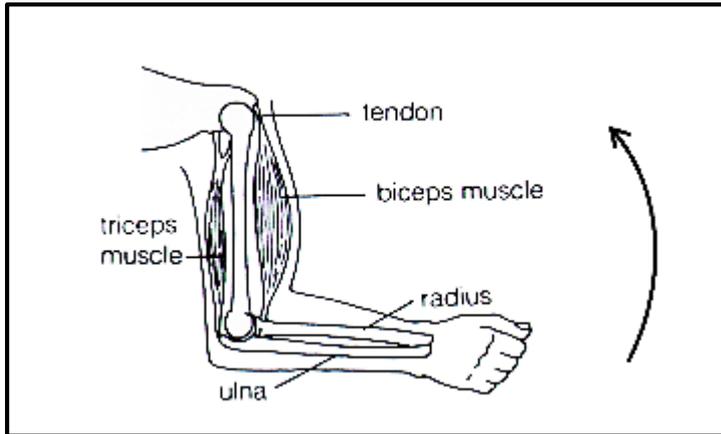
18. Which structures of the digestive system carries out (i) physical breakdown of food particles and (ii) absorb water respectively?
- A. Mouth and small intestine.
  - B. Mouth and large intestine.
  - C. Stomach and small intestine.
  - D. Oesophagus and small intestine.

**Use Figure 'E' below to answer question 19.**



19. The **left auricle** of the heart can be correctly identified as;
- A. (i)
  - B. (ii)
  - C. (iii)
  - D. (iv)

Use Figure 'F' below to answer question 20.



20. What actions of **triceps** and **biceps** muscles cause this movement of the arm above?

(i) triceps relax, (ii) biceps relax, (iii) triceps contract, (iv) biceps contract

- A. (i) & (iv)
- B. (ii) & (iii)
- C. (iii) & (i)
- D. (iv) & (iii)

TOTAL MARKS FOR MC: Q1-20

20

**SECTION B: SHORT ANSWER QUESTIONS (50 MARKS)**

THIS SECTION IS WORTH 50 MARKS. ANSWER ALL QUESTIONS IN THE SPACES PROVIDED.

**Question 21: Resources (16 marks)**

**A. Origin of Elements**

1. Most elements are mainly found in the crust layer of the earth.

i. Write down the **chemical symbols** for the following elements.

Helium : \_\_\_\_\_

Boron : \_\_\_\_\_

(2 marks)

ii. Write down the **names** for the following chemical formula.

H<sub>2</sub>O : \_\_\_\_\_

NaCl : \_\_\_\_\_

(2 marks)

## B. Mineral Resource

1. Write down the **correct names of rocks** which correctly matches the rock description in the table below.

<b>Rock Description</b>	<b>Name of rock type</b>
These are rocks made from volcanic activities. They are formed from the cooled down and solidified magma with dissolved gas.	
These are rocks made from particles of other rocks. They are formed by the rising up of coral and other deposited materials on the sea floor which form solid rocks as a result of being pressed together or have been cemented together with minerals.	
These are formed when there are changes to rocks caused by great heat or pressure within the earth's crust so that the characters and appearance of the original rock changes.	

(3 marks)

2. Gold (Au) is classified as one of the Solomon Islands mineral resources. What type of a resource does gold belong to?

Gold (Au) Type of Resource: \_\_\_\_\_

(1 mark)

### C. Properties of Metals.

1. Metals react with other materials – dilute acids, oxygen and so on.

i. Write the products when metals react with Oxygen and water respectively.

Reactants	Products
Metal + Oxygen	
Metal + Water	

(2 marks)

ii. Write the **name** and **chemical symbol** of the metal which is liquid at room temperature.

Name of metal: \_\_\_\_\_

Chemical symbol: \_\_\_\_\_ (2 marks)

### D. Energy Resources

1. Fossil fuel is one of the **ultimate sources** of energy on earth. Answer questions (i and ii) that follow.

i. State TWO (2) uses of the form of energy.

a. \_\_\_\_\_  
\_\_\_\_\_

b. \_\_\_\_\_  
\_\_\_\_\_

(2 marks)

ii. State TWO (2) **disadvantages** of using the energy.

a. \_\_\_\_\_  
\_\_\_\_\_

b. \_\_\_\_\_  
\_\_\_\_\_

(2 marks)

TOTAL MARKS FOR SECTION B: Q 21

16

**Question 22: Electricity and light**

**(9 marks)**

**A. Static Electricity**

1. The outer electrons of atoms are free and can move from atom to atom. These movements of electrons cause an atom to become, either, negatively or positively charged.

i. State the **reason** why an atom is negatively charged.

