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SET 2

GRADE 10 END OF YEAR EXAMS

KENYA CERTIFICATE OF BASIC EDUCATION

SENIOR SCHOOL ASSESSMENT

GRADE 10 – BIOLOGY

Time: 2 Hours

LEARNER'S DETAILS

Name: _____. **School:** _____.

Assessment Number: _____. **Date:** _____.

School Code: _____. **Signature:** _____.

INSTRUCTIONS TO CANDIDATES

1. Write your name in the spaces provided above.
2. Write the name of your school and your school code in the spaces provided.
3. Write your assessment number and the date of the assessment and sign in the spaces provided.
4. This paper consists of two sections: A and B.
5. Answer all questions in section A and section B.
6. Answer the questions in English.
7. All answers MUST be written in the spaces provided in the paper.
8. Do NOT remove any page from this question paper.

FOR OFFICIAL USE ONLY

SECTION	SECTION A	SECTION B	% SCORE	EE1	EE2	ME1	ME2	AE1	AE2	BE1	BE2
SCORE RANGE	30 MARKS	50 MARKS		90-100	75-89	58-74	41-57	31-40	21-30	11-20	1-10
POINTS				8 POINTS	7 POINTS	6 POINTS	5 POINTS	4 POINTS	3 POINTS	2 POINTS	1 POINT
LEARNER'S TOTAL SCORE											

SECTION A (30 MARKS)

Answer ALL questions in this section.

1. During a nature walk at Nairobi National Park, learners used various apparatus to collect specimens.

a) Identify the apparatus used to collect small crawling insects such as beetles from a pit in the ground. _____ (1 Mark)

b) Mention one preservative commonly used for the wet preservation of animal specimens in a school laboratory. _____ (1 Mark)

c) Outline two factors that should influence a learner's choice of a Biology-related career. (2 Marks)

i. _____

ii. _____

2. A Grade 10 learner at Mang'u High School is researching various fields of study within Biology to help decide on a future career.

Match the field of study in Column A with the correct description in Column B. (4 Marks)

COLUMN A: FIELD	COLUMN B: DESCRIPTION
i) Entomology	A. Study of the internal structure of organisms.
ii) Anatomy	B. Study of insects and their relationship to the environment.
iii) Taxonomy	C. Study of the inheritance and variation of traits.
iv) Genetics	D. Study of classification and naming of organisms.

3. State whether the following statements are TRUE or FALSE. (4 Marks)

a) An electron microscope has a higher resolution than a light microscope. _____.

b) Animal cells possess a large central vacuole and a cellulose cell wall. _____.

c) The cell is considered the basic functional unit of life. _____.

d) Magnification is the ability of a microscope to distinguish two close points as separate. _____.

4. Kamau, a student at Alliance High School, is observing a plant cell under a light microscope.

a) Define the term "staining" as used in the preparation of temporary slides. (2 Marks)

_____

_____

b) Distinguish between resolution and magnification of a microscope. (2 Marks)

_____

_____

_____

5. Three learners at are discussing the Chemicals of Life.

Zawadi: "Proteins are tested using Benedict's solution which turns orange-red."

Mutua: "Actually, Zawadi, Benedict's test is for reducing sugars; proteins are tested using the Biuret reagent."

Achieng: "And don't forget that Vitamin C is tested using DCPIP, which becomes decolorized."

a) Identify the learner who made a false statement. (1 Mark)

_____

b) List two factors that affect the rate of enzymatic reactions in a cell. (2 Marks)

i. _____

ii. _____

6. A pilot flying over Kisumu is experiencing high energy demands.

a) Define the Respiratory Quotient (RQ). (2 Marks)

_____

_____

b) List four general characteristics of an efficient respiratory surface in animals. (4 Marks)

i. _____

ii. _____

iii. _____

iv. _____

7. Mention three levels of organization in a multicellular organism, starting from the smallest unit. (3 Marks)

i. _____

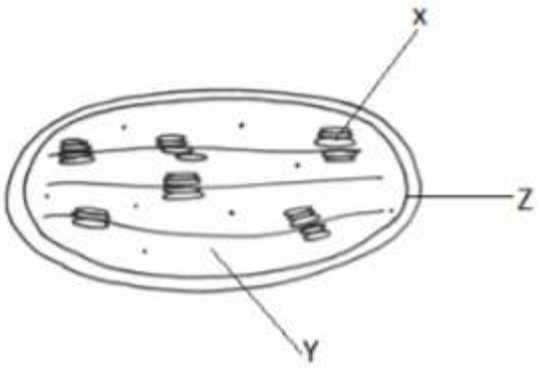
ii. _____

iii. _____

SECTION B: (50 MARKS)

Answer ALL questions in this section.

8. (a) Below is a diagram of an organelle found in green plants.



i) Name the organelle illustrated above. (1 Mark)

_____

ii) State the function of the organelle above. (1 Mark)

_____

iii) Identify the parts labelled. (3 Marks)

X: _____

Y: _____

Z: _____

iv) State two adaptations of the organelle to its function. (2mks)

_____

_____

v) Write the word equation for photosynthesis. (1 Mark)

_____

_____

9. A Grade 10 class is studying a cross-section of a dicotyledonous stem.

a) Name the two main vascular tissues involved in transport. (2 Marks)

i. _____

ii. _____

b) Relate the structure of xylem to its function in transporting water. (3 Marks)

_____

_____

_____

_____

c) Describe the Girdling experiment and state its purpose. (3 Marks)

_____

_____

_____

_____

10. Plants in the Nakuru region adapt to different environments.

a) Name the sites of gaseous exchange in:

i) A woody stem _____ (1 Mark)

ii) A leaf _____ (1 Mark)

b) Explain the Photosynthetic Theory of the opening and closing of stomata. (4 Marks)

_____

_____

_____

_____

11. Learners at Starehe Boys' Centre are comparing the mouthparts of various insects.

a) Match each insect with its feeding mode. (3 Marks)

Mosquito: _____

Butterfly: _____

Housefly: _____

b) Relate the structure of a hawk's beak to its feeding habit. (2 Marks)

_____
_____
_____
_____

12. A mammalian heart is being studied at a health facility in Mombasa.

a) Name the four chambers of the mammalian heart. (4 Marks)

i. _____

ii. _____

iii. _____

iv. _____

b) Describe the pumping mechanism of the heart during ventricular systole. (3 Marks)

_____
_____
_____
_____

c) State the significance of the Rhesus factor in blood transfusion. (3 Marks)

_____
_____
_____
_____

13. A learner is checking their breathing rate after physical exercise.

a) Identify the respiratory surface in the human lung. (1 Mark)

_____

b) Compare inhaled air and exhaled air in terms of Oxygen and Carbon (IV) Oxide. (4 Marks)

_____
_____
_____
_____

c) Explain the concept of oxygen debt. (3 Marks)

_____
_____
_____
_____

14. group of learners is starting a project on preserving biological specimens for sale to schools.

a) Define the following terms:

i) Revenue (1 Mark)

_____
_____

ii) Profit (1 Mark)

_____
_____

b) List two ways of ensuring the safety and quality of food products using information found on packaging labels. (2 Marks)

i. _____

ii. _____