PRIME MINISTER'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
SOUTHERN HIGHLANDS PRIVATE SECONDARY SCHOOLS
FORM FOUR INTERSCHOOL JOINT EXAMINATION

033/1 **BIOLOGY 1**

(For Both School and Private Candidates) JULY,2026

Instructions

1. This paper consists of sections A, B and C with a total of **eleven (11)** questions.
2. Answer **all** questions in section A and B and **two (2)** questions from section C.
3. Section A carries **Sixteen (16)** marks, section B **Fifty-four (54)** marks and section C **Thirty (30)** marks.
4. All writings must be in **blue** or **black** ink, except drawings which should be in **pencil**
5. Communication devices and any unauthorized materials are **not** allowed in the examination room.
6. Write your ***Examination Number*** on every page of your answer sheet (s).

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SECTION A: (16Marks)

Answer **all** questions in this section

1. For each of the item (i) – (x), choose the correct answer from the given alternatives and write its letter besides the item number inthe box provided.

(i) The key stages of mitosis in the order of their occurrence are:
A. Prophase, metaphase, anaphase and Telophase.
B. Anaphase, metaphase, Telophase and prophase
C. Pro-metaphase, metaphase, anaphase and Telophase
D. Prophase, metaphase, anaphase 1 and Telophase
E. Telophase, anaphase, metaphase and Telophase.

(ii) Scientists usually make drawing of objects which they observe using a hand lens. The size of the drawing that they make is usually larger or smaller than the actual object. What is the precise name of the calculated value obtained by dividing drawing size to actual size of an object?
A. Observation B. Calculation C. Magnification D. Stabilization E. Indication

(iii) In an experiment to investigate the conditions preferred by earthworms, the amount of light allowed into the container is kept constant. This is the;
A. Independent variable C. Dependent variable
B. Controlled variable D. Experimental variable E. Test variable

(iv) Your biology teacher asked you to walk around the school compound and collect a variety of plants, instructed to observe and group the collected organisms according to their similarities and differences, which major groups of living organisms will you obtain?
A. Kingdom Monera and kingdom insect only
B. Kingdom Animalia and kingdom fungi only
C. Kingdom Plantae and kingdom fungi only
D. Kingdom Animalia and kingdom Plantae only
E. Kingdom Monera, fungi and Animalia only

(v) Sarah complains of having a painful burning sensation around the middle of her chest whenever she eats spicy foods. She also has a problem of passing out very hard stool. What are the possible digestive disorders she is facing?
A. Indigestion and constipation C. Heartburn and ulcers
B. Heartburn and constipation D. Constipation and ulcersE. Indigestion and ulcers

(vi) Benedict's solution is used to test for reducing sugars. When testing for non- reducing sugars, hydrochloric acid is added. What is the aim of using hydrochloric acid during non-reducing sugar tests?
A. To convert disaccharides to monosaccharides
B. To change hydrochloric acid into simple forms
C. To convert monosaccharides to disaccharides
D. To help synthesis of minerals in the laboratory
E. To make the sugar swell mixed up

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(vii) The heart has its own supply of blood from vessels that run all over its surface. They nourish the heart and supplies it with oxygen and removes wastes that would harm the heart if left to accumulate, these vessels are referred to as:-

A. Pulmonary blood vessels C. Portal blood vessels
B. Hepatic blood vessels D. Coronary blood vessels E. Pericardial blood vessel?

(viii) Which one of the following are examples of sex-linked characteristics in human?

A. Colour blindness and albinism D. Blood colour haemophilia
B. Haemophilia and tongue rolling E. Tongue rolling and blood group
C. Colorblindness and haemophilia

(ix) Decide on the safest way to help an individual with hiccup problem for almost 13 hours since morning time.

A. By letting him to breath into paper bag
B. By letting him to breath in plastic bag
C. Nose pinching and breath through mouth
D. Applying a cold compress to the person's chest
E. Giving hopeful words a victim

(x) The following sets represent structures in animal body which refer to the collection of cells with the same function?

A. Muscle, root hair, Palisade, skin. D. Blood, Muscle, bone, Cartilage
B. Blood, Sperm, Bone, Cartilage E. Sperm, Root hair, Palisade, Skin.
C. Meristems, Spleen, Flower, Leaf

2. Match the phrases about HIV/AIDS and other STIs in **Column A** with their corresponding terminologies in **ColumnB** by writing the letter of the correct responses beside the item number in the answer booklet provided.

