

KENYA CERTIFICATE OF BASIC EDUCATION (K.C.B.E)

GRADE 10

BIOLOGY

ENDTERM 1

PATHWAY: S.T.E.M

Time: 2Hours 30 Minutes

COMPETENCE ASSESSMENT EXAMINATION

LEARNER'S DETAILS

Name: _____

School: _____

Assessment Number: _____ **Date:** _____

School Code: _____ **Signature:** _____

INSTRUCTIONS TO LEARNERS

1. Write your name, assessment number, class and date on all the answer sheets provided.
2. Answer all the questions in the spaces provided.
3. Use a blue or black pen for writing. Pencils should be used only for drawings and diagrams.
4. Make your drawings neat, clear, and large, and label them correctly using ruled lines.
5. **SCORE GRID**

No.	Question Area	Maximum Marks	Learner's Score	Performance Level
1	Introduction to Biology & Careers	10		
2	Biodiversity & Specimen Collection	15		
3	Microscope & Cell Structure	20		
4	Cell Structure, Specialisation & Adaptation	18		
5	Chemicals of Life & Enzymes	9		
6	Enzymes & Importance of Water	8		
7	Digestive & Cellular Enzymes	6		
8	Catalase Enzyme Experiment	11		
9	Photosynthesis	13		
	TOTAL	90		

Performance Levels Grid

Level	Level	% Range	Points	Learner's score
Exceeding (EE)	EE1	90–100%	8	
	EE2	75–89%	7	
Meeting (ME)	ME1	58–74%	6	
	ME2	41–57%	5	
Approaching (AE)	AE1	31–40%	4	
	AE2	21–30%	3	
Below (BE)	BE1	11–20%	2	

SECTION A: THEORY (90 Marks)

Answer all questions in this section.

1. A career guidance teacher invited learners to explore how Biology influences everyday life and future careers.

a) Mention two main branches of Biology. (2 marks)

- i. _____.
- ii. _____.

b) Explain **TWO applications of Biology** in everyday life. (2 marks)

- i. _____.
- ii. _____.
- iii. _____.
- iv. _____.

c) Match each **field of Biology** with a suitable **career**. (4 marks)

Field of Biology	Career
Botany	
Microbiology	
Genetics	
Ecology	

d) State **TWO factors** that should positively influence career choice in Biology. (2 marks)

- i. _____.
- ii. _____.

2. Learners carried out a biodiversity study in their local environment.

a) Identify **the apparatus** used to collect small animal specimens shown below. (2 marks)



S



T

S: _____.

T: _____.

b) Other than the ones identified in (2.(a)) above, Identify **TWO other apparatus** used to collect small animal specimens. (2 marks)

i

ii. _____.

c) Describe **THREE steps** followed when preparing a plant specimen for a herbarium. (3 marks)

i. _____.
ii. _____.
iii. _____.

d) Give **THREE reasons** why specimen collection and preservation are important in Biology. (3 marks)

i. _____.
ii. _____.
iii. _____.

3. A learner used a **light microscope** during a Biology practical lesson.

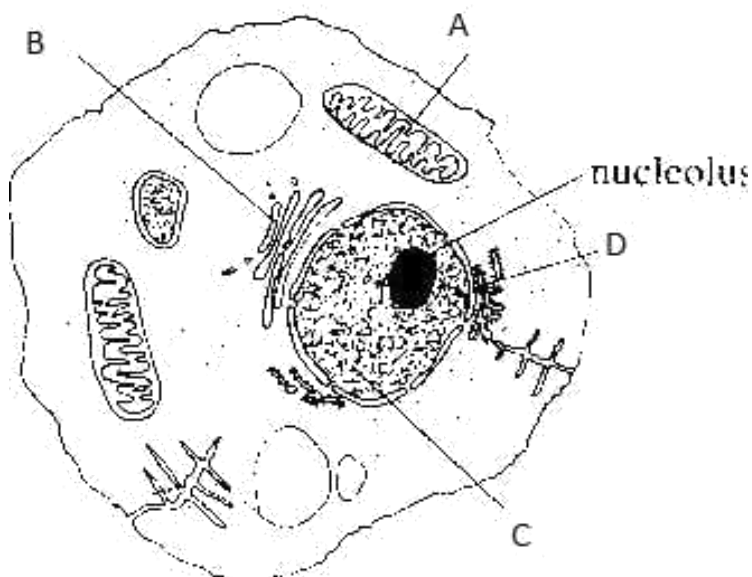
a) Complete the table below by stating the use of each part of the microscope. (4 marks)

Part of the Microscope	Use
Eyepiece lens	
Objective lens	
Diaphragm	
Coarse adjustment knob	

b) State **THREE differences** between a light microscope and an electron microscope. (6 marks)

	Light microscope	Electron microscope
i		
ii		
iii		

c) Name the cell organelles labelled A, B, C and D. (4 marks)



A: _____.

