



Centre Number	Candidate Number

MINISTRY OF EDUCATION AND HUMAN RESOURCE DEVELOPMENT

SOLOMON ISLANDS YEAR 9 EXAMINATION

2021

SCIENCE

QUESTION AND ANSWER BOOKLET

THURSDAY 4TH 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
SECTION A: 20 Multiple Choice Questions	20	20 minutes
SECTION B: 4 Short Answer Questions	52	60 minutes
SECTION C: 4 Long Answer Questions	30	40 minutes
TOTAL:	102	120 minutes

INSTRUCTIONS TO CANDIDATE

- 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 READ THROUGH THE INSTRUCTIONS CAREFULLY.
- WRITE YOUR ANSWERS TO **SECTION A** AT THE END OF THIS BOOKLET.
- WRITE YOUR ANSWERS TO **SECTION C AND D** 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.

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 ONE (1) MARK.

1. Scientists believed that the Universe began with a “big bang” about 20 million years ago. Our solar system was believed to be formed from a large rotating cloud of gas called the;

A. Milky Way.
B. supernova.
C. solar nebula.
D. nuclear fusion.

2. What type of rock is made from volcanic activities and was formed from the cooled and solidified magma with dissolved gas?

A. Sediments
B. Igneous rocks
C. Sedimentary rocks
D. Metamorphic rocks

3. A Mass number of a Helium element is 4. Its Atomic number is 2. What would be the number of Neutrons?

A. 1
B. 2
C. 3
D. 4

4. The uses of metals depend on their properties. The properties of metals that made them useful in making wires are:

A. Ductility.
B. Malleability.
C. Can be shiny.
D. Conductivity.

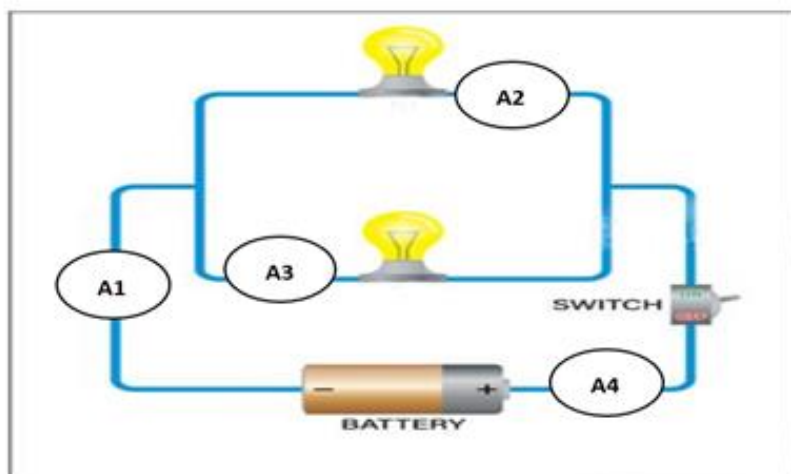
5. The product of Iron (Fe) reacting with Oxygen in the air is;
- A. Iron Oxide.
 - B. Iron sulphide.
 - C. Iron hydroxide.
 - D. Iron carbonate.
6. One source of energy that people usually use to produce electricity from running water is called;
- A. wind mill.
 - B. solar electricity.
 - C. hydro electricity.
 - D. geothermal electricity.
7. An object that gains electron is said to be;
- A. ion.
 - B. neutral.
 - C. positively charge.
 - D. negatively charge.

Use the list of items given below to answer Q8 and Q9.

Silver, copper, rubber, oil, aluminium, iron, steel, glass

8. Why rubber and oil are classified as insulators? They are;
- A. semi-conductors.
 - B. materials with high-melting point.
 - C. materials that conduct electricity through them.
 - D. materials that do not conduct electricity through them.
9. Using your understanding on the concept of **static electricity** to answer the question below. What happens to the plastic ruler when it is rubbed against a tea towel? It...
- A. gains electron.
 - B. loses electron.
 - C. Becomes positively charge.
 - D. neither gains nor loses electron.