COLUMN A	**COLUMNB**
(i) Gives an indication of the strength of the person's immune system (ii) Drugs used to reduce severity of HIV (iii)Infections which are transmitted sexually (iv)A virus that causes AIDS (v) Cells which defend the body against infections (vi)A sexual transmitted disease caused by fungus	A. ART B. ARV C. T-Helper cells D. HIV E. Chlamydia F. Candidiasis G. PEP H. STIs I. STDs J. Diaphragm K. CD4 count

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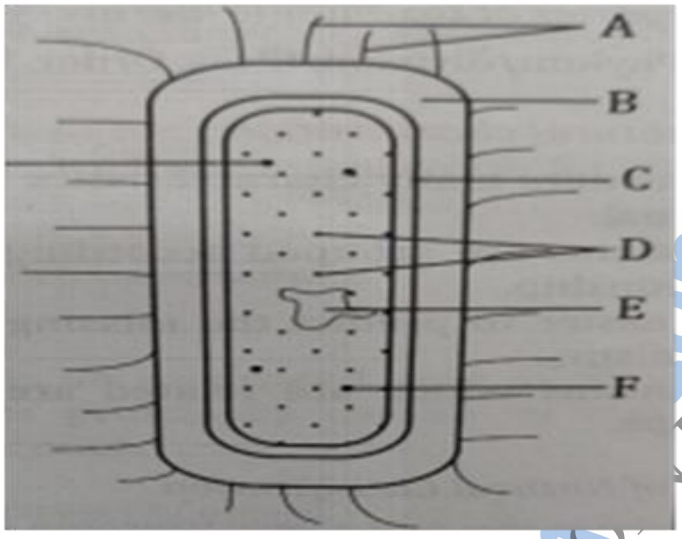
SECTION B: (56Marks)

Answer **all** questions in this section

3. (a) Study the figure 1 below and answer the questions that follow



(i) Identify the cell in figure 1

(ii) Name the parts labelled A, B, C, D, E, and F

(b) Outline five differences between the cell in3(a)above and amoeba cell.

4. (a) (i)Define the term Taxonomic hierarchy(taxon)

(ii)Using Manahan example, illustrate the concept of Taxonomic hierarchy

b) Explain four (4) advantages of using artificial system of classification.

5. (a)Draw a large diagram of the human sperm. Label eight parts (b)Show how the structure of human sperm is related to its function.

6. Recently, tensions in the middle East have affected the transportation of goods through strait of Hormuz in Iran. This situation has led to projected Global shortage of fertilizers in some countries hence affecting Agricultural products based on this situation: -

(a) Explain the importance of essential mineral elements such as Nitrogen, magnesium and potassium in the process of photosynthesis.

(b) Assess how a shortage of fertilizers may affect plant growth and food production

(c) Suggest two ways farmers can cope with the shortage of fertilizers

7. (a) A yeast population was grown in a nutrient medium for a period 20 hours. At regular intervals of time, the cells were counted and the rate of cell division determined. The results were presented graphically as shown in figure 2 below. Suggest three possible reasons for the fall in growth rate after point A

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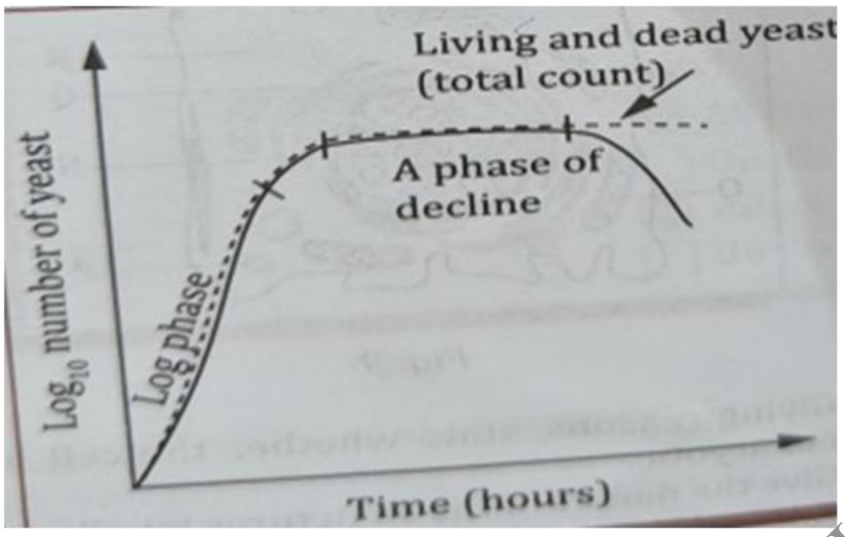

Figure 2

(b) State two external factors which influence growth in plants and mention one effect of each.

8. a) By giving two examples for each, explain what do you understand by the following terms:
   (i) Continuous variation
   (ii) Discontinuous variation.
   (b)State any four (4) areas which provide evidence for organic evolution.

SECTION C:(30Marks)

Answer any two (2) questions

9. A child is diagnosed with kwashiorkor, which requires a strict balanced diet to recover. As a biology student, explain to the parents, the meaning of balanced diet, seven components of the balanced diet and one function of each component of balanced diet to guide them to follow the routine and make the child recover quickly.
10. In 1856, John Gregory Mendel began a series of experiments at the monastery to find out how traits are passed from one generation to another. At that time, it was thought that parents' traits were blended together in their offsprings. Mendel discovered in heritance of patterns by studying the common garden pea, (*Pisumsativum*).
    (a) Suggest three (3) reasons why Mendel used garden peas in his experiments
    (b) What were the major conclusions of Mendel's experiments? (three points)
    (c) State Mendel's first law of inheritance.
    (d) Cystis fibrosis is controlled by a recessive allele. Using appropriate symbols complete a punnet square to show the probable outcome of mating between a couple, both of them are heterozygous for this gene.

11. Mammals use both behavioral and physiological mechanisms in regulating body temperature. Explain how this takes place by using six (6) points.

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