



Centre Number	Candidate Number

MINISTRY OF EDUCATION AND HUMAN RESOURCES DEVELOPMENT

# SOLOMON ISLANDS YEAR 9 EXAMINATION

2015

## SCIENCE

### QUESTION AND ANSWER BOOKLET

THURSDAY 5<sup>th</sup> NOVEMBER 9:00 AM

TIME: 2 HOURS plus  
10 MINUTES

<u>SECTIONS</u>	<u>CONTENT</u>	<u>MARKS</u>
A	Multiple Choice Questions	20
B	Short Answer Questions	80

<p align="center"><b><u>INSTRUCTIONS TO CANDIDATES</u></b></p> <ol style="list-style-type: none"> <li>DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.</li> <li>WRITE BOTH YOUR CENTRE NUMBER AND CANDIDATE NUMBER IN THE BOX PROVIDED AT THE TOP RIGHT HAND CORNER OF THIS PAGE.</li> <li>BEFORE YOU BEGIN EACH PART, READ THROUGH THE INSTRUCTIONS CAREFULLY.</li> <li>WRITE BEST ANSWER LETTERS TO <b>SECTION A</b> IN THE FOLD OUT FLAP OF THIS BOOKLET.</li> <li>WRITE YOUR ANSWERS TO <b>SECTION B</b> IN THE SPACES PROVIDED IN THIS BOOKLET.</li> <li>USE 10 MINUTES READING TIME TO READ THROUGH THE PAPER.</li> </ol>		
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THIS BOOKLET CONTAINS 26 NUMBERED PAGES.

**SECTION A:**            **MULTIPLE CHOICE QUESTIONS**

**(20 MARKS)**

**ANSWER ALL THE QUESTIONS IN THIS SECTION.**

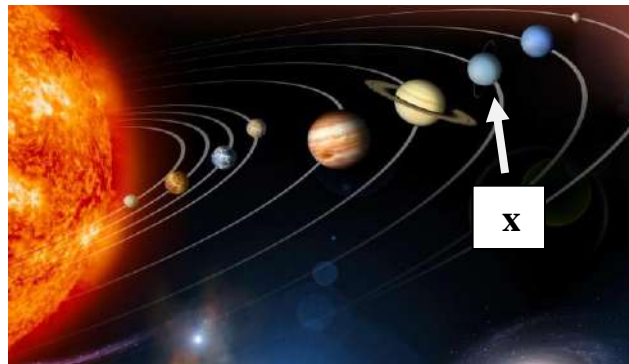
**WRITE THE LETTER OF THE BEST ANSWER IN THE BOXES ON THE FOLD-OUT FLAP. IF YOU CHANGE YOUR ANSWER, PUT A CROSS THROUGH THE FIRST ANSWER AND WRITE YOUR NEW CHOICE BESIDE THE BOX.**

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***Use Fig. I below to answer question 1.***

1.     The planet labelled **x** is;

- A.     Jupiter.
- B.     Saturn.
- C.     Uranus.
- D.     Neptune.

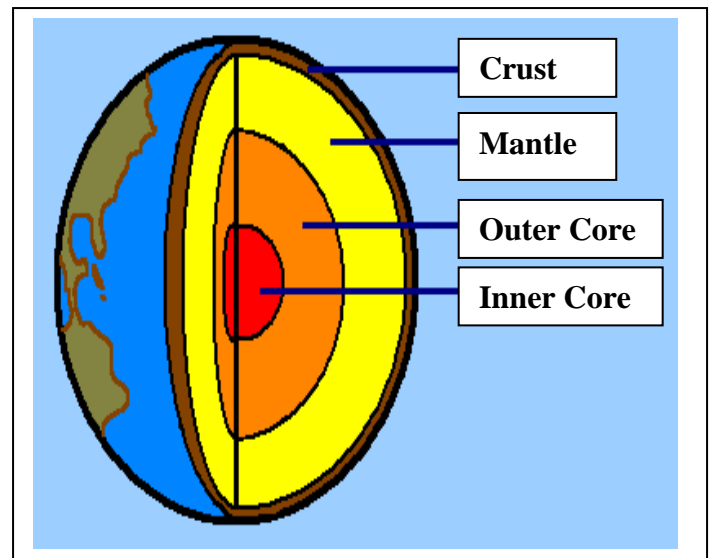


**Fig. I: A photograph of the nine planets of the solar system.**

***The diagram below shows the different cross sections or layers of the earth.***

2.     The layer of the earth that is liquid and contains Iron and Nickel is;

- A.     Crust.
- B.     Mantle.
- C.     Outer Core.
- D.     Inner Core.