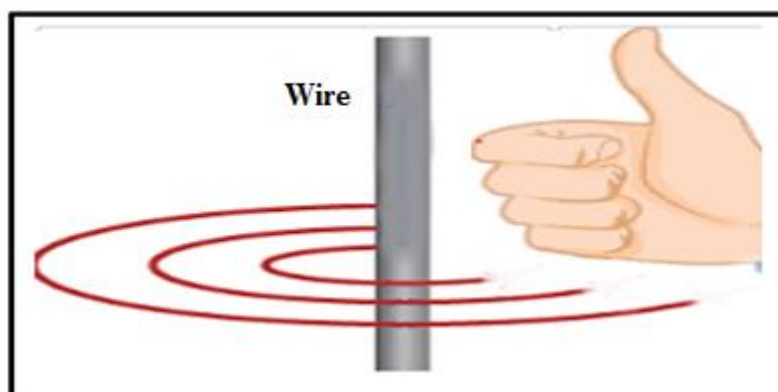
Study the circuit diagram below to answer Q10.



10. Which is TRUE about the current flowing through the ammeter connected in points A1, A2, A3 and A4 in the circuit above.

- A. $A1 = A2 = A3 = A4$
- B. $A1 = A4 = A2 + A3$
- C. $A4 = A1 + A2 + A3$
- D. $A4 = A2 + A3 - A1$

Study the wire-carrying current in the diagram below to answer question 11 that follow.



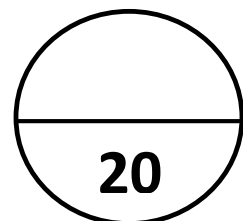
11. Using the Right-Hand thumb rule, what will be the **direction** of the magnetic field?

- A. Upwards
- B. Clockwise
- C. Downwards
- D. Anti-clockwise

12. If you are an Optician (an eye doctor) and would advise a student having trouble focusing on close objects, what would be the correct recommended lens the student would use to correct his vision?
- A. Plain glasses
 - B. Magnifying glasses
 - C. Diverging lenses (Concave)
 - D. Converging lenses (convex)
13. Solomon Islands Environment is under stress from exploitation of forest resources, depletion of fish stock, marine degradation and threat of endangered species. The MAIN cause of the stress was due to:
- A. Economy pressure.
 - B. Road development.
 - C. Population pressure.
 - D. Infrastructure Development.
14. An Abiotic factor and the important **raw material** for photosynthesis in green plants.
- A. Glucose
 - B. Oxygen
 - C. Temperature
 - D. Carbon dioxide
15. The co-existence of two living things living in an ecosystem that benefits both living things is called;
- A. predation.
 - B. mutualism.
 - C. parasitism.
 - D. commensalism.
16. One of the effects of soil erosion is eutrophication. What does **eutrophication** means?
- A. Pollution of drinking water during rain.
 - B. Increase of soil particles in rivers and streams.
 - C. Coral bleaching when nutrients washed into the sea.
 - D. Increase of nutrients in water that triggers the bloom of algae.

17. What is the name of the **first cell** that forms when male and female sex cells successfully fuse together during conception?
- A. Zygote.
 - B. Gamete.
 - C. Foetus.
 - D. Embryo.
18. What is the description of features of a human embryo during the first 3 weeks?
- A. Heart begins to beat.
 - B. All organs and systems are formed.
 - C. Developing brain, ear and backbone.
 - D. Hands and arms are beginning to form.
19. The **CORRECT path** of sound transmission (movement) through the human ear is:
- A. Pinna – ossicles – oval window – Eustachian tube – auditory nerve
 - B. Pinna – eardrum – ossicles – oval window – cochlea – auditory nerve
 - C. Ossicles – pinna – eardrum – oval window – auditory nerve – cochlea
 - D. Eardrum – ossicles – pinna – round window – auditory nerve – Eustachian tube
20. The blood component that is responsible for clotting of blood on wounds and stop bleeding is called;
- A. blood plasma.
 - B. blood platelets.
 - C. red blood cells.
 - D. white blood cells.

