

PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

FORM FOUR MIDTERM EXAMINATION

033

BIOLOGY

Time: 3:00 Hours

Instructions

1. This paper consists of section **A, B** and **C** with a Total of **eleven (11)** questions.
2. Answer **all** the questions in the 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** carries **thirty (30)** marks.
4. All writing should be in **blue** or **black** pen, except for diagrams that must be drawn in pencil.
5. Communication devices and any unauthorized materials are **not** allowed in the examination room.
6. Write your **index number** on every page of your answer booklet(s) provided.

SECTION A {16 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 it letter beside the item number.
 - (i) Organs having similar functions but different origin and development are.....
 - A. Vestigial organs
 - B. Heterogenous organs
 - C. Analogous organs
 - D. Homogenous organs
 - E. Homologous organs
 - (ii) It's the region of the digestive tract where by both Mechanical and Chemical digestions occurs?
 - A. Esophagus
 - B. Small intestine
 - C. Large intestine
 - D. Mouth
 - E. Stomach

- (iii) Which nutritional disorder may result when a person takes larger quantities of Monosaccharides than body's requirement?
- Kwashiorkor
 - Rickets
 - Marasmus
 - Obesity
 - Beriberi
- (iv) A form four student took a plant with tap root system, leaves with network venation, and flower are in multiple of four or five have broad and shorter leaves. What the class of the plant picked by the student belong?
- Spermatophyta
 - Angiospermophyta
 - Filicinophyta
 - Monocotyledoneae
 - Dicotyledoneae
- (v) Why a Faint victim should be laid down with the head lower than the feet when rendering First Aid?
- The body needs more Minerals at that time
 - The body needs to relax with the head lower than feet
 - The brain on the head needs Oxygenated blood and deoxygenated blood.
 - Brain needs more oxygen supplied by blood from the lungs.
 - Lungs needs deoxygenated blood while brain needs deoxygenated blood.
- (vi) The capture and fixation of solar energy is done by the photosynthetic apparatus of the autotrophs. Among the following which is the photosynthetic apparatus of the autotrophs?
- Hemoglobin
 - Energy flow in the ecosystem
 - Plant biomass.
 - Chloroplast.
 - Chlorophyll.
- (vii) Why is transfusion of blood from a donor with group O to a recipient with blood group AB successful?
- The recipient's blood has no antibodies.
 - The recipient's blood has no antigens.
 - The donor's blood has many antigens.
 - The donor's blood has many antibodies
 - The recipient's blood has antigen O.
- (viii) Study the following groups of organs and answer the question that follows...
- Pineal gland, Adrenal gland, Pancreas and Thyroid gland.
 - Stomach, Tongue, Heart and Kidney.
 - Urethra, Urinary bladder, Ureter and Kidney.
 - Urinary bladder, Kidney, Tongue and Heart.
- Which combination above forms a system?
- (i) and (ii).
 - (i) and (iv).
 - (i) and (iii).
 - (ii) and (iv).
 - (ii) and (iii).
- (ix) A form four boy climbed a coconut tree to harvest coconuts. Unfortunately, he fell down and broke his upper arm. Which bone was broken?
- Ulna

- B. Radius
- C. Tibia
- D. Femur
- E. Humerus

- (x) Juma found that he could hardly maintain his body equilibrium after the motorcycle accident he got. Which of the structures were damaged?
- A. Semicircular canal
 - B. The medulla oblongata
 - C. Pituitary gland
 - D. The cochlea
 - E. The pinnae

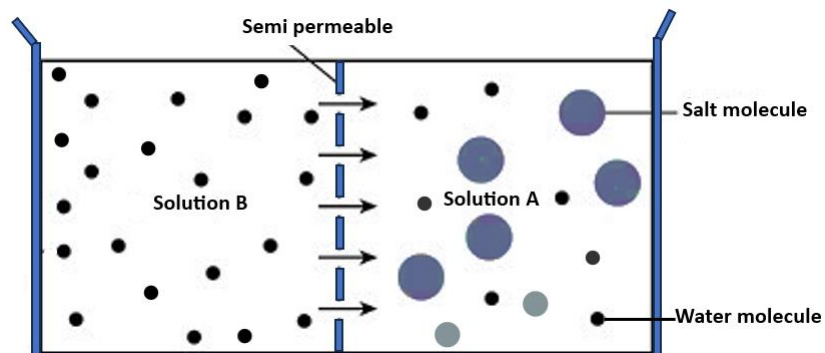
2. Match the items in **List A** with responses in **List B** by writing the letter of the correct response beside the item number.

List A	List B
i. It moves the body tube up and down by very small distance to obtain a sharp focus of the image. ii. A flat platform where a specimen on a slide is placed. iii. It raises and lower stage to keep the specimen in position for observation. iv. Concentrates light before it passes through the specimen at the stage. v. Hold the slide in its position. vi. It holds the objective lens in place.	A. coarse adjustment knob B. Fine adjustment knob C. Condenser D. Diaphragm E. Clip F. Stage G. Base H. Revolving nose piece I. Body tube J. Hinge screw

SECTION B (54 Marks)

Answer all questions in this section

3. a). What do you understand by the term excretory organs?
 b). Plants are living organisms like animals but they have not developed complex organs for excretion. Argue for the statement by giving four reasonable points
4. Suppose you had a study tour visit to **K-V PARK** and you find the following organisms; -
Leopards, Buffalo, Fungi, Wildebeest, Hyena, Shrubs and Bacteria
- (a) Constructs a food web that accommodates all organisms.
 (b) What are the three significances of food web in the Ecosystem of the Park you have visited?
5. Observe the figure 5.1 below and answer the questions that follows



- a) What does the semi-permeable membrane resemble with in animal cell?
 - b) Which solution in figure 5.1 above has a higher concentration of free water molecules?
 - c) Which solution is more concentrated with solutes?
 - d) In which direction will Osmosis occur?
 - e) Name four processes in living things that depends on osmosis.
6. Two groups of Form four students (group A and group B) were asked to classify mosses and fern plants. Group A put mosses and ferns in the same division because they both have chlorophyll while group B put the plants in different division because mosses do not have vascular tissue but ferns have vascular tissue.
- (a) Which classification systems were used by the students in group A and B respectively?
 - (b) Briefly explain the meaning of the classification systems you mentioned in part (a) above.
 - (c) In four points, show the differences between the classification systems used by the students (use table)
7. A Placenta performs functions which are taken over by respiratory system, Digestive system and Immune system soon after a baby is born. How far is this true? Give three points to prove.
8. A red flowered rose plant was crossed with white flowered rose plant and all members of the F₁ generation were pink. When the pink flowered rose plants were selfed, a mixture of red, pink and white flowered rose plants were obtained.
- i. Identify the type of dominance applied in a cross above.
 - ii. Use genetic cross to find out the formation of F₁ individuals.
 - iii. Write the Genotype and Phenotype of Hybrids in F₂ generation.

SECTION C (30 Marks).

Answer two (2) questions from this section.

9. Why is it important for plants to carry out photosynthesis? Explain by giving four reasons
10. Any scientific investigation in our environment should follows scientific procedures (methods) so as to get answers of our fundamental questions we normally face.
 - (a) In a correct order, explain the scientific methods followed by scientist in any study.
 - (b) Sense organs are good and usefully in making observation but do not give all the details of things under observation, Explain.
11. Conifers are non-flowering plants that serves several functions in our daily life. Explain any five functions of Conifers in our environment.