B: _____.

C: _____.

D: _____.

c) State the function of the following cell organelles. (2 marks)

Cytoplasm	
Smooth endoplasmic reticulum	

4. Cells are adapted to perform specific functions.

a) State **FOUR differences** between plant and animal cells. (4 marks)

	<i>Plant cell</i>	<i>Animal cell</i>
i		
ii		
iii		
iv		

c) Identify the specialized animal or plant cell that performs each of the following functions.(6 marks)

	Function	Specialised Cell
i	Transports oxygen in the body	
ii	Absorbs water and mineral salts from the soil	
iii	Transmits electrical impulses in the body	
iv	Carries out photosynthesis efficiently	
v	Controls opening and closing of stomata	
vi	Enables movement by contraction	

b) State the ways in which the following cells are adapted to their functions.

i) Root hair cell (1 mark)

ii) Red blood cell (1 mark)

5. Learners tested food substances in a school laboratory.

a) Name **TWO classes of chemicals of life** found in cells. (2 marks)

- i. _____.
- ii. _____.

b) Describe **ONE test** used to detect each of the following: (3 marks)

- i) Starch: _____.
- ii) Proteins: _____.
- iii) Lipids: _____.

c) State **TWO factors** that affect enzyme activity. (2 marks)

- i. _____.
- ii. _____.

6. Catalase enzyme was tested using liver tissue.

a) Define the term **enzyme**. (2 marks)

b) Explain **TWO roles of enzymes** in living cells. (2 marks)

- i. _____
- ii. _____

c) State **TWO importance of water** in cells. (2 marks)

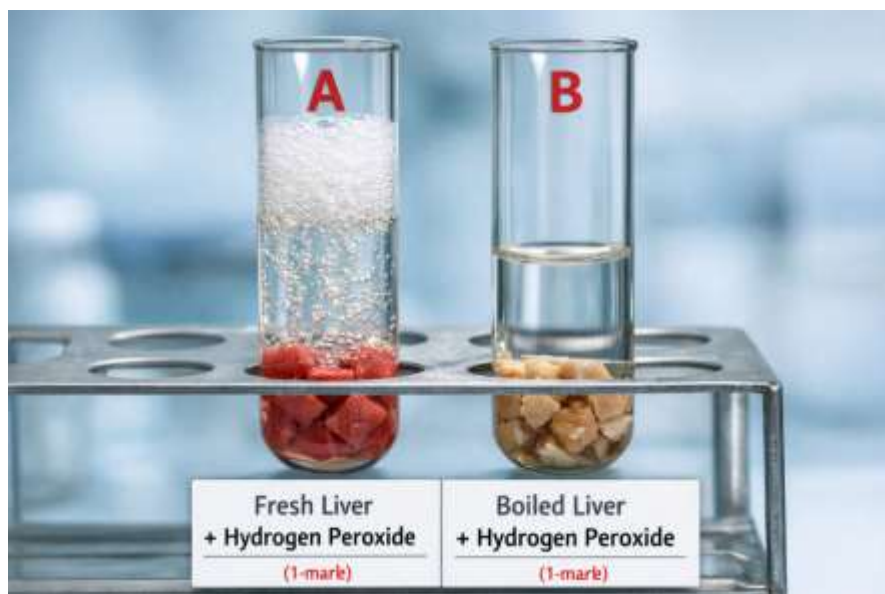
- i. _____
- ii. _____

7. Complete the table below by identifying the enzyme that performs each function. (6 marks)

	Function of Enzyme	Name of Enzyme
i	Breaks down hydrogen peroxide into water and oxygen	
ii	Breaks down starch into maltose	
iii	Breaks down proteins into amino acids	
iv	Breaks down fats (lipids) into glycerol and fatty acids	
v	Breaks down lactose into glucose and galactose	
vii	Breaks down RNA into nucleotides	

8. A learner conducted an experiment to investigate the **action of catalase enzyme** in living tissues.

Two test tubes, **A** and **B**, were set up as shown below:



- i. Test tube **A** contained **fresh liver pieces** and **hydrogen peroxide**.
- ii. Test tube **B** contained **boiled liver pieces** and **hydrogen peroxide**.

