

Candidate's Examination Number \_\_\_\_\_

**SMZ**

**ZANZIBAR EXAMINATIONS COUNCIL  
FORM THREE ENTRANCE EXAMINATION**

**044**

**BIOLOGY**

**TIME: 2:30 HOURS**

**WEDNESDAY 3<sup>RD</sup> NOVEMBER, 2021 A.M**

**INSTRUCTIONS TO CANDIDATES**

1. This paper consists of **THREE (3)** sections A, B and C.
2. Answer **ALL** questions in section A and B, and any **TWO (2)** questions in section C. Question **NINE (9)** is compulsory.
3. Write your examination number in each page.
4. Write your answers in the spaces provided.
5. Use blue or black pen in writing. Diagrams must be in pencil.
6. Cellular phones and unauthorized materials are not allowed in the examination room.

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	MARKS	SIGNATURE
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9a.		
9b.		
10.		
11.		
TOTAL		

**This paper consists of 15 printed pages**

**SECTION A: (30 Marks)**

**Answer ALL questions in this section.**

1. Choose the correct answer and write its letter in the table below:
  - i. A person with blood group O has antibodies of
    - A. a
    - B. a and b
    - C. b and o
    - D. b
  - ii. The natural unit which is composed of living and non-living things which interact together.
    - A. Community
    - B. Ecology
    - C. Ecosystem
    - D. Habitat
  - iii. It is trapped by the chlorophylls during photosynthesis.
    - A. Carbon dioxide
    - B. Light
    - C. Carbohydrates
    - D. Water
  - iv. The object to be observed under the microscope is placed on
    - A. Body tube
    - B. Mirror
    - C. Objective lens
    - D. Stage
  - v. The protozoa that has both animal and plant characteristics is
    - A. Amoeba
    - B. Euglena
    - C. Paramecium
    - D. Plasmodium
  - vi. Is a special room designed for carrying out scientific experiments
    - A. Classroom
    - B. Staff room
    - C. Laboratory
    - D. Library
  - vii. Which of the following is fundamental unit of life?
    - A. Cell
    - B. Organ
    - C. System
    - D. Tissue
  - viii. The end product of lipid during digestion is
    - A. Amino acid
    - B. Fats acid and glycerol
    - C. Glucose
    - D. Peptide
  - ix. The type of immunity that child get from mother during pregnancy is
    - A. Artificial active
    - B. Artificial passive
    - C. Natural active
    - D. Natural passive

- x. Which of the following mammalian blood vessels contains oxygenated blood at low pressure?
- A. Aorta                                      B. Pulmonary artery
- C. Pulmonary vein                        D. Vena cava

## Answers

[illegible]

2. Match the items from **LIST A** with the response in **LIST B** related to cell structure by writing its correct letter in the table below.

LIST A	LIST B
i. The organelles in the cell which is concerned with respiration.	A. Sperm cell
ii. The oval organelles that contain the green pigment in plants.	B. Mitochondria
iii. It is surrounded by tonoplast membrane.	C. Tissue
iv. Has a tail which enables it to swim to the egg.	D. Guard cell
v. Can change their shapes so as to engulf and destroy harmful microorganisms.	E. Root hair cells
vi. Is made up of non-living materials called cellulose.	F. Organ
vii. A group of cells which perform same function.	G. Involuntary muscle
viii. Collection of different tissues work together to perform a certain function.	H. Pericardium
ix. They contain haemoglobin in which oxygen attaches during transportation.	I. Red blood cell
x. They absorb water and minerals from the soil.	J. Cell sap vacuoles
	K. Cell wall
	L. Chloroplast
	M. White blood cell

