

Candidate's Examination Number _____

SMZ

ZANZIBAR EXAMINATIONS COUNCIL

FORM THREE ENTRANCE EXAMINATION

044

BIOLOGY

TIME: 2:30 HOURS

FRIDAY 01st DECEMBER, 2017 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 on each page.
4. Write your answers in the space provided.
5. Cellular phones are not allowed in the examination room.
6. Use a blue or black pen in writing. The diagrams must be drawn in a pencil.

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

This paper consists of 12 printed pages

SECTION A: (30 Marks)

Answer ALL questions in this section

1. Choose the correct answer and write its letter in the box below.
- i) The reason for including Amoeba in phylum Protocista is its
A: Cell wall B: Phagocytosis
C: A cellular D: Contractile vacuole
- ii) Sleeping sickness is caused by
A: Euglena B: Plasmodium
C: Trypanosome D: Nematode
- iii) The breakdown of chemical reactions represent
A: Anabolism B: Catabolism
C: Metabolism D: None of above
- iv) What is the store house of all cellular information?
A: Enzymes B: DNA
C: Catalyst D: ATP
- v) The term cell was given by
A: Robert Brown B: Schleiden
C: Leeuwen Hock D: Robert Hooke
- vi) One of the following stores food in a modified root
A: Carrot B: Cassava
C: Onion bulb D: Irish potato
- vii) It controls the movement of substances in and out of the cell
A: Plasma membrane B: Vacuole
C: Cell wall D: Cell nucleus
- viii) In a microscope if the eye piece is $\times 10$ and the objective lens is $\times 40$, the total magnification will be
A: 400 times B: 10 times C: 40 times D: 100 times

- ix) Botany is the study of
 A: Animals B: Cells C: Bones D: Plants
- x) The symptom of a person suffering from HIV/AIDS
 A: Frequent urination B: Persistence fever
 C: Stomach ache D: Paralysis

ANSWERS

| | | | | | | | | | |
|---|----|-----|----|---|----|-----|------|----|---|
| i | ii | iii | iv | v | vi | vii | viii | ix | x |
| | | | | | | | | | |

2. Match the items from **LIST A** with the responses in **LIST B** by writing the letter in the table below.

| LIST A | | LIST B |
|---------------|--|-------------------|
| i. | Locomotory structure in Paramecium | A: Health |
| ii. | A process without it an organism cannot survive | B: Osmosis |
| iii. | It breaks fats and oil into small droplets | C: Enzyme |
| iv. | Minerals required by plants in very small quantity | D: Hormone |
| v. | A biological catalyst | E: Macroelements |
| vi. | It contains green pigment in plants | F: Pseudopodium |
| vii. | Air sacs for gaseous exchange | G: Cilia |
| viii. | Physical, mental and emotional well-being | H: Bile |
| ix. | A substance produced by the body to attack invading pathogens | I: Antibody |
| x. | The movement of molecules from high concentration to low concentration | J: Mitochondria |
| | | K: Antigen |
| | | L: Pepsin |
| | | M: Chloroplast |
| | | N: Micro-elements |
| | | O: Alveoli |
| | | P: Trachea |
| | | Q: Diffusion |
| | | R : Respiration |

ANSWERS

| | | | | | | | | | | |
|--------|---|----|-----|----|---|----|-----|------|----|---|
| LIST A | i | ii | iii | iv | v | vi | vii | viii | ix | x |
| LIST B | | | | | | | | | | |

3. Read the sentences below very carefully and then fill the blank spaces. Use one word for each space.
- a) The failure to _____ on a balanced diet results in a condition known as _____.
 - b) The _____ is a muscular tube connecting the _____ with the upper part of the stomach.
 - c) The respiratory surface of insect is _____ whereas that of toad is _____.
 - d) A _____ is a tentative explanation for the observation made while _____ is the series of investigations.
 - e) Stage is the part on which the _____ to be observed is placed and _____ is that part used for magnifying the object under observation.

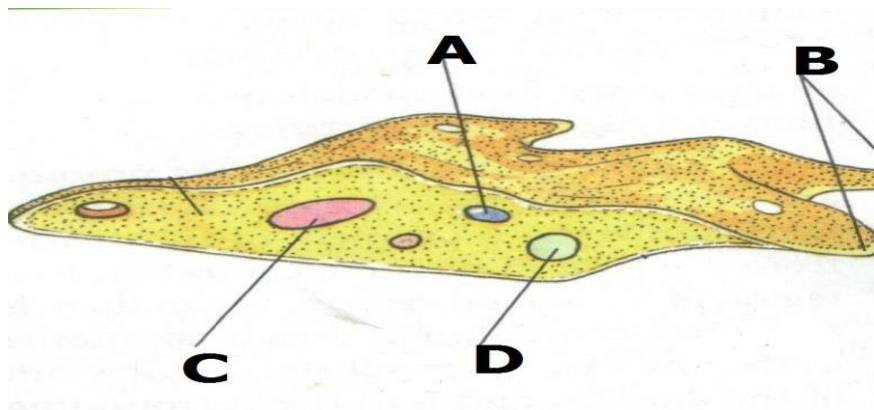
SECTION B: (50 Marks)