**Fig. II: Cross section of the earth.**

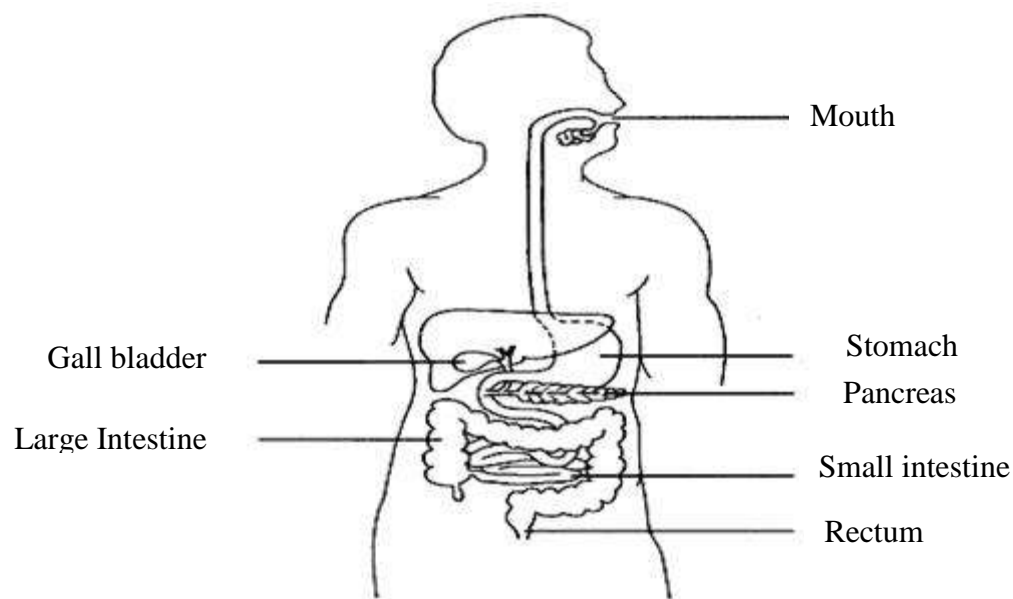
3. Element **A** has 6 electrons and element **B** has 8 electrons. Which statement is TRUE for the TWO elements?
- A. Both elements are in the same group and period of the periodic table.
  - B. Both elements have the same number of electrons in their outer most shell.
  - C. Both elements are in the same group but different period of the periodic table.
  - D. Both elements are in the same period but different group of the periodic table.
4. If a Group I metal reacts with Chlorine, the product would be a
- A. Chlorite.
  - B. Chloride.
  - C. Halides.
  - D. Carbonates.
5. Ductility is the ability of metals to
- A. resist corrosion.
  - B. conduct electricity.
  - C. be drawn into rods or wires.
  - D. make clinging sounds.
6. The correct energy flow diagram involving the Sun, plant, and animals would be;
- A. Sun → cassava → pig → Tom.
  - B. Sun → cassava ← pig → Tom.
  - C. Sun ← cassava ← pig ← Tom.
  - D. Sun ← cassava → pig ← Tom.

7. To produce static electricity, which component of a substance is been transferred?
- A. Atoms.
  - B. Electrons.
  - C. Neutrons
  - D. Proton
8. Which of the terms below sometimes referred to as the potential difference or electrical potential?
- A. Power.
  - B. Voltage.
  - C. Current.
  - D. Resistance.
9. Billy received his Electricity Bill for the month of June and found that he would have to pay \$10.00 for the power used in that month. If the cost of electricity per kilowatts is \$0.50 cents, how much power did he use during the month?
- A. 20 kilowatts.
  - B. 50 kilowatts.
  - C. 200 kilowatts.
  - D. 500 kilowatts.
10. If Patrick has difficulty focusing on close objects but could see clearly far objects, he has a vision defect known as
- A. Astigmatism
  - B. Night blindness.
  - C. Short sightedness.
  - D. Long sightedness.

11. Which of the following activities is unsustainable that would destroy a forest ecosystem?
- A. Reforestation.
  - B. Managing trees.
  - C. Germination of trees.
  - D. Deforestation.
12. Flying high in the sky, an eagle can focus on a snake on a tree. Then it dives, kills and eats it. Based on this behaviour, which ecological terms describe the eagle?
- A. Predator, carnivore and consumer.
  - B. Predator, producer and herbivore.
  - C. Producer, herbivore and consumer.
  - D. Predator, carnivore and omnivore.
13. Which of the following is an example of an effect of Global warming?
- A. Clearing of large areas of forests for settlement.
  - B. More frequent tropical cyclones and storms.
  - C. Carbon dioxide emissions from burning of fossil fuels from generators.
  - D. Methane emissions from large cattle farms and decaying agricultural wastes such as rice.
14. The collision of the Pacific plate and Indo-Australian plate is an example of
- A. Divergent boundary.
  - B. Destructive boundary.
  - C. Constructive boundary.
  - D. Conservative boundary.
15. The parts of a human reproductive system which are responsible for the production of ova is;
- A. fallopian tubes
  - B. testes.
  - C. ovaries.
  - D. scrotum.