TOTAL MARKS FOR MC: Q1-Q20



SECTION B: SHORT ANSWER QUESTIONS**(52 MARKS)****THIS SECTION IS WORTH 50 MARKS. ANSWER ALL QUESTIONS IN THE SPACES PROVIDED.**

Q.21. Resources**(18 Marks)****A. Origin of Elements**

1. The earth's structure is made up of several layers. Each layer has different contents. Complete the table below by filling in the contents of the layers.

Earth Layer	Contents
Crust	
Mantle	
Inner core	

(3 marks)

2. Draw an **electron shell diagram** of sodium chloride compound in the box below.

(5 marks)

B. Mineral Resources

1. Gold is known as a native element. Explain why Gold is found in a native state?

(2 marks)

2. Quartz is one of the most useful natural materials. Explain why quartz is valuable in electronic products and useful as a gemstone, and glass making?

(2 marks)

C. Properties of Metals.

1. Metals are very important to us because of the properties they possess. State TWO (2) properties of metals that make them useful in making;

a) Cooking pot

i. _____

ii. _____

(2 marks)

b) Electrical wires

i. _____

ii. _____

(2 marks)

D. Energy Resources

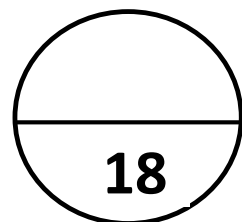
1. Sun is the ultimate source of all energy on earth. Plants get their energy from the sun to make their own food. What are the products of photosynthesis where plants use to make their own food?

i. _____

ii. _____

(2 marks)

TOTAL MARKS FOR SECTION B: Q21:

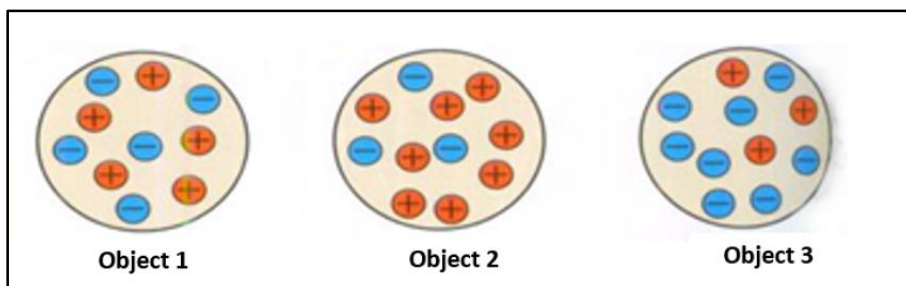


Q.22. Electricity and light

(10 Marks)

A. Static Electricity

1. Study the objects below to answer the question that follow.

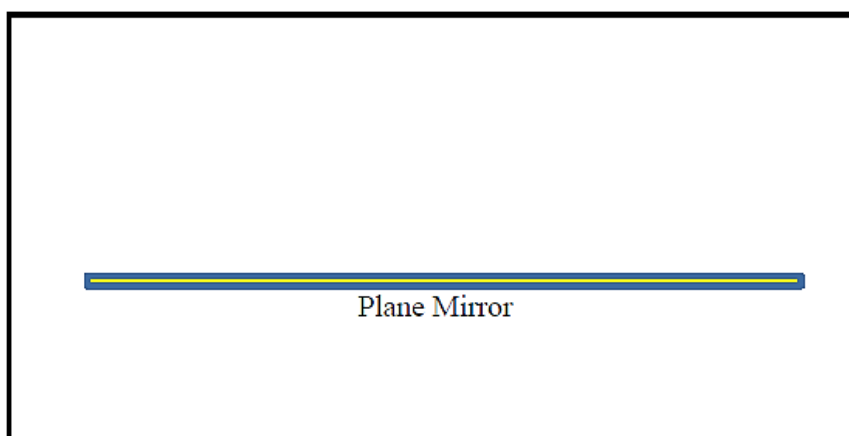


Explain what will happen if **objects 2** and **3** are brought together? Justify your answer.