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

ii. State the **results** of the following situations:

Like-charges: \_\_\_\_\_

Unlike-charges: \_\_\_\_\_ (2 marks)

**B. Electric Circuits and Appliances**

1. For a current to flow, a complete circuit is required.

i. Describe what a circuit is.

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

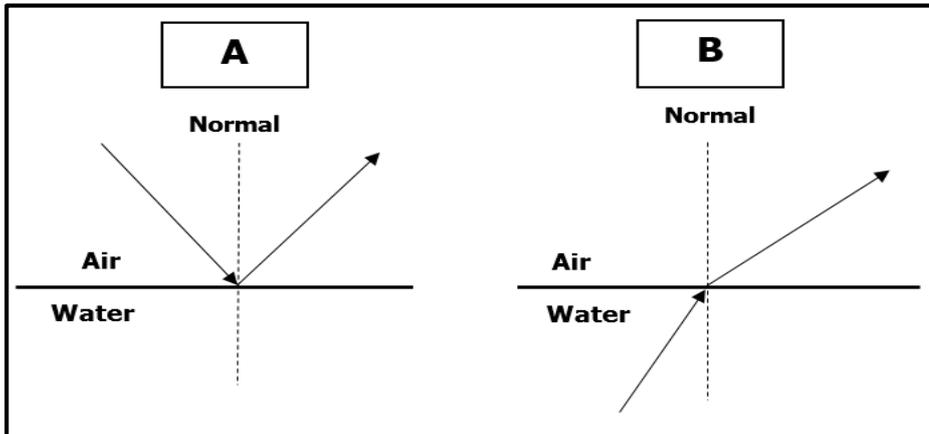
ii. Current and voltage can be measured in a circuit. Complete the table below by filling in the **unit symbol** and **instrument** that used to measure current.

<b>Circuit component</b>	<b>Unit</b>	<b>Instrument</b>
Current		

(2 marks)

### C. Property of light

Below are two diagrams that show what happens when a ray of light strikes two different surfaces as labelled **A** and **B**.



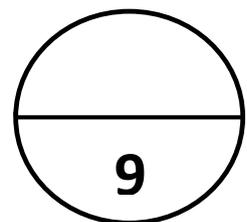
State what is happening to each ray of light after it strikes each surface.

**Surface A:** \_\_\_\_\_

**Surface B:** \_\_\_\_\_

(2 marks)

TOTAL MARKS FOR SECTION B: Q 22



**Question 23: Considering our future**

**(9 Marks)**

**A. Local environment concern**

1. Solomon Islanders have interacted with the various ecosystems found in their locality and have benefited from them in many ways. Name one ecosystem you have studied.

i. Write down TWO (2) reasons why this **ecosystem** is very important to you and your family.

Name of ecosystem: \_\_\_\_\_ (1 mark)

Reasons:

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

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

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

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

ii. Describe TWO (2) likely **effects** on the natural resources in Solomon Islands associated with continued population increase.

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

iii. Explain what a **food web** is.

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

**B. Environmental concerns**

1. Human actions are causing the destruction of ecosystems.  
Explain how the ecosystem is being destroyed by humans.

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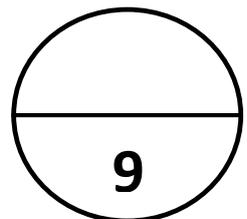
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(2 marks)

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

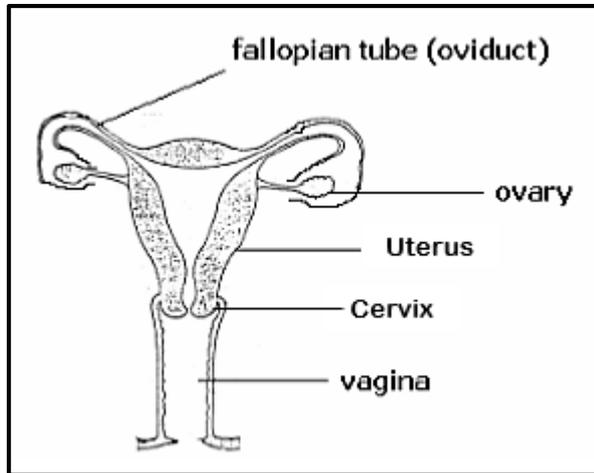


**Question 24: The Human System**

**(16 marks)**

**A. Reproduction and Growth**

1. Below is a diagram of a female reproductive system.



i. Complete the table below by correctly writing down the name of each female reproductive organ against their correct function.