16. A woman wished to prevent any future pregnancies permanently. The doctor's advice was for her to undergo tubal ligation. This practice would fulfil her wish because
- A. It would not allow the sperm to be produced.
  - B. The ovary would cease to release any more eggs.
  - C. It would prevent the sperm from fertilizing the egg.
  - D. The cervix would be reduced and prevent fertilization.

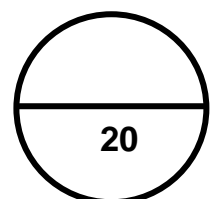
**Study the diagram of the human digestive system shown below to answer Question 17.**



17. In the diagram above, which organ would amino acids, glucose and fatty acids be absorbed into the blood stream?
- A. Stomach
  - B. Gall bladder
  - C. Small intestine
  - D. Large intestine

18. What would be among the greatest health risks in a village where people eat betel nut, sharing lime and rolled tobacco?
- A. TB.
  - B. STD.
  - C. AIDS.
  - D. Bakua.
19. In the human circulatory system, the blood vessel that transports deoxygenated blood from the right side of the heart to the lungs is;
- A. Hepatic vein.
  - B. Hepatic artery.
  - C. Pulmonary vein.
  - D. Pulmonary artery.
20. A hormone that controls the level of sugar in the blood is
- A. Insulin.
  - B. Thyroxine.
  - C. Oestrogen.
  - D. Adrenaline.

**Total mark for MC: Q1-Q20**



**SECTION B:        SHORT ANSWER QUESTIONS****(80 MARKS)****THIS SECTION IS WORTH 80 MARKS. ANSWER ALL QUESTIONS IN THE SPACES PROVIDED.**

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**21.    RESOURCES**

(a)    Study the periodic table below and answer the questions that follow;

I    II								III	IV	V	VI	VII	VIII
												B	
C	D							E	F	G	H	I	J
K	L							M	N	O	P	Q	R
S	T												

i)    Explain why elements **H** and **P** are placed in **Group VI**?

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(2 marks)

ii)    Draw a diagram to show the arrangement of electrons around the element represented by letter **(H)** in the periodic table.

(3 marks)



- iii) Bauxite is an ore that contained a very useful metal and that metal can be extracted using electrolysis. Name that metal and state one of its uses.

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

Use: \_\_\_\_\_ (1 mark)

- (b) Solomon Islands have very large forest timber resources. Over the years, people have used the timber resources, and recently round logs and sawn timbers are being exported for financial benefits.

- i) In the space below, suggest ONE of the ways that people can sustainably harvest their timber from the forest?

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(2 marks)

- ii) Identify from the list of materials whether it is made or extracted from a renewable or non-renewable resource. Write your answer, either, as **renewable** or **non-renewable**.

No	Materials	Resource
1	Exercise Books	
2	Gold	
3	Petrol	

(3 marks)

- (c) A Form 3 student carried out an experiment to investigate what is happening when metals react with acids. He took 5 cm of Magnesium ribbon, cleaned it and then adds it to a solution of Dilute Hydrochloric acid in a test tube. He observed that the reaction is very vigorous with lots of bubbles produced.

- i) What do the bubbles in the test tube indicate?

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(1 mark)

ii) Write a word equation for the above reaction.

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(2 marks)

iii) Using chemical symbols, write the correct chemical equation for the above reaction.

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(2 marks)

iv) Now using your chemical equation in part (iii) above, balance the equation.

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(2 marks)

(d) Sunlight and fossil fuel are the two most used energy sources used by people in Solomon Islands recently.

i) State TWO advantages of using solar energy over fossil fuels.

1. \_\_\_\_\_

2. \_\_\_\_\_

(2 marks)

- ii) The following table provides you with all the information about imported fuel to Solomon Islands from 1993 to 1995. Use the table to answer the following questions.

<b>FUEL IMPORT TO SOLOMON ISLANDS</b>				
<b>Fuel</b>	<b>Q – Litres V – Cost in SI\$</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>
Motor Spirit Petrol	Q	11,973,656	14,765,169	17,061,521
	V	5,477,393	6,890,916	8,732,063
Aviation Gasoline	Q	887,181	841,239	2,082,100
	V	799,911	895,637	2,085,606
Jet Fuel	Q	1,741,827	1,024,648	1,452,184
	V	896,245	627,313	1,135,659
Kerosine White Spirit	Q	2,876,388	2,825,730	2,884,200
	V	1,500,049	1,514,856	1,961,270
Distillate (Diesel)	Q	47,646,482	46,398,348	48,141,989
	V	25,787,855	21,407,422	22,708,761
Lubricating Oils	Q	1,732,489	1,604,721	1,859,650
	V	4,627,922	4,702,211	6,453,457

(Source – Ministry of Finance, Statistic Division)

1. Identify the most used fuel over the 3 year period?

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(1 mark)

2. State TWO purpose or uses of this fuel identified in question 1 above?

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(2 marks)

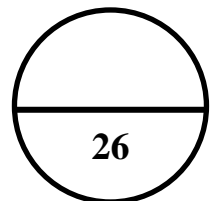
3. State TWO disadvantages of using this fuel identified in question 1 above?