## Answers

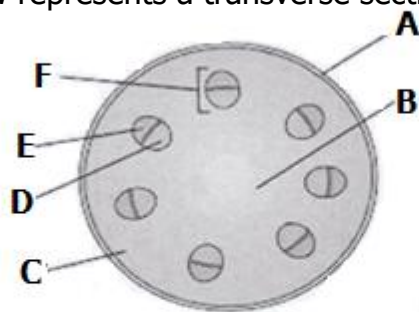
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3. Read the sentences below very carefully, then fill the blank spaces. Use one word for each space.
- Apparatus used for scooping powder or crystalline substances is \_\_\_\_\_.
  - The process by which water evaporates from the plant through the stomata in the leaves is called \_\_\_\_\_.
  - Reducing, \_\_\_\_\_ and \_\_\_\_\_ are basic principles of waste disposal.
  - Muscles that are found between the ribs are called \_\_\_\_\_ muscles.
  - Protein in the diet is needed for growth and body \_\_\_\_\_.
  - The leaves of \_\_\_\_\_ plant close when they are touched.
  - In classification \_\_\_\_\_ is the highest rank order.
  - The study of \_\_\_\_\_ is known as mycology.
  - Inadequate amount of fibre in the diet lead to \_\_\_\_\_.

**SECTION B: (50 Marks)**

**Answer ALL questions in this section.**

4. The **Figure 1** below represents a transverse section of a young plant body part.



**FIG.1**

- i. Label the parts numbered A - F

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

D. \_\_\_\_\_

E. \_\_\_\_\_

F. \_\_\_\_\_

ii. What part of the plant body does the diagram represent?

\_\_\_\_\_

iii. Does the diagram represent a monocot or dicot?

\_\_\_\_\_

iv. Give two (2) reasons for your answer in (iii) above.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. Gastric hormone stimulates the production of gastric juice from the gastric glands.

a. List three (3) components of gastric juice of man and state the function of each.

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

Function \_\_\_\_\_

\_\_\_\_\_

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

Function \_\_\_\_\_

\_\_\_\_\_

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

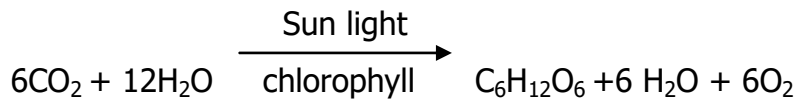
Function \_\_\_\_\_

\_\_\_\_\_

b. Complete the table by filling the blank column.

	<b>Region of human alimentary canal</b>	<b>Protein-digesting enzyme(s)</b>
i.	Stomach	
ii.	Duodenum	
iii.	Ileum	

6. a. Read the following equation carefully and then answer the questions.



- i. Write the equation in words.

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- ii. Name the process which is represented by the equation above.

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- b. Write an example of the following underground storage organ.

- i. Corm

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- ii. Rhizome

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- c. List two (2) deficiency signs of potassium for plants.

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- d. The other name for blue economy is marine economy. Write three (3) blue economy's priority areas in Zanzibar.

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7. a. Define the following terms:

i. Personal hygiene

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ii. Good manners

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b. Write three (3) importance of personal hygiene and good manners.

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

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

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

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- c. During puberty boys develop secondary sexual characteristics which are different from that of girls. Outline five (5) changes that occur in boys at puberty.

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

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

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

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

v. \_\_\_\_\_  
 \_\_\_\_\_

8. Deficiency of some nutrients in diet may lead to certain disorder in the body.

- a. Complete the table below by filling correct answer.

<b>Deficiency of nutrient in diet</b>	<b>Disorder</b>
i. Vitamin C	
ii.	Night blindness
iii. Iodine	
iv.	Rickets

- b. Differentiates between saprophytism and symbiosis.

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c. List four (4) functions of lipids in the body.

