

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION AND VOCATIONAL TRAINING
FORM TWO SECONDARY EDUCATION EXAMINATIONS, 2006

0033

BIOLOGY**TIME: 2 HOURS****INSTRUCTIONS**

1. This paper consists of three sections A, B and C.
2. Answer ALL questions from sections A and B, and ONE question from section C.
3. All answers from sections A, B and C must be written in the spaces provided for each question.
4. Write your examination number on the top right hand corner of every page.
5. All writing must be done in blue/black pen. Diagrams must be drawn in pencil and labeled in ink.
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 12 printed pages.

SECTION A (30 MARKS)

Answer ALL questions from this section. Each question carries 10 marks.

1. Questions (i) - (x) are multiple choice items. Select the best answer in each case and write its letter in the box provided.

(i) In biological investigation, the aim of an experiment is to:

- A. Predict the problem
- B. Confirm
- C. Identify
- D. Test the hypothesis

(ii) Which of the following three components are necessary for blood clotting?

- A. Leucocytes, thrombocytes and fibrinogen
- B. Thrombocytes, prothrombin and fibrinogen
- C. Erythrocytes, leucocytes, fibrinogen
- D. Erythrocytes, leucocytes and thrombocytes

(iii) Which of the following characteristics of living things is the basic difference between plants and animals?

- A. Growth
- B. Movement
- C. Nutrition
- D. Irritability

(iv) A kidney is an example of:

- A. A tissue
- B. A system
- C. An organ
- D. An organelle

(v) Controls movement of substances in and out of a cell:

- A. Plasma membrane
- B. Vacuole
- C. Cell wall
- D. Cell nucleus

(vi) The ability of the human body to resist infection by disease causing organisms is called:

- A. Vaccination
- B. Immunity
- C. Injection
- D. Sterilization

(vii) If a living plant cell is placed in a concentrated sugar solution, it will:

- A. Lose water and become plasmolysed
- B. Absorb water and become plasmolysed
- C. Lose water and become turgid
- D. Absorb water and become turgid

(viii) In a microscope, if the eyepiece reads X10 and the objective lens reads X40, the total magnification is:

- A. 400 times
- B. 10 times
- C. 40 times
- D. 100 times

(ix) Complete oxidation of sugar is called:

- A. Assimilation
- B. Breathing
- C. Aerobic respiration
- D. Anaerobic respiration

(x) Botany is the study of:

- A. Animals
- B. Cells
- C. Bones
- D. Plants

2. The following statements are either TRUE or FALSE. In the spaces provided write TRUE if the statement is correct and FALSE if the statement is not correct.

(EXAMPLE: All bacteria are harmful FALSE)
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- (i) The sign of human skull and bones on a chemical container indicates the chemical in that container is explosive.
- (ii) A hand lens is used to make objects look smaller than normal size.
- (iii) Obesity is a sign of poor health.
- (iv) A bat is a kind of bird which flies during the night.
- (v) Some laboratory accidents can be avoided by reading warning signs on chemical containers
- (vi) Mature red blood cells have very large nucleus.
- (vii) Tadpoles and fish have respiratory organs called gills.
- (viii) During inhalation the ribs move upwards and outwards.
- (ix) Removal of pancreas from an animal will result into failure to digest proteins in the small intestines.
- (x) Sewage treatment is one of the economic importance of bacteria.

3. The following are matching items. Match the phrase or term in List A with that in List B by writing its letter in the spaces provided in the table at the end of the question.

List A	List B
(i) Vascular plants which do not produce seeds	A. Pteridophyta
(ii) Locomotory structure in Amoeba	B. Saprophytes
(iii) A biological catalyst	C. Pseudopodium
(iv) Classification system based on few observable features and economic value	D. Cilia
(v) Unicellular fungus	E. Mushroom
(vi) A process without which organisms cannot survive	F. Yeast
(vii) The condition whereby blood fails to clot	G. Micro elements
(viii) Minerals required by plants in very small quantities	H. Macro elements
(ix) Breaks fats and oils into small droplets	I. Pepsin
(x) Movement of molecules from high concentration to low concentration.	J. Bile
	K. Artificial classification
	L. Natural classification
	M. Leukaemia
	N. Haemophilia
	O. Osmosis
	P. Diffusion
	Q. Fermentation
	R. Respiration
	S. Enzyme
	T. Hormone

List A	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
Answers										

SECTION B (50 MARKS)

This section consists of five short answer questions. You are required to answer ALL questions from this section. Read the questions carefully before writing the answers in the spaces provided. Each question carries 10 marks.

4. (a) Define by the term “photosynthesis”

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- (b) List down three points to show the economics importance of photosynthesis.