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

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

(2 marks)

**Total mark for Section B: Q21**



## 22. ELECTRICITY AND LIGHT

- (a) 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 are sticking upwards towards the ruler.

i) What is the purpose of rubbing the ruler against a paper towel?

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(1 mark)

ii) Explain why the hairs on his hands is attracted (sticking upwards) towards the plastic ruler? You may use diagram if you wish.

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(2 marks)

iii) Explain why after the plastic ruler and the hairs have been in contact for a short time, the hairs falls back again?

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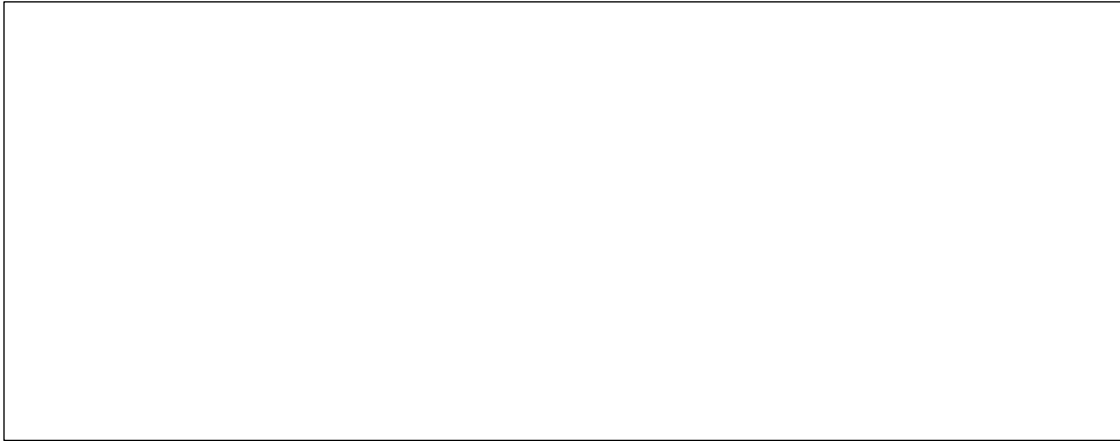
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(2 marks)

- (b) (i) Use the correct symbols to design a series circuit diagram which consists of the following;

***2 switches (1 closed, 1 open), 2 bulbs, connecting wires, a battery of 2 dry cells, voltmeter to measure voltage across the battery and an ammeter to measure the current in the circuit.***



(3 marks)

***2 switches, 3 bulbs, connecting wires, a battery of 2 dry cells, voltmeter to measure voltage across bulb 2 and an ammeter to be connected in series to the 3 bulbs.***

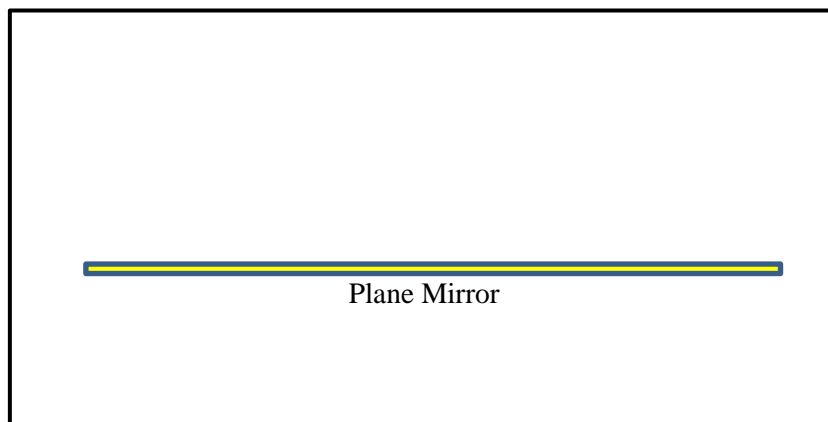
- (ii) Use the above materials to design another circuit that will allow only one bulb to glow when both switches are open, and allow two bulbs to glow when one of the switches is closed.