(2 marks)

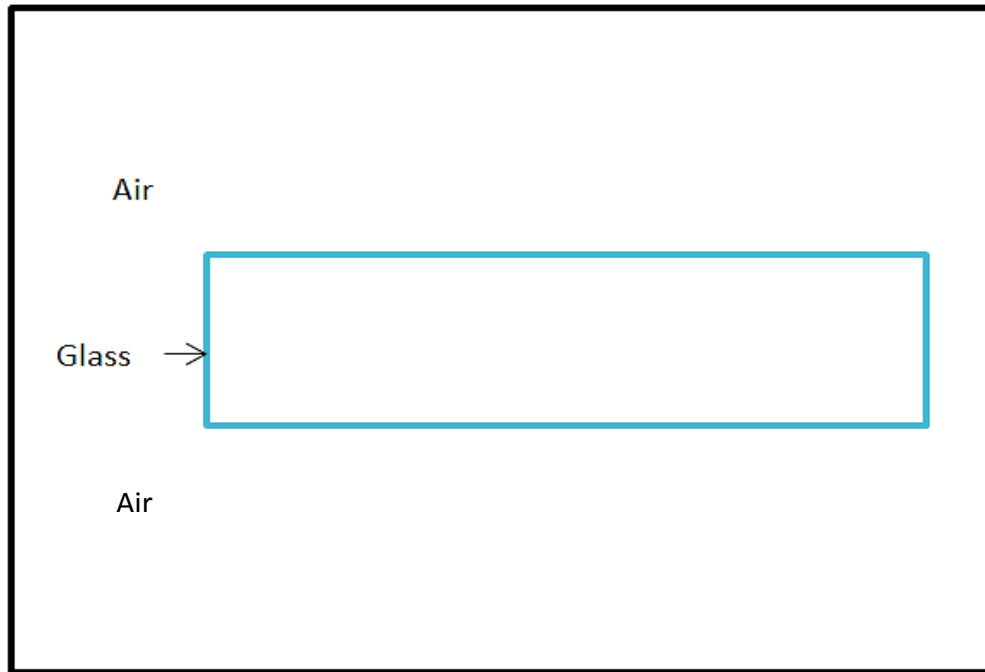
B. Property of light

1. Complete the diagrams (i and ii) to demonstrate how:
- i. Light is reflected from a plane mirror. *Label the different light rays to and from the mirror including the normal line.*



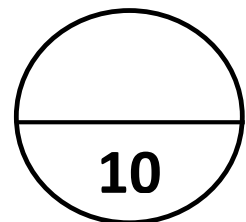
(3 marks)

- ii. A **refraction of light** that travels from air into the glass and then out into the air. *Label the diagram using the correct light rays including the normal line.*



(5 marks)

TOTAL MARKS FOR SECTION B: Q22:



Q.23. Considering our future.

(14 Marks)

A. Local environmental concerns

1. Bush fire is an example of a physical environmental condition. Explain how bush fires affect the grasshopper population in a grassland.

(2 marks)

2. Mice and rats can cause a lot of damage to our household items or food. Suggest ONE (1) **biological control/condition** which we can use to reduce the population of mice and rats.

(2 marks)

3. All living things (plants/Animals) require food to survive. Food provides energy for life processes when organism feeds on another organism, for instance predation. Explain **predation**.

(2 marks)

B. Environmental concerns

1. Mangrove ecosystem is important to the people of Solomon Islands. Provide TWO (2) importance of mangrove ecosystem to people.

i.

ii.

(2 marks)

2. Global warming is hugely affecting the Pacific Island countries today, causing sea level rise that threatens life of low Island inhabitants.

i. Explain how greenhouse gases cause global warming.