Answer ALL questions in this section

4. In the table below identify biological names and their functions of the given descriptions.

| Descriptions | Biological names | Functions |
|--|------------------|-----------|
| a) Green pigment in plants | | |
| b) Pale yellow fluid in the blood of mammals | | |
| c) Green liquid squirted bit by bit into duodenum in human | | |
| d) Red pigment in the blood | | |
| e) Small pores in the epidermis of the plants | | |

5. a) Draw a neat labelled diagram of the external structure of a leaf.
- b) State the part in plants responsible for
- i) Transporting food _____
 - ii) Transporting water and mineral salts _____
 - iii) Protecting the leaf from injury _____
- c) Write the equation which represents the process of photosynthesis.
- _____
- _____
6. a) Outline two (2) characteristics of the kingdom Protocista.
- i) _____
 - ii) _____
- b) Study the diagram below carefully, then answer the questions.



- i) Label the parts shown in the diagram.
- A: _____
- B: _____
- C: _____
- D: _____

ii) State the function of each part.

A: _____

B: _____

C: _____

D: _____

c) Write the name of the organism and its phylum.

d) Why the organism is shapeless and soft?

7. a) Define the term blood.

b) Identify the blood cell that performs the following functions.

i) Helps in fighting disease _____

ii) Makes blood clotting _____

c) Relate the function of the blood with the following.

i) Digestive system

ii) Excretory system

iii) Respiratory system

- d) If the heart stops beating and can't be re-started one will die. Justify the statement.

- e) Identify the abnormal feature of white blood cells and red blood cells.
White blood cell is

Red blood cell is

8. a) Mention three (3) common methods of waste disposal.

i) _____

ii) _____

iv) _____

- b) Design a process that can be used to make new glass bottles from broken glass.

The process is called _____

The procedure is _____

- c) People have been throwing out a lot of waste carelessly. Point out at least three (3) effects of improper waste disposal.

i)_ _____

ii) _____

iii) _____

- d) State two (2) ways of reducing waste.

i) _____

ii) _____

SECTION C: (20 Marks)

Answer ANY TWO (2) questions in this section, Question 9 is COMPULSORY, The question has two (2) items (9a) and (9b). Answer either item (9a) or (9b).

9. a) You are given a beaker containing food substances in solution (starch, protein and fats). You are also provided with the reagents. Sodium hydroxide, Dilute hydrochloric acid, Sudan III, Benedict solution and Iodine solution. Perform the experiment to investigate the presence of the food present. Tabulate your work as:

| Test for | Reagent used | Observation |
|-----------|--------------|-------------|
| Starch | | |
| | | |
| | | |
| | | |
| Protein | | |
| | | |
| | | |
| | | |
| Fats/Oils | | |
| | | |
| | | |
| | | |
| | | |

Show the importance of each food substance to the daily life.

i) Starch _____

ii) Protein _____

iii) Fats _____

b) Study the given drawings of specimens carefully and answer the questions.



R



S

i) Identify the specimens by their common names.

R _____

S _____

ii) Classify the specimens into their kingdom and division

R - Kingdom _____ Division _____

S - Kingdom _____ Division _____

iii) State the mode of nutrition of R and S.

R _____ S _____

iv) Identify the mode of reproduction of R and S.

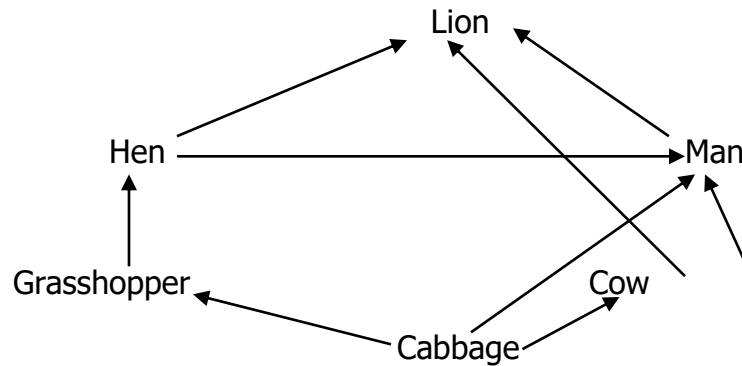
R _____ S _____

10. a) Write the meaning of.

i) Biotic factor

ii) Abiotic factor

b) Study the Figure X below and answer the questions.



i) Name the feeding relationship presented by the figure X above:

ii) Predict the missing group in the figure X

c) Construct three (3) food chains from the figure X above.

i) _____

ii) _____

iii) _____

d) Choose the organism from the figure X which is

i) Producer _____

ii) Predator _____

v) Primary consumer _____

- f) Predict what will happen if the cabbage is removed in figure X.

11. a) Mention three (3) infectious diseases of the respiratory system.

i) _____

ii) _____

iii) _____

- b) Draw the mammalian respiratory system and label the following parts:
Right and left lung, trachea, diaphragm, alveoli and bronchioles

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