(3 marks)

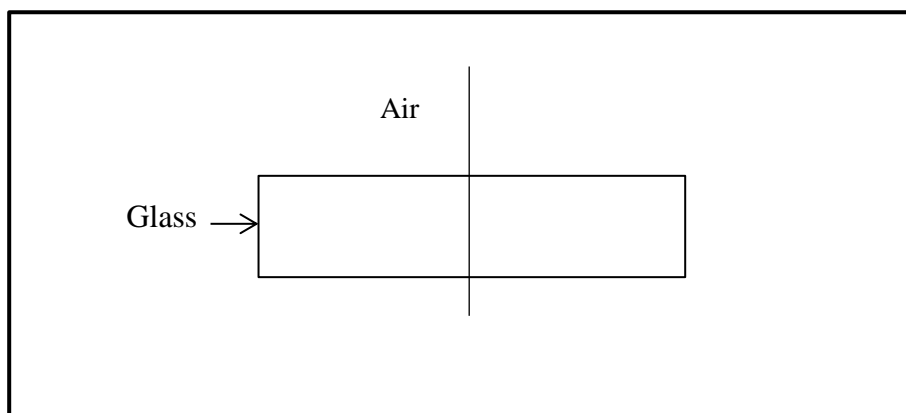
(c) Complete the following diagrams to demonstrate how:

i) Light is reflected from a plane mirror.



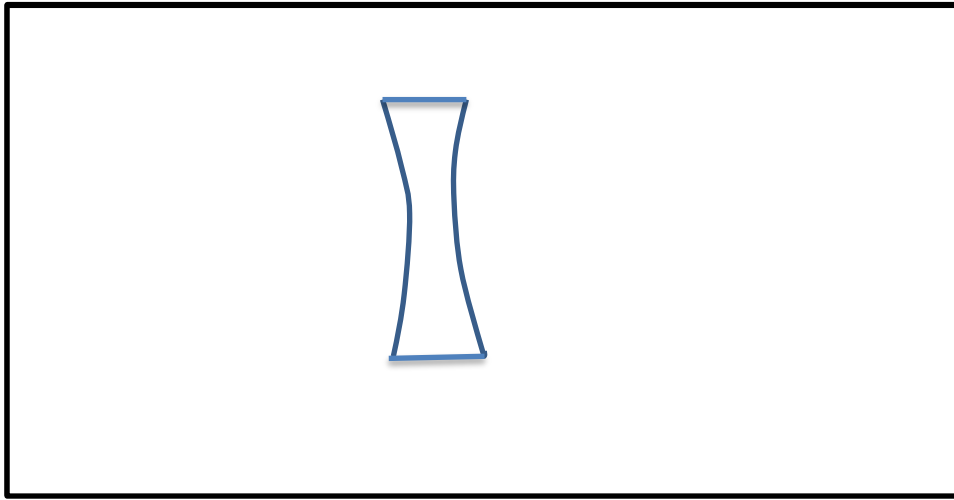
(2 marks)

ii) A light ray will be refracted when coming out of a block of glass into air.



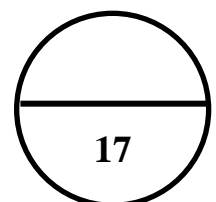
(2 marks)

iii) With the help of ray diagram, show how light enters a diverging lens.



(2 marks)

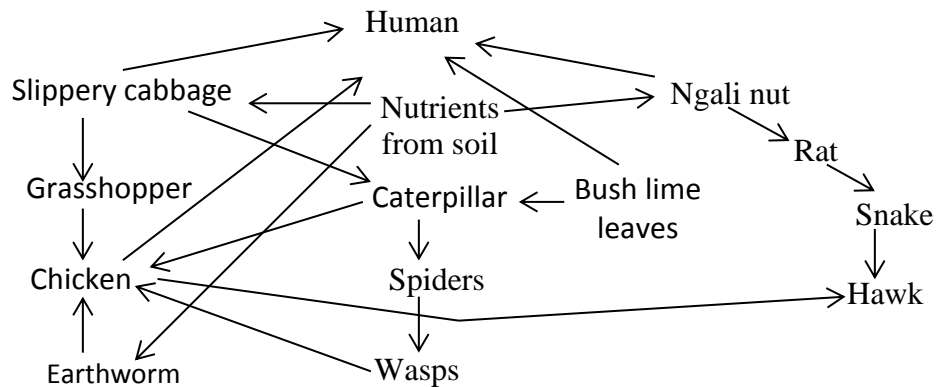
**Total mark for Section B: Q22**





23. **CONSIDERING OUR FUTURE**

(a) The diagram below is a food web in a garden ecosystem.



i) Define what a *food web* is.

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(1 mark)

ii) Study the diagram above and use it to construct a food chain that consists of five (5) organisms.

(2 marks)

iii) Many organisms feed on many other species and are in turn become food for several more. Therefore, can occupy more than one trophic level or feeding level). From the food web above, identify an organism that is both a primary and a Tertiary consumer. Explain your answer.