The learner observed that **bubbles of gas were produced in test tube A**, but **no bubbles were observed in test tube B**.

a) Name the **gas** produced in test tube A. (1 mark)

_____.

b) Identify the **enzyme** present in the liver tissue. (1 mark)

_____.

c) Explain why bubbles were observed in test tube A but not in test tube B. (2 marks)

d) State **TWO conclusions** that can be drawn from this experiment. (2 marks)

- i. _____
- ii. _____

e) Give **TWO precautions** that should be taken to ensure reliable results in this experiment. (2 marks)

_____.

ii. _____

9. Plants obtain nutrients in different ways.

a) Describe **TWO structural features of the chloroplast** related to its function. (2 marks)

i. _____

ii. _____

b) Photosynthesis takes place in two stages. Name the part of the chloroplast where the light stage occurs. (1 mark)

_____.

c) How is the dark stage dependent on the light stage of photosynthesis? (2mks)

b) State **TWO importance of photosynthesis** in nature. (2 marks)

i. _____

ii. _____

c) Differentiate between the **light stage** and **dark stage** of photosynthesis. (2 marks)

b) State **TWO factors** affecting the rate of photosynthesis. (2 marks)

i. _____

ii. _____

c) Write the **word equation** for photosynthesis. (2 marks)

THE 47 COUNTIES C1 SCHOOLS' JOINT NATIONAL SBA ASSESSEMENT

SENIOR SCHOOL ASSESSMENT

TERM 2: MIDTERM ASSESSMENT 2026

GRADE 10 – BIOLOGY 006 JUNE

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 (EXAMINER'S USE)

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. Mr. Mwangi involved learners in browsing for information about Biological terms during a Biology lesson.

a) Define Biology. (1 mark)

b) State TWO branches of Biology. (2 marks)

i. _____

ii. _____

2. At Greenfields Senior School, learners are exploring how Biology knowledge is applied in real life, including careers and agriculture.

a) Name TWO careers related to Biology. (1 mark)

i. _____

ii. _____

b) State ONE application of Biology in agriculture. (1 mark)

3. State TWO factors that should influence career choice. (2 marks)

i. _____

ii. _____

4. Identify TWO apparatus used to collect specimens in the field. (2 marks)

i. _____

ii. _____

5. State TWO ways of preserving biological specimens. (2 marks)

i. _____

ii. _____

6. At Sunrise Senior School, students are studying cell structure under the topic of Biology, focusing on differences between plant and animal cells.

b) State the function of the nucleus. (1 mark)

7. Grade 10 learners at Lakeview Senior School are studying the use of microscopes in Biology, comparing different types used to observe cells.

a) State ONE difference between a light microscope and an electron microscope. (1 mark)

b) State ONE similarity between them. (1 mark)

8. Match the cell type with its function: (2 marks)

Cell Type

Function

(i) Red blood cell

(A) Transmission of impulses

(ii) Nerve cell

(B) Transport oxygen

9. a) Name TWO classes of food nutrients. (2 marks)

i. _____.

ii. _____.

b) State ONE function of proteins. (1 mark)

10. a) Define enzymes. (1 mark)

b) State TWO factors affecting enzyme activity. (2 marks)

i. _____.

ii. _____.

11. Name TWO types of nutrition in plants. (2 marks)

12. State TWO requirements for photosynthesis. (2 marks)

- i. _____
- ii. _____

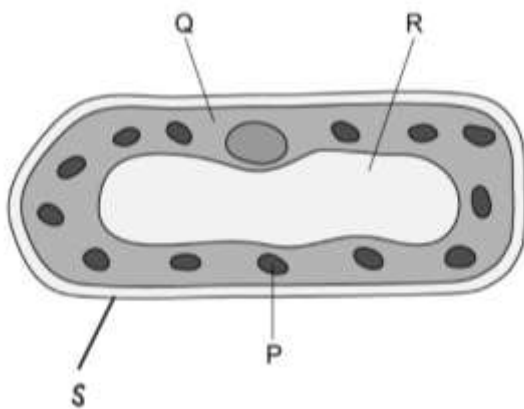
13. Name the tissues responsible for:

- a) Transport of water _____ (1 mark)
- b) Transport of food _____ (1 mark)

SECTION B (50 MARKS)

Answer ALL questions.