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- (c) What do you understand by the term Binomial Nomenclature.

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5. (a) Define blood transfusion

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- (b) Complete the following table by putting a tick (✓) where donor's and recipient's bloods are compatible and a cross (x) where they are incompatible.

		RECIPIENT			
		A	B	AB	O
DONOR	A				
	B				
	AB				
	O				

- (c) List four functions of mammalian blood

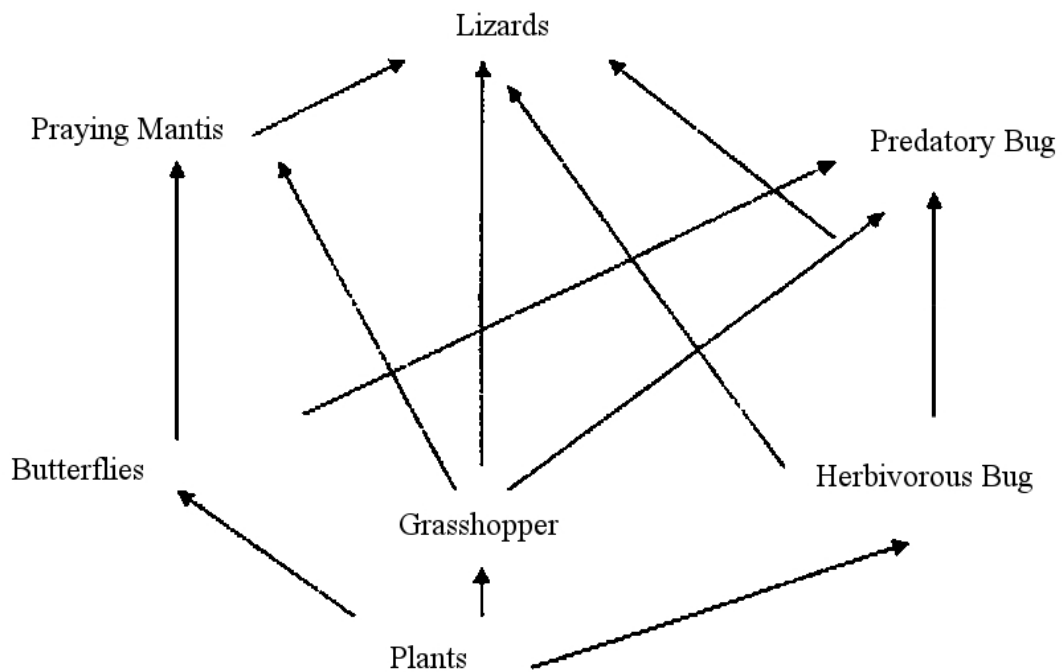
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6. (a) The diagram below represents a feeding relationship in an ecosystem.
The arrow → means “eaten by”



- (i) What is the name of the feeding relationship represented above?

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- (ii) What does the sequence: Plant → Grasshopper → Lizard represent?

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- (iii) Name the organisms which are:

Primary producers:

Primary consumers:

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Secondary consumers:

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- (b) (i) Name the blood vessel in a mammalian heart which carries blood from the lower left chamber for distribution to the whole body.

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- (ii) Explain why the lower left chamber of the mammalian heart is more muscular than the right lower chamber.

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7. (a) (i) What is a laboratory?

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(ii) State three laboratory rules

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(b) Draw a diagram of Amoeba and label it fully.

(c) Suggest one economic importance of Amoeba. Give one example.

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8. (a) Use your knowledge on food tests to record the procedure and observations expected if the food substances tested for were present in the given food samples as in the given example.

	FOOD SUBSTANCES TESTED	PROCEDURE	OBSERVATIONS	CONCLUSION
Example:	Starch	Drops of iodine added to food sample	Colour changes to blue-black	Starch present
(i)	Reducing sugar			Reducing sugar present
(ii)	Soluble protein			Soluble protein present

- (b) Explain why it is not advisable to sleep in a poorly ventilated room which has many potted plants.

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Candidate's No.

- (c) Draw a large labeled diagram of the alimentary canal of man between the oesophagus and the anus.

SECTION C (20 MARKS)

This section consists of two guided essay questions. You are required to answer only ONE question. Each question carries 20 marks.

9. Hygiene is considered as one of the most important factors in maintaining good health. Write an essay under the following guidelines.

- Definition of hygiene
- Personal hygiene
- Drinking water
- Use of latrines
- Home surroundings

10. Write an essay on balanced diet under the following guidelines

- Meaning of balanced diet
- Classes of foods contained in a balanced diet
- Importance of balanced diet in the body
- Deficiency diseases due to a lack of balanced diet
- Examples of local foods suitable for the correction of one deficiency disease

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