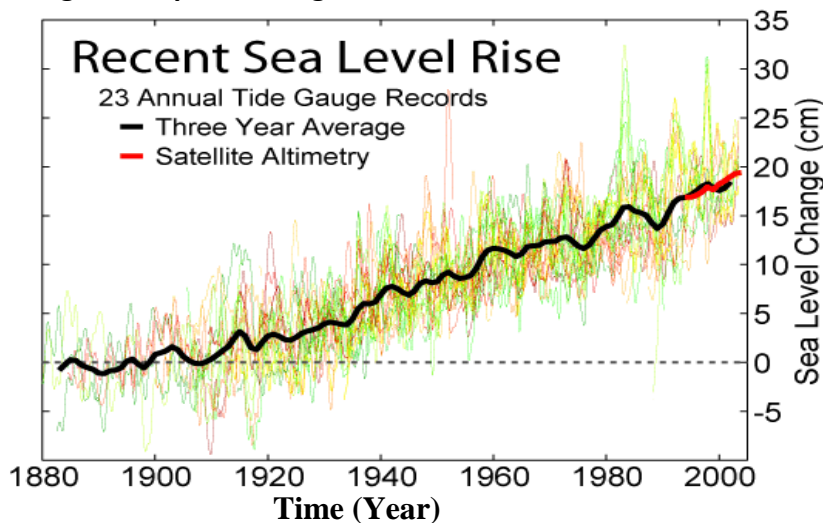
1. Organism name: \_\_\_\_\_

(1 mark)

2. Explanation: \_\_\_\_\_  
\_\_\_\_\_  
(2 marks)

- (b) Global warming can cause the earth's surface and the oceans to become warmer. Water expands as the temperature rises, so sea levels would rise too. Computer modelling has helped scientists to predict what effect in the earth's temperature will have on the sea levels.

**Fig. V: Graph showing sea level rise from 1880 to 2000.**



Use the graph above to answer questions (i) and (ii) below.

- i) What is the estimated sea level change in 1990? Show how you obtain your answer on the graph above.

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

- ii) What can you conclude about the change in sea level since 1910 to 2000?

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

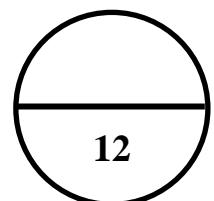
iii) State TWO major effects on low-lying atolls, if the sea level rises.

1. \_\_\_\_\_

2. \_\_\_\_\_

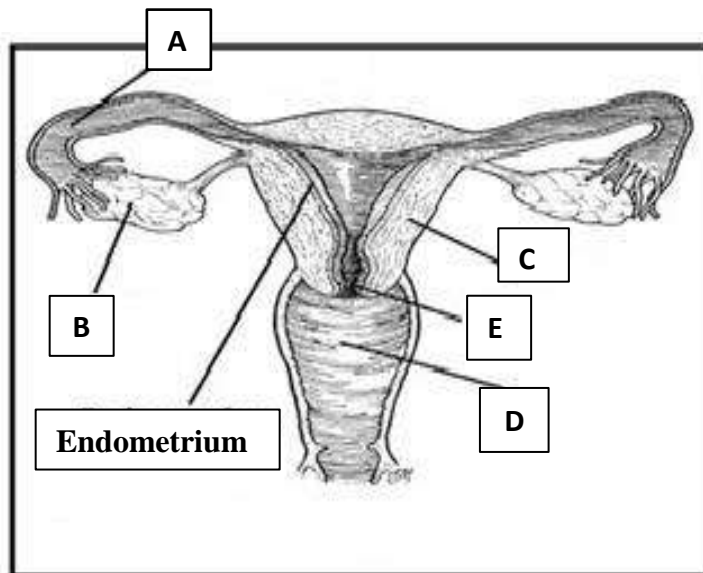
(2 marks)

**Total mark for Section B: Q23**



24. **HUMAN BODY.**

(a) Below is a diagram of the female reproductive organs.



**Fig.VI: Female reproductive organs**

i) Complete the table by writing down the function of each organ represented by the letters A, B, C and D.

Name of Part	Function
A	
B	
C	
D	

(4 marks)

ii) Define the term *Family Planning*?

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(1 mark)

- iii) Explain why controlling the number of children in a family is important to resource usage.

