

**THE UNITED REPUBLIC OF TANZANIA  
NATIONAL EXAMINATIONS COUNCIL  
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION**

**033/1**

**BIOLOGY 1**  
(For Both School and Private Candidates)

**TIME: 3 HOURS**

**Wednesday, 05<sup>th</sup> November 2014 a.m.**

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**INSTRUCTIONS**

1. This paper consists of three sections A, B and C.
2. Answer **all** questions from sections A and B and **one (1)** question from section C.
3. Except for diagrams that must be drawn in pencil, all writings should be in blue or black ink.
4. Calculators and cellular phones are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

## SECTION A (20 MARKS)

Answer **all** questions in this section.

1. For each of the items (i) – (x), choose the correct answer from among the given alternatives and write its letter beside the item number in your answer booklet.

(i) A term which best describes a condition of a plant cell that has lost too much water is

- |               |             |              |
|---------------|-------------|--------------|
| A haemolysis  | B turgidity | C creanation |
| D plasmolysis | E osmosis   |              |

(ii) Bowman's capsule in the kidney functions as a

- |          |                 |               |
|----------|-----------------|---------------|
| A filter | B sanction pump | C transmitter |
| D sponge | E absorber      |               |

(iii) A structure which controls the body balance in humans is located in the

- |              |                  |             |
|--------------|------------------|-------------|
| A outer ear  | B eardrum        | C inner ear |
| D middle ear | E inner membrane |             |

(iv) The main product of photosynthesis process is

- |                   |                |                  |
|-------------------|----------------|------------------|
| A sunlight energy | B carbohydrate | C carbon dioxide |
| D water           | E oxygen       |                  |

(v) Species with cellulose in their cells are formally placed in

- |                   |                    |                    |
|-------------------|--------------------|--------------------|
| A Kingdom Monera  | B Kingdom Fungi    | C Kingdom Animalia |
| D Kingdom Plantae | E Kingdom Protista |                    |

(vi) Fertilization process is defined as

- |                                |                                |
|--------------------------------|--------------------------------|
| A formation of new cells       | B union of an egg and sperm    |
| C implantation of a zygote     | D fusion of eggs in the uterus |
| E cell division in the oviduct |                                |

(vii) Mutual interaction between two species is described by which of the following characteristic

- |                                       |  |
|---------------------------------------|--|
| A Both live as parasite               | B Both may be harmed                   |
| C Both benefit and flourish           | D One is harmed and the other benefits |
| E Both neither benefits for is harmed |  |

(viii) One of the characteristics used to identify producers in the ecosystem is

- |                                     |                           |
|-------------------------------------|---------------------------|
| A feeding on ready-made food        | B growing in fertile soil |
| C feeding on other organisms        | D making their own food   |
| E adding organic matter in the soil |                           |

- (ix) The role of the optimum temperature in cellular activities is to
- A change the chemical reactions
  - B balance the equilibrium of the reactions
  - C destroy many enzymes at once
  - D speed up the rate of chemical reaction
  - E create favourable environment for enzymes
- (x) Rise of body temperature in the human body is corrected mainly by
- A Dilating the skin arteries and sweating
  - B Constricting the skin arteries and shivering
  - C Dilating the skin veins and sweating
  - D Constricting the skin veins and shivering
  - E Dilating of arteries and shivering

2. Match the responses in **List B** with the phrases in **List A** by writing the letter of the correct response from **List B** beside the item number of **List A** in your answer booklet.

LIST A	LIST B
(i) Receives impulses and gives appropriate response to stimuli.	A. Synapse
(ii) A gap through which impulses pass when traveling from one neuron to another.	B. Effectors
(iii) Receives impulse from the external stimuli and transmits it to the spinal cord.	C. Hypothalamus
(iv) Controls and coordinates body balancing organs, thus making accurate movement possible.	D. Biceps Muscles
(v) The nervous pathway taken by an impulse in a reflex action.	E. Motor neuron
(vi) Transmits impulse away from the spinal cord.	F. Peripheral nervous system
(vii) Controls involuntary actions such as heart beats, breathing, sneezing and swallowing.	G. Central nervous system
(viii) Transmits impulses within the spinal cord.	H. Medulla oblongata
(ix) Concerned with reasoning, intelligence and judgment.	I. Reflex arc
(x) Controls the pituitary gland.	J. Reflex neuron
	K. Cerebellum
	L. White matter
	M. Cerebrum
	N. Sensory neuron
	O. Effector

## SECTION B (60 Marks)

Answer **all** questions in this section.

Each question carries **8 marks** except question five and six which carry **6 marks** each.

3. (a) State three actions which take place in the human body in response to each of the following conditions:
  - (i) When the temperature of the surroundings is low.
  - (ii) When the body temperature rises due to increase in the surrounding temperature.  
(b) Briefly explain why people look pale when they feel cold.
4. (a) Give the meaning of the following terms and identify two examples for each:
  - (i) Waste
  - (ii) An accident  
(b) Elaborate four procedures of giving First Aid to a person who has been injured in a bus accident and has severe bleeding.
5. (a) What do you understand by the following terms:
  - (i) Evolution
  - (ii) Acquired characteristics  
(b) Outline merits and demerits of Lamarck's theory of evolution.
6. (a) Explain the functions of the vascular system in plants  
  
(b) State three importance of transportation of materials in living things.
7. (a) In the experiment conducted on single factor inheritance, individuals which were male homozygous tall married a female who was homozygous dwarf. The gene for tall was dominant over dwarf. Use the crosses to find out the possibility of the phenotypic results and the ratio in the first filial generation.  
  
(b) Give the meaning of the following:
  - (i) Test cross
  - (ii) Back cross
  - (iii) Trait
8. (a) Define the following terms:
  - (i) Meiosis
  - (ii) Mitosis
  - (iii) Growth  
(b)
  - (i) Explain the significance of mitosis in growth
  - (ii) State three factors affecting growth in humans.

9. (a) Draw a large and neat labelled diagram of the villus found in the digestive system.
- (b) (i) Name the digestive juice which is produced by the liver.  
(ii) State the function of the substances contained in the digestive juice named in b (i).
10. (a) Differentiate the following:  
(i) Breathing and respiration  
(ii) Inhalation and exhalation
- (b) Briefly describe the following phenomenon:  
(i) A person breathes more when running fast.  
(ii) The ribs move outwards and upwards while the diaphragm flattened when air enters the lungs.

### SECTION C (20 Marks)

Answer **one (1)** question from this section.

11. Explain any four effects of irresponsible sexual behaviour and suggest five ways of eradicating those behaviours in the community.
12. Describe how malaria parasites are transmitted, the sign developed to the host and give four ways which can help in combating malaria in the country.
13. Explain two differences between artificial and natural classification systems and indicate the two merits and demerits for each system..