

Candidate's Examination No.....

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION AND VOCATIONAL TRAINING
FORM TWO SECONDARY EDUCATION EXAMINATION, 2012

0033

BIOLOGY

TIME: 2½ HOURS

INSTRUCTIONS

1. This paper consists of sections A, B and C.
2. Answer **ALL** questions from sections A and B and only **ONE** question from section C.
3. **ALL** answers must be written in the spaces provided.
4. Write your examination number at the top right corner of every page.
5. **ALL** writing must be in blue or black ink **EXCEPT** diagrams which must be in pencil.
6. Cellphones are not allowed in the examination room.

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	SCORE	INITIALS OF EXAMINER
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL		

This paper consists of 8 printed pages.

Candidate's Examination No.....

SECTION A (30 MARKS)

1. Select the correct answer in each item and write its letter in the box provided.
- (i) The first step in the scientific procedure is:
- A. asking questions
 - B. experimentation
 - C. formation of hypothesis
 - D. identification of the problem.
- (ii) Organisms which can interbreed freely and produce fertile offsprings usually belong to the same:
- A. class
 - B. family
 - C. genus
 - D. species.
- (iii) During an operation, a doctor accidentally cut the bile duct. Which of the following food will not be well digested in the duodenum?
- A. Lipid
 - B. Mineral salts
 - C. Protein
 - D. Starch.
- (iv) If you are asked to prepare a First Aid Kit with its components, which of the following you will not include.
- A. iodine tincture
 - B. medicine to cure diseases
 - C. pair of scissors
 - D. sterilized cotton wool.
- (v) Which of the following organizations show the correct order from simplest to the most complex?
- A. Cell, organ, tissue, system and organism
 - B. Cell, tissue, organ, system and organism
 - C. Organ, cell, tissue, system and organism
 - D. Organ, tissue, cell, system and organism.
- (vi) One of the following is true about viruses:
- A. are the smallest living cells
 - B. can have both living and non-living characteristics
 - C. have no effects to plants
 - D. possess both DNA and RNA.

Candidate's Examination No.....

(vii) The transport of substances against the concentration gradient in a cell by using energy is called:

- A. active transport
- B. diffusion
- C. osmosis
- D. passive transport.

B

(viii) Deficiency diseases caused by prolonged lack of iron and iodine in the human diet are respectively:

- A. anaemia and goiter
- B. anaemia and marasmus
- C. goiter and night blindness
- D. rickets and scurvy.

B

(ix) Which of the following blood vessels carry oxygenated blood?

- A. Aorta and pulmonary artery
- B. Aorta and pulmonary vein
- C. Pulmonary artery and vena cava
- D. Pulmonary vein and vena cava.

B

(x) Which of the following cannot be preserved by drying in the sun?

- A. Cassava
- B. Fish
- C. Maize
- D. Orange.

B

2. The following statements are either correct or not correct. Write **TRUE** if the statement is correct or **FALSE** if the statement is not correct.

- (i) All living cells contain chloroplasts.**T**.....
- (ii) A microscope is an instrument that is used in scientific studies to magnify very small specimens.**T**.....
- (iii) During aerobic respiration oxygen is given out.**F**.....
- (iv) Inhaled air contains higher volume of carbon dioxide than exhaled air.**F**.....
- (v) Malaria is caused by a female anopheles mosquito.**T**.....
- (vi) Root hairs increase the surface area of plant roots for water absorption.**T**.....
- (vii) Sharing of towels can spread STIs.**F**.....
- (viii) Some laboratory accidents can be avoided by reading warning signs on chemical containers.**T**.....
- (ix) The best way to dispose sewage is by an incineration.**F**.....
- (x) The structure which prevents the entrance of food and water into the trachea is called a villus.**T**.....

Candidate's Examination No.....

3. Match the item in List A with the correct item in List B by writing its letter below the number of the corresponding item in List A in the table provided.

LIST A	LIST B
(i) A communicable disease that affects a large number of people in a short period of time at a given locality	A. Aerobic respiration
(ii) A condition that interferes with the normal functioning of the body	B. Amoeba
(iii) A disease that occurs in a given area constantly	C. Anaerobic respiration
(iv) Is a way of acquiring or inducing resistance to an infection	D. Botany
(v) It leads to the formation of ethanol and carbon dioxide in plants	E. Cilia
(vi) It results from lack of vitamin C	F. Disease
(vii) Single celled organism	G. Endemic
(viii) Structures for movement in paramecium	H. Epidemic
(ix) The breakdown of glucose in the presence of oxygen	I. Flagella
(x) The study of animals.	J. Goiter
	K. Immunity
	L. Mushroom
	M. Scurvy
	N. Vaccination
	O. Zoology

ANSWERS

LIST A	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
LIST B	H	F	K	N	A	M	I	E	C	O

SECTION B (50 MARKS)

4. (a) Mention the major components of blood.

- (i)
- (ii)
- (iii)
- (iv)

Candidate's Examination No.....

(b) Explain the function of each component you have mentioned in part (a).

- (i)
- (ii)
- (iii)
- (iv)

5. (a) What is meant by the term "Malnutrition"?

.....
.....
.....

(b) A 3 year old child has been brought to a dispensary following these complaints: He is weak, cries and eats a lot and has diarrhoea now and then. The child also has a dry skin and a protruding stomach. Furthermore his hair looks red and is very fine.

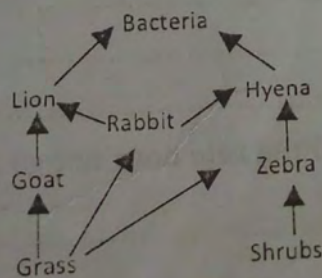
(i) Which nutritional disorder is the child suffering from?

.....

(ii) What advice will you give the child's parents?

.....
.....
.....

6. The diagram below represents a feeding relationship in an ecosystem, the arrows meaning "eaten by".



(a) What is the feeding relationship represented above?

.....

(b) What does the sequence:

Grass → Goat → Lion → Bacteria

represent?.....

Candidate's Examination No.

(c) Name the organisms which are:

(i) Primary consumers

Goat, Rabbit and Zebra

(ii) Decomposers

Bacteria

(d) What is the role of grass and shrubs in the pattern?

Test

7. (a) What is the difference between gaseous exchange and respiration?

Gaseous exchange — exchange of gases from the lungs to other part of the body while respiration involve inhalation and exhalation of oxygen and carbon

(b) List the features of a respiratory surface.

(i)

(ii)

(iii)

(iv)

(c) Explain why:

(i) The rate of breathing increases quickly during an exercise.

.....
.....
.....

(ii) Your breathing rate does not go to normal as soon as you stop exercising.

.....
.....
.....

8. (a) Define the term waste.

.....
.....

(b) Mention the basic principles of waste disposal.

- (i)
- (ii)
- (iii)

(c) Explain why root hairs become flaccid when too much chemical fertilizers are added to the moist soil around them.

.....

SECTION C (20 MARKS)

9. Write an essay on bacteria using the following guidelines:

- characteristics - *can not seen by eyes*
- advantages - *helps in fermentation eg milk*
- disadvantages - *causes diseases*

10. Write an essay on AIDS using the following guidelines:

- cause - *viruses*
- the four areas where the causative organism can be found in an infected person - *blood*
- transmission - *sexual intercourse*
- symptoms - *shaving of sharp instrument*
blood transfusion
mother to child during birth
- preventive measures - *abstain from sex*

fever
enlarged lymph nodes