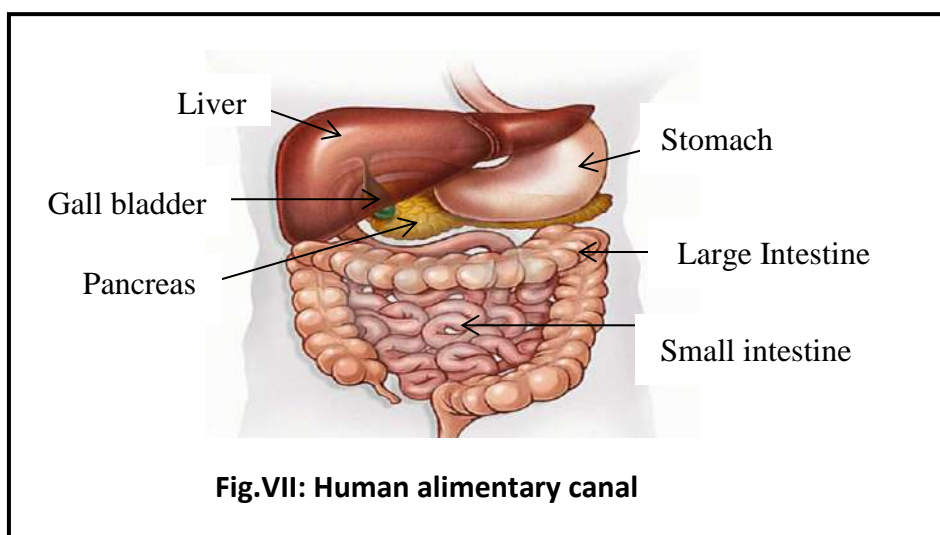
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(2 marks)

- (b) The diagram given below shows the human alimentary canal. Study the diagram and answer the questions (i), (ii) and (iii) that follow.



- i) Name the organ that is responsible for the reabsorption of water.

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

- ii) If Patty has his Gall bladder removed in an operation. What type of food would the doctor advise him not to eat?

Type of food: \_\_\_\_\_  
(1 mark)

- iii) The organ that stores and mixes food into a sloppy soup, and also contains Hydrochloric acid that kills germs.

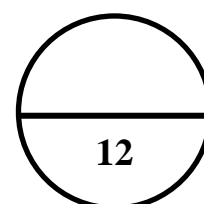
Name of organ: \_\_\_\_\_ (1 mark)

- iv) The foods that we eat often chemically broken down by enzymes before they can be used by the body cells. Complete the table below by filling in the blanks (1) and (2).

Food	Name of Enzyme	Product of digestion
Fish	Pepsin/protease	(1)
Oil	(2)	Fatty acids, glycerol

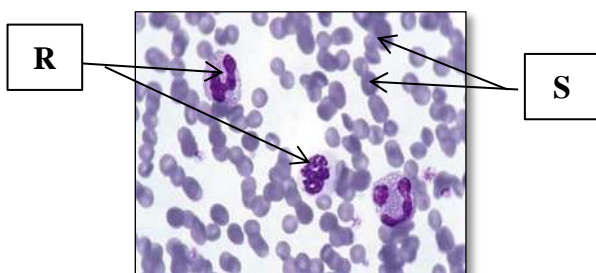
(2 marks)

Total mark for Section B: Q24.



**25. HUMAN BODY**

- (a) A Form 3 student was given a blood specimen to observe under a microscope, and was asked to identify the Red Blood Cells and White Blood Cells. He used the letters **R** and **S** to represent the blood cells as shown below.



**Fig.VIII. Blood cells**

- i) Which blood cell is represented by the letter **R**? State a reason for your answer.

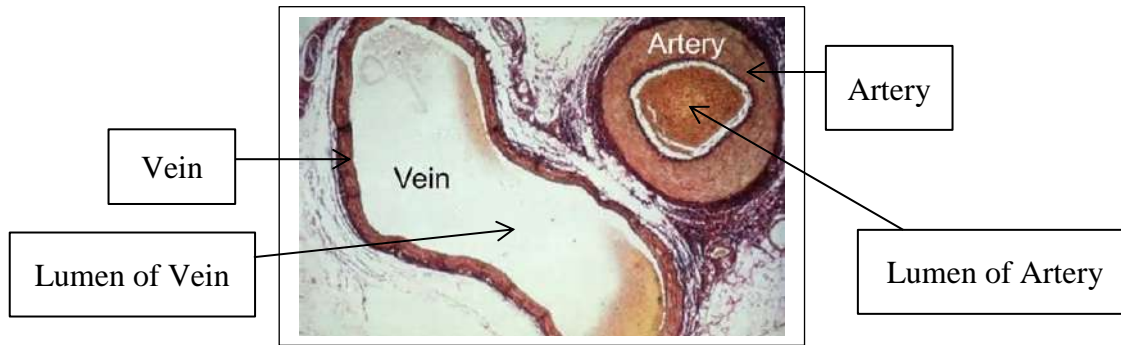
1. Blood cell **R**: \_\_\_\_\_ (1 mark)

Reason: \_\_\_\_\_ (1 mark)

- ii) Name the blood cell which is responsible for the transportation of oxygen?