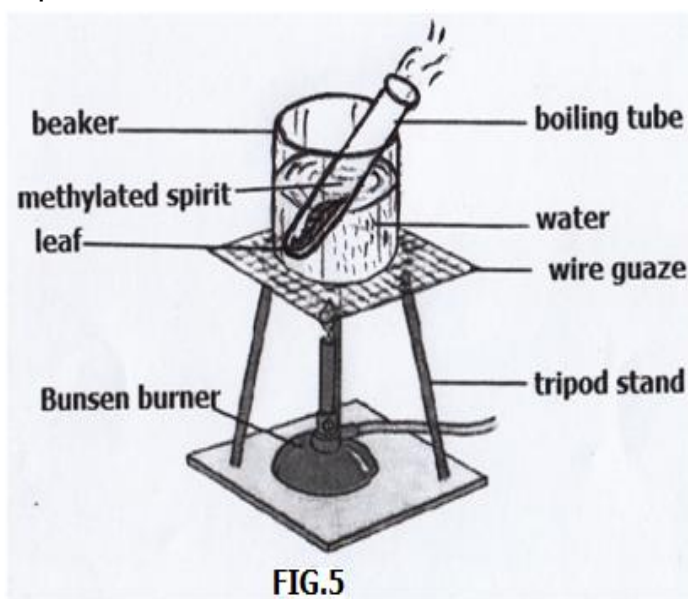
- i. \_\_\_\_\_  
\_\_\_\_\_
- ii. \_\_\_\_\_  
\_\_\_\_\_
- iii. \_\_\_\_\_  
\_\_\_\_\_
- iv. \_\_\_\_\_  
\_\_\_\_\_

**SECTION C: (20 Marks)**

**Answer any TWO (2) questions in this section**

**Question NINE (9) is compulsory. Answer either 9a or 9b**

9. a) A certain experiment was conducted and the arrangement of apparatus for the experiment is as shown below.



**The procedure for that experiment were as follows:**

- a. The variegated leaf was removed from a plant after received sunlight for six hours.
- b. The water was boiled in a beaker to boiling point and then turned off the source of heat.

- c. The forceps was used to dip the leaf in hot water for about 30 seconds.
- d. The variegated leaf was removed from a hot water.
- e. The variegated leaf was placed in a boiling tube with methylated spirit then placed in a beaker of boiling water.
- f. The variegated leaf was removed from methylated spirit and then rinsed in to hot water.
- g. The variegated leaf was spread on a white tile and then few drops of iodine solution were added on it.

**Questions.**

- i. Write the aim of this experiment.

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- ii. Why was the leaf dipped in hot water for 30 seconds?

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- iii. Give reason, why the leaf was boiled in methylated spirit?

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- iv. Explain why the leaf was dipped in hot water once again.

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- v. Draw and label the diagram of a variegated leaf as it appeared before the experiment.

- vi. Draw and label the diagram of a variegated leaf as it appeared at the end of the experiment after iodine was added.

- 9b. You are given the following basic food substances; meat, rice, peas, castor seeds, bread and margarine.

- i. Classify them as protein, lipids or carbohydrates and write them in the table below.

PROTEINS	LIPIDS	CARBOHYDRATES

- ii. Write the colour(s) of the following reagents. The first one is an example.

<b>REAGENTS</b>	<b>COLOUR OF REAGENTS</b>
Sodium hydroxide	Colourless
Iodine solution	
Benedict's solution	
Sudan III solution	
Copper II Sulphate solution	

- iii. Give reason, why dilute hydrochloric acid is added when testing non-reducing sugar?

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- iv. Write the products when glucose molecule and a fructose molecule combine.

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10. a. Define the following terms.

- i. Food preservation

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- ii. Food storage

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- b. A fisherman today caught a lot of fish. Briefly explain four (4) methods which will help him to preserve his fish when there is no electricity.

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

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

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

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

11. "KEEP ZANZIBAR CLEAN". This slogan emphasizes on maintaining the cleanliness of surroundings of the community through proper waste disposal. Write an essay on the above slogan using the following guidelines: -

- a. Meaning of waste.
- b. Meaning of waste disposal.
- c. Types of waste.
- d. Five (5) proper ways of reducing waste.

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

Candidate's Examination Number \_\_\_\_\_

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