Function	Parts
<ul style="list-style-type: none"><li>• Receive sperm so act as passage way for sperm</li><li>• Act as birth canal of new born baby and passage way for menstrual flow.</li></ul>	
<ul style="list-style-type: none"><li>• Embryo develops and nourished before birth.</li><li>• Enlarged during pregnancy to accommodate growing foetus.</li></ul>	
<ul style="list-style-type: none"><li>• Bottom part – neck of uterus which act as a stopper that retains growing embryo during pregnancy.</li></ul>	
<ul style="list-style-type: none"><li>• Produces the ovum or egg.</li><li>• Produce female sex hormone – <b>Estrogen</b></li></ul>	

(4 marks)

When a baby is born after 40 weeks of normal pregnancy, it is highly recommended for mothers to breast feed their babies. The **first milk** produced from the mother's breast is called colostrum.

ii. State TWO (2) reasons why the first milk (colostrum) is very important to babies.

a. \_\_\_\_\_  
\_\_\_\_\_

b. \_\_\_\_\_  
\_\_\_\_\_

(2 marks)

iii. State any TWO (2) **advantages** of breast feeding.

a. \_\_\_\_\_  
\_\_\_\_\_

b. \_\_\_\_\_  
\_\_\_\_\_

(2 marks)

## B. Nutrition Lifestyle and Diseases

1. The three main food groups are listed on the table below. State the function of each food group.

Food Group	Function
Carbohydrates	
Protein	
Fats and Oils	

(3 marks)

**C. Blood Transport**

1. Red blood cells contain haemoglobin which gives blood its red colour.

List any TWO (2) functions of haemoglobin.

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

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

(2 marks)

2. Blood is carried around the body in small tubes called **blood vessels**.  
Blood is moved through these vessels by the pumping action of the heart.

Name the THREE (3) **vessels** that transport blood throughout the body.

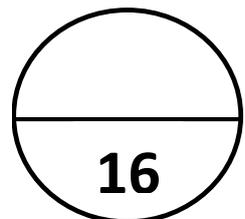
i. \_\_\_\_\_

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

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

(3 marks)

TOTAL MARKS FOR SECTION B: Q 24





2. Draw the **atomic structure** of a phosphorus element on the space provided below.



(4 marks)

**B. Mineral Resources**

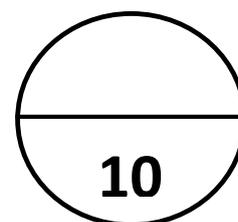
1. Write a **balance chemical equation** for the chemical reaction below.

Magnesium + Hydrochloric acid → Magnesium Chloride + Hydrogen gas

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(2 marks)

TOTAL MARKS FOR SECTION C: Q 25



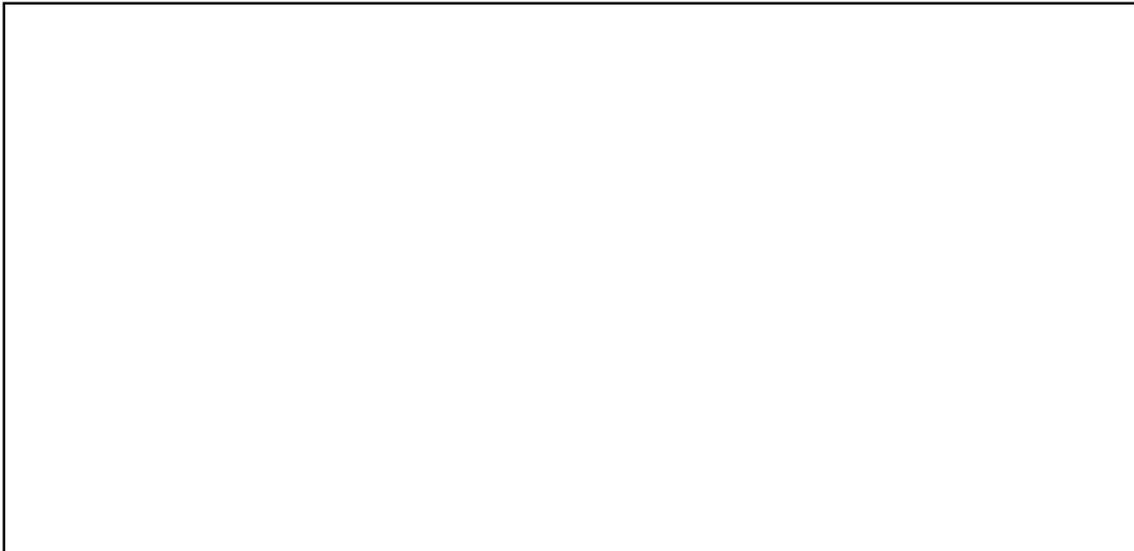
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**Question 26: Electricity and light**

**(6 marks)**

**A. Electrical circuits**

1. Draw a **series circuit** containing the following components: a cell, connecting wires, two bulbs, ammeter connected between the switch and the first bulb and a switch between the cell and ammeter.