14. A student prepared a slide of onion cells and observed it under a microscope.



- a) Name the part labeled R _____ (1 mark)
- b) Explain TWO reasons for staining cells. (2 marks)

- i. _____
- ii. _____

c) Outline THREE steps followed when preparing a temporary slide. (3 marks)

- i. _____
- ii. _____
- iii. _____

d) Explain TWO differences between plant and animal cells. (2 marks)

- i. _____
- ii. _____

15. Simon drew the following specialized plant cell on a chart.



a) Identify the cell shown. _____ (1 mark)

b) State TWO functions of this cell. (2 marks)

- i. _____
- ii. _____

c) Explain THREE adaptations of the cell for its function. (3 marks)

- i. _____
- ii. _____
- iii. _____

d) Compare this cell with a red blood cell. (4 marks)

CELL X	Red blood cell

16. A student carried out tests on food samples.

Food Sample	Iodine Test	Biuret Test
A	Blue-black	No change
B	No change	Purple

b) Describe the test for lipids. (2 marks)

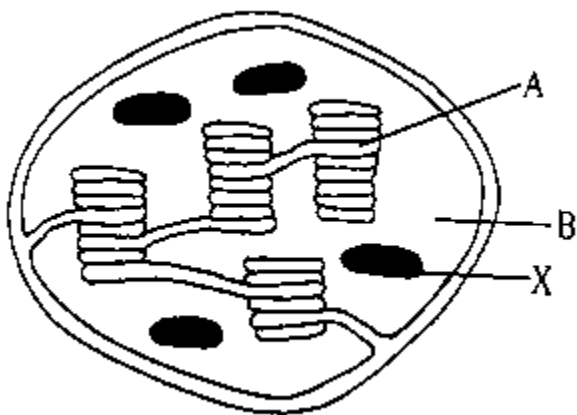
- i. _____
- ii. _____
- iii. _____

c) Explain THREE factors affecting enzyme activity. (3 marks)

- i. _____
- ii. _____
- iii. _____

d) A student observed enzyme activity increases with temperature up to a point then decreases. Explain. (2 marks)

17. The diagram below represents a plant cell organelle.



a) Name the organelle (1mk)

b) In which of the labeled parts does carbon (IV) oxide fixation occur? (1mk)

c) Name the parts labeled A and B and state how each is adapted to its function. (4mks)

PART	NAME	ADAPTATION
A		
B		

d) Explain what would have happened to the structure labeled X had the plant been kept in darkness for 48 hours. (1mk)

e) State the role of chlorophyll. (1 mark)

f) Write the word equation for photosynthesis. (1 mark)

g) Explain TWO importance of photosynthesis. (2 marks)

- i. _____
- ii. _____

h) Differentiate between light and dark stages. (2 marks)

18. A farmer in Mwatate notices plants wilting during hot weather.

a) Define transpiration. (2 marks)

b) Explain THREE factors affecting transpiration. (3 marks)

i

c) Describe an experiment to demonstrate transpiration. (3 marks)

- i. _____
- ii. _____
- iii. _____

d) Explain TWO mechanisms of water transport in plants. (2 marks)

- i. _____
- ii. _____

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GRADE 10 INTER C1 SENIOR SCHOOLS END OF YEAR EXAMINATIONS

KENYA CERTIFICATE OF BASIC EDUCATION

SENIOR SCHOOL ASSESSMENT

TERM 3: ENDTERM ASSESSMENT 2026

GRADE 10 – BIOLOGY

Time: 2 Hours

LEARNER'S DETAILS

Name: _____ **School:** _____.

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

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

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LEARNER'S TOTAL SCORE											

SECTION A (30 MARKS)

Answer ALL questions in this section.

1. A learner was tasked with defining the term Biology.

a) State the correct meaning of Biology. **(1 mark)**

b) Give **two ways** in which Biology can be applied in solving community problems. **(2 marks)**

- i. _____
- ii. _____

2. During a field study, learners collected leaves, insects and small organisms for identification.

a) Name **two apparatus** that can be used to collect biological specimens. **(2 marks)**

- i. _____
- ii. _____

b) State **one reason** why biological specimens should be properly preserved. **(1 mark)**

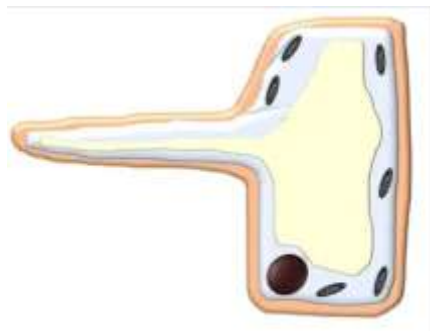
3. A student observed a cell using a light microscope.

a) State the function of the **nucleus**. **(1 mark)**

b) Give **two differences** between a plant cell and an animal cell. **(2 marks)**