Name of blood cell: \_\_\_\_\_ (1 mark)

Study the diagram of the blood vessels and answer the questions (i) and (ii).



**Fig.IX: Blood vessels.**

iii) Explain why arteries have thick walls?

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(2 marks)

iv) Explain the importance of wide lumen in veins.

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(2 marks)



Refer to the diagrams of the antagonistic muscles of the fore-arm below and answer the questions that follow.

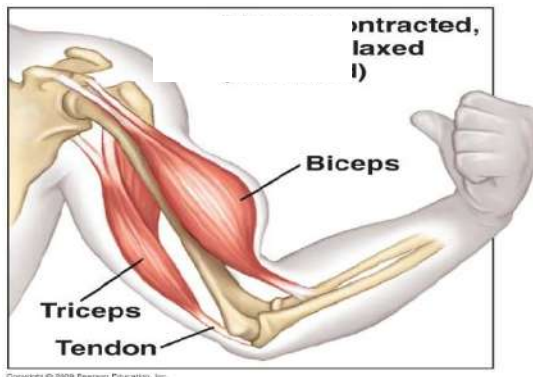


Fig.X: Raising of fore-arm

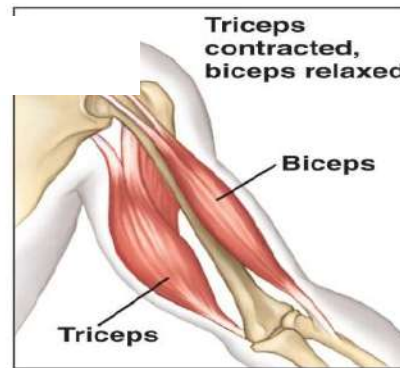


Fig.XI: Lowering of fore-arm.

- (b) Our fore-arm consist of both biceps and triceps muscles. Biceps and triceps are examples of antagonistic muscles.

i) Define *antagonistic muscles*.

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(1 mark)

ii) Describe the actions of your bicep and tricep muscles when you raise your fore-arm, as shown in Fig.X above.

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(2 marks)

- (c) Our eyes are very important for seeing things. State the function of the *Iris* of our eyes.

Function of the Iris: \_\_\_\_\_

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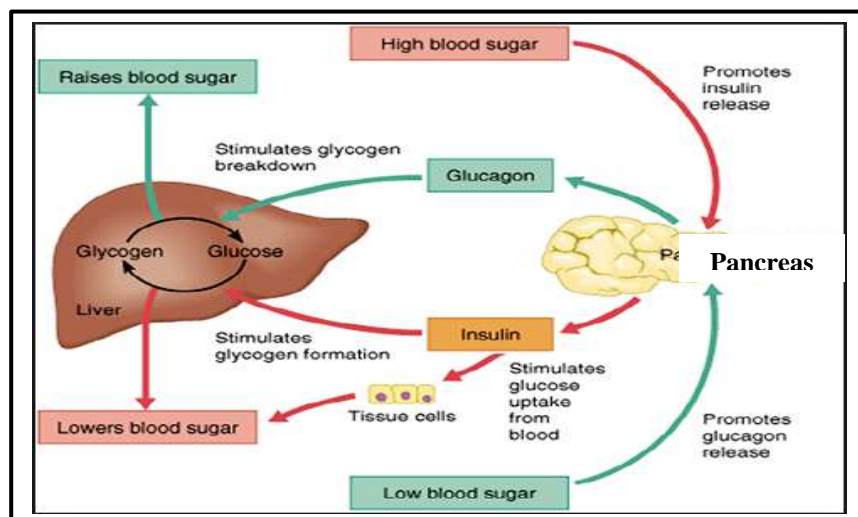
(1 mark)

- (d) Our ears are very important to us in assisting us to hear sounds. Name the structure that connects the human ear to the brain.

Name of the structure: \_\_\_\_\_ (1 mark)

- (e) The endocrine glands in our bodies play important roles in coordinating the activities of our body organs. They do this by producing hormones which are then secreted directly into our blood streams.

**Study the diagram below and answer the question that follows.**



- i. Explain how the blood sugar level is controlled in the body.

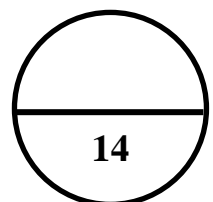
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(2 marks)

**Total mark for Section B:Q25.**



# 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

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2	<input type="text"/>	12	<input type="text"/>
3	<input type="text"/>	13	<input type="text"/>
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### FOR MARKER USE ONLY

SECTION	MARKS	SCORE
A	20	
B: Q21	26	
B: Q22	17	
B: Q23	12	
B: Q24	12	
B: Q25	14	
TOTAL	101	
Marker's Initial		