(4 marks)

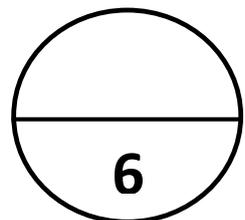
2. Two types of electrical currents, namely DC and AC can be generated.  
i. Give any TWO (2) differences between DC and AC.

(a) \_\_\_\_\_  
\_\_\_\_\_

(b) \_\_\_\_\_  
\_\_\_\_\_

(2 marks)

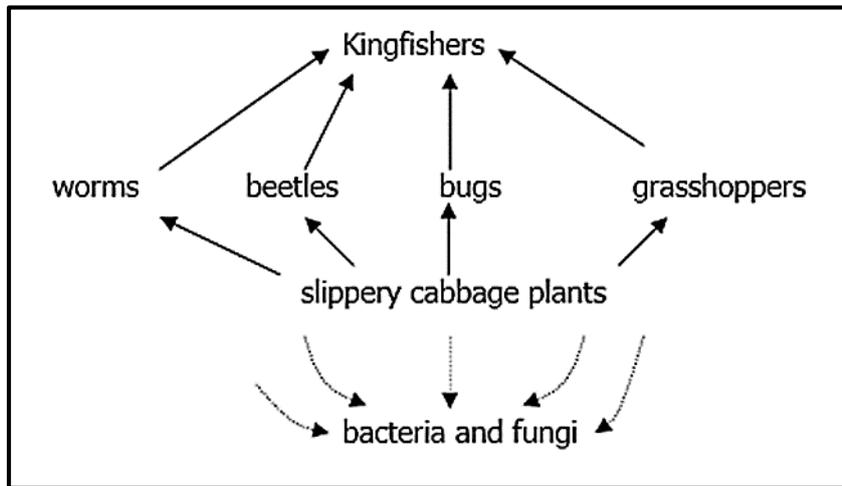
TOTAL MARKS FOR SECTION C: Q 26



**Question 27: Considering our Future**

**(4 marks)**

1. A food web for a typical school vegetable garden is shown below. Answer questions (i and ii) that follow.



- i. Explain what a **food web** is.

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(2 marks)

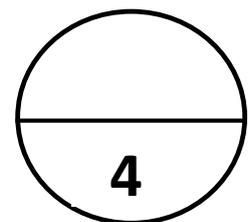
- ii. Name TWO (2) herbivores from the food web above.

(a) \_\_\_\_\_

(b) \_\_\_\_\_

(2 marks)

TOTAL MARKS FOR SECTION C: Q 27



**Question 28: HUMAN SYSTEMS**

**(10 marks)**

**A. Nutrition, lifestyle and diseases**

1. Complete the table below by filling in the function of the organs.

<b>Organ</b>	<b>Function</b>
Mouth	
Oesophagus	
Small intestine	

(6 marks)

**B. Movement and Coordination**

1. Fill in the table below by stating the parts of the human eye.

<b>Description</b>	<b>Parts of the eye</b>
Surrounded by a circular ring of tissue called the Iris. This is the coloured part (can be brown, black or blue).	
Inner surface of the eye ball is lined with a delicate layer of tissue and contains millions of receptor cells	
Located behind the pupil and is placed in position by ligaments where runs from its edge to the ciliary muscles.	

(3 marks)

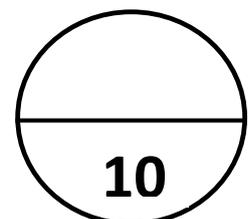
2. State what is meant by a function of the eyes as the "mirrors of the soul".

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(1 mark)

TOTAL MARKS FOR SECTION C: Q 28



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# SIY9 – SCIENCE 2020

## 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			14	
5			15	
6			16	
7			17	
8			18	
9			19	
10			20	

CENTRE NUMBER

CANDIDATE NUMBER

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### FOR MARKER AND CHECKER USE ONLY

SECTION	MARKS	MARKER MARKS	CHECKER MARKS
A	20		
B: Q21	16		
B: Q22	9		
B: Q23	9		
B: Q24	16		
C: Q25	10		
C: Q26	6		
C: Q27	4		
C: Q28	10		
<b>TOTAL</b>	<b>100</b>		
<b>Marker and Checker Initials</b>			