Plant cell	Animal cell

4. The diagram below represents a specialized cell.



a) Identify the likely specialised cell represented. _____ **(1 mark)**

b) State **one adaptation** that enables the cell to perform its function efficiently. **(1 mark)**

b) State the colour change expected when starch is present. **(1 mark)**

c) Name the reagent used to test for **reducing sugars**. _____ **(1 mark)**

6. A farmer noticed that a plant kept in darkness for several days had pale leaves.

a) Name the process by which green plants manufacture food. _____ **(1 mark)**

b) State **two conditions** necessary for this process. **(2 marks)**

i. _____

ii. _____

7. A learner placed a leafy plant in sunlight and covered one leaf with opaque paper.

a) Why was the leaf partly covered? **(1 mark)**

b) Which substance is being investigated in this experiment? **(1 mark)**

8. The table below shows the results obtained when a student investigated water movement in plant tissues.

Tissue	Movement of water
X	Upward
Y	Downward

a) Identify tissue **X**. _____ **(1 mark)**

b) Identify tissue **Y**. _____ **(1 mark)**

9. During a Biology lesson, learners observed that a person breathes faster immediately after vigorous exercise.

a) State **one reason** for the increased breathing rate. **(1 mark)**

b) Name the gas required by body cells during aerobic respiration. _____ **(1 mark)**

10. A student investigated the effect of temperature on the rate of respiration in yeast.

b) Give **one observable indication** that respiration is taking place. **(1 mark)**

11. A learner ate a meal containing carbohydrates, proteins and fats.

a) State the main function of carbohydrates in the body. **(1 mark)**

b) State **one function** of proteins in the body. **(1 mark)**

c) State **one function** of fats and oils. **(1 mark)**

12. State **three characteristics** that distinguish living organisms from non-living things. **(3 marks)**

- i.

- ii.

- iii.

SECTION B: 50 MARKS

Answer all questions in this section.

13. A Biology teacher gave a group of learners a specimen of an onion epidermis and instructed them to prepare a temporary slide for microscopic observation.

a) State **two materials** required when preparing the temporary slide. **(2 marks)**

- i.

- ii.

b) Describe how the onion epidermis can be prepared for observation under a light microscope. **(4 marks)**

iv. _____

c) State **two functions** of the microscope in biological investigations. **(2 marks)**

i. _____

ii. _____

d) Give **two safety precautions** that should be observed when handling a microscope and biological specimens. **(2 marks)**

i. _____

ii. _____

14. The cells of multicellular organisms are specialised to perform different functions.

a) Explain the meaning of **cell specialisation**. **(2 marks)**

b) Complete the table below. **(4 marks)**

Specialised cell	Main function
Red blood cell	
Root hair cell	
Sperm cell	
Palisade cell	

c) Explain **two adaptations** of a root hair cell that make it efficient in absorbing water and mineral salts. **(2 marks)**

i. _____

ii. _____

d) State **two advantages** of having specialised cells in multicellular organisms. **(2 marks)**

i. _____

ii. _____

15. A school health club conducted a survey on the eating habits of learners. They found that some learners frequently skipped breakfast and consumed mainly sugary snacks.

a) State **three classes of food nutrients** required by humans. **(3 marks)**

i. _____

ii. _____

b) Explain **two effects** of inadequate protein intake in growing learners. **(2 marks)**

- i. _____
- ii. _____

c) Describe how a learner can obtain a balanced diet from commonly available foods in Kenya. **(3 marks)**

- i. _____
- ii. _____
- iii. _____

d) Explain why excessive consumption of sugary foods may be harmful to health. **(2 marks)**

- i. _____
- ii. _____

16. A farmer observed that two similar plants were growing differently.

- i. *Plant A was placed in adequate sunlight and watered regularly, while*
- ii. *Plant B was kept in a dark room.*

a) Explain why Plant B developed weak, elongated and pale shoots. **(3 marks)**

- i. _____
- ii. _____
- iii. _____

b) Describe the process of **transpiration** in plants. **(3 marks)**

c) State **two factors** that affect the rate of transpiration. **(2 marks)**

- i. _____
- ii. _____

d) Explain the importance of transpiration to a plant. **(2 marks)**

17. During a school athletics competition, a learner ran several laps around the field. His breathing rate and heartbeat increased considerably.

a) Explain why the learner's breathing rate increased during the exercise. **(3 marks)**

- i. _____
- ii. _____
- iii. _____

b) Distinguish between **aerobic respiration** and **anaerobic respiration**. **(2 marks)**

c) State the products of aerobic respiration. **(2 marks)**

- i. _____
- ii. _____

d) Explain why the learner continued breathing heavily for some time after completing the race. **(3 marks)**
