INTERSECONDARY SCHOOLS EXAMINATION SERIES

ISESE

FORM SIX SERIES 01

133/1 **BIOLOGY 1**

Time: 3Hours **Wednesday 17th July 2024**

INSTRUCTIONS

1. This paper consists of six (6) questions
2. Answer all questions in section A and two (2) questions from section B
3. Section A carries seventy (70) marks and section B carries thirty (30) marks
4. Except for diagrams which must be drawn in pencil, all writing should be in blue or black ink.
5. Cellular phones and any unauthorized materials are not allowed in the examination room.
6. Write your examination Number on every page of your answer booklet(s)

SECTION A (70 MARKS)

Answer **all** questions in this section. Each question carries **10** marks

1. (a) Explain the function of lignin and subenin in the plant cell by giving one point on each.

   (b) In the biology laboratory, the form six students at Ubn Secondary analyzed a colorless membrane bound organelles found in the onion. What sample was identified by the students and the function of the three types of the identified sample?

   (c) During the blood diagnosis, Jolini blood was found that her red blood cell missed a disc-shaped structure with cistern that was found in the plant cell. Briefly explain the role of that structure in both plants and animals.

2. (a) Most of the sharks are able to detect any change in the stimuli while in the water. What makes it possible to determine the natural electrical stimuli, explain briefly

   (b) Describe the mechanism of photoreception

3. (a) What would happen to the activity of the intestinal enzymes if the PH in the small intestine remained at 2?

   (b) (i) Suggest one advantage of using active transport in the absorption of monosaccharide's, dipeptides and amino acids.

   (ii) Explain why a mouse require larger number of joules per unit weight than human?

   (c) The rate of uptake of oxygen increases immediately exercise starts, how is the supply of oxygen from outside the body to the cells increased during exercises.

4. (a) Briefly explain six adaptation of the xylem vessel to its function
   (b) (i) Account for the reason as to why the companion cells are metabolically active
   (ii) Explain why the wilted plant looks weak?

5. (a) Explain how pituitary gland is involved in the sperm formation
   (b) (i) Explain the role of mammalian placenta (3 points)
   (ii) Discuss the importance of fertilization in mammals (3 point)

6. (a) State three features of respiratory surface which are common to all vertebrates and briefly explain why is each important.
   (b) (i) Draw a well labeled diagram of mitochondria and explain how it is adapted to its function (2 points)
   (ii) explain the fate of pyruvate under anaerobic respiration

7. (a) Define multiple births and explain their causes (2 points)
   (b) Write down the differences between monozygotic and dizygotic twins (4 points)

SECTION B (30 MARKS)

Answer **two** questions from this section. Each questions carries **(15)** marks

8. (a) Explain the differences between open and closed circulatory system (5 points)
   (b) (i) Discuss the main advantages of a double circulatory system over a single circulatory system.
   (ii) Give reasons why the flow of blood in single circulatory system is slower than in double