(2 marks)

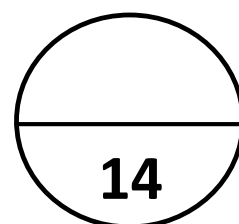
ii. Explain ONE (1) effect of sea level rise experienced in Solomon Islands.

(2 marks)

iii. Explain why destruction of habitats can lead to extinction of animals in the Solomon Islands.

(2 marks)

TOTAL MARKS FOR SECTION B: Q23:



Q.24. The Human System.

(10 Marks)

A. Reproduction and Growth

1. List TWO (2) **physical changes** that occur in male and female when reaching puberty stage.

a) Changes in male:

i. _____

ii. _____

(2 marks)

b) Changes in female:

i. _____

ii. _____

(2 marks)

B. Blood Transport

1. Arteries have thick walls while veins have very thin walls, EXCEPT for pulmonary artery and pulmonary vein. Differentiate the **function** of pulmonary artery and pulmonary vein.

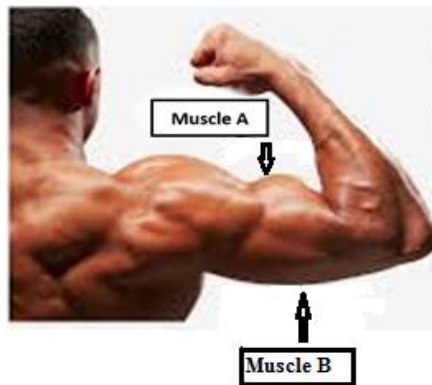
(2 marks)

2. Describe how the alveoli facilitate gas exchange.

(2 marks)

C. Movement and coordination

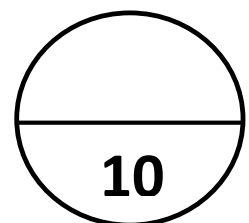
Study the diagram of a body builder lifting his arm below.



Describe how **muscles A and B** in the diagram above of the body builder's forearm works when he lifts his arm.

(2 marks)

TOTAL MARKS FOR SECTION B: Q24:



SECTION C: LONG ANSWER QUESTIONS**(30 MARKS)****THIS SECTION IS WORTH 30 MARKS. ANSWER ALL QUESTIONS IN THE SPACES PROVIDED.**

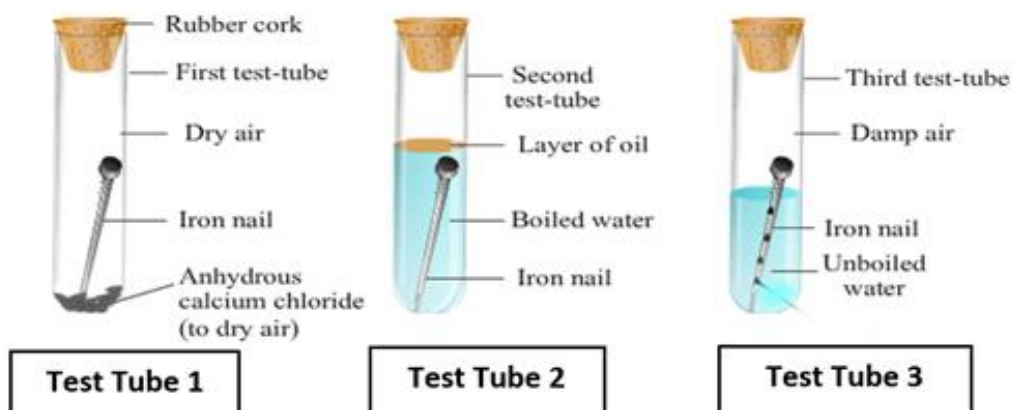
Q.25. Resources**(10 Marks)****A. Origin of elements**

1. Study the periodic table below to answer **question a**.

I		II								III	IV	V	VI	VII	VIII

B. Mineral Resources

1. A Form 3 student conducted an experiment to investigate the conditions necessary for rusting to occur. Study the experiment set up below to answer question that follow.

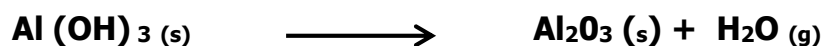


Analyse the experimental conditions in **Test Tubes 1, 2 and 3** and draw a conclusion on conditions that enable rusting to occur.

(4 marks)

C. Property of Metals

1. Write a **balance chemical equation** of the chemical reaction below on the space provided.



(2 marks)

TOTAL MARKS FOR SECTION C: Q25:

Q.26. Electricity and light

(6 Marks)

A. Electrical circuits

1. Draw and label a Parallel circuit containing the following components: **2 cells, connecting wires, two bulbs and switch.**

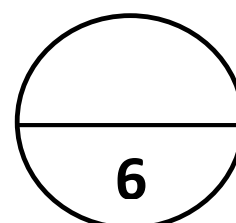


(4 marks)

2. Explain the difference between Voltage and Current used in electricity.

(2 marks)

TOTAL MARKS FOR SECTION C: Q26:

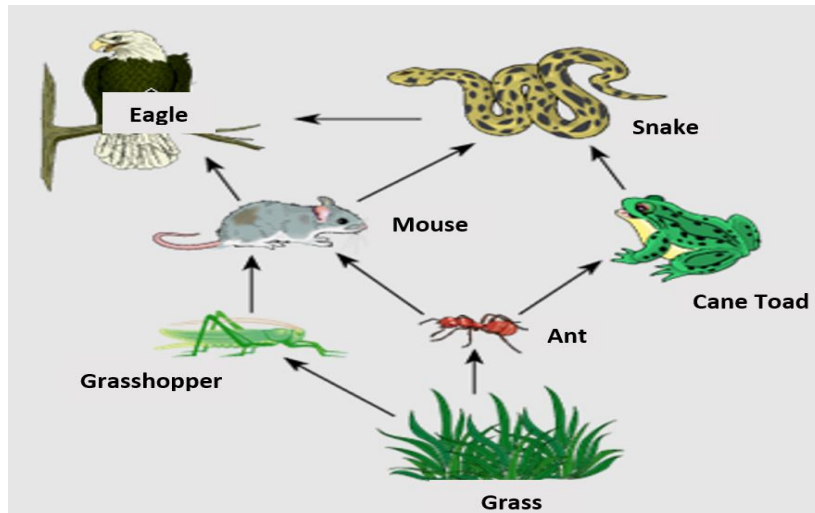


Q.27. Considering our Future

(6 Marks)

A. Local Environmental concerns

1. Form three students were asked to study the feeding relationship between organisms living in a grassland ecosystem close to their school. Below is the Food Web they have constructed to represent the feeding relationship in this grassland ecosystem



- i. Use the food web above to construct a **food chain** that consist of FOUR organisms.

(2 marks)

- ii. Describe the role of the ant in the food web above.

(2 marks)

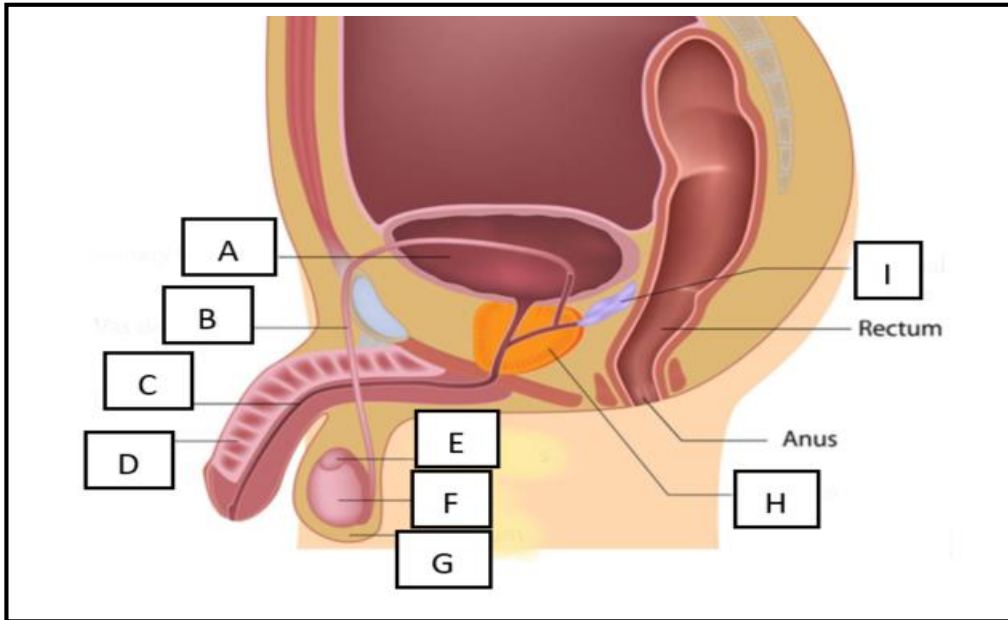
- iii. Explain what will happen if there is a sudden increase in the mouse and cane toad populations due to the absence of snake and the eagle?

(2 marks)

TOTAL MARKS FOR SECTION C. Q27:

Q.28. HUMAN SYSTEMS**(8 Marks)****A. Reproduction and Growth**

1. Below is a diagram of the male reproductive organs that are represented by letters A to I.



- i. Complete the table below by writing down the function of each organ.

Organ represent by Letter	Function
B	
F	

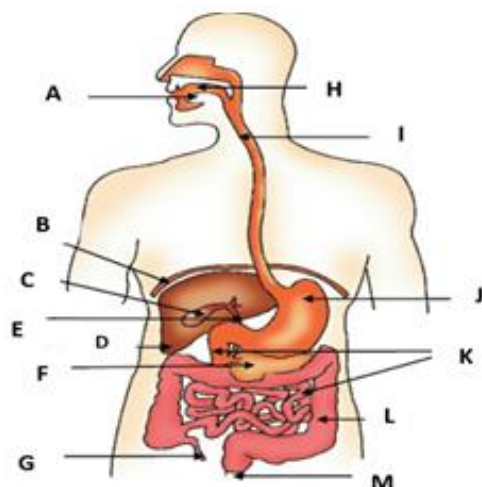
(2 marks)

- ii. Describe the process of Vasectomy family planning method in male.

(2 marks)

B. Nutrition, lifestyle and diseases

1. Study the diagram of the human digestive system below to answer questions a) and b) that follow. The digestive organs are represented by letters A to M.



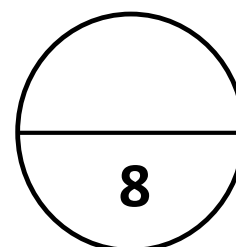
- a) Organ **K** contains micro structures that enable it to be very efficient in its function. Describe the role of these structures with respect to the function of Organ K.

(2 marks)

- b) Explain how food moves through **Organ I** to **Organ J**.

(2 marks)

TOTAL MARKS FOR SECTION C. Q28:



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SIY9 SCIENCE 2021

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	<input type="text"/>	11	<input type="text"/>
2	<input type="text"/>	12	<input type="text"/>
3	<input type="text"/>	13	<input type="text"/>
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9	<input type="text"/>	19	<input type="text"/>
10	<input type="text"/>	20	<input type="text"/>

FOR MARKER AND CHECKER USE ONLY

SECTION	MARKS	MARKER	CHECKER
A	20		
B: Q21	18		
B: Q22	10		
B: Q23	14		
B: Q24	10		
C: Q25	10		
C: Q26	6		
C: Q27	6		
C: Q28	8		
TOTAL	102		
Marker/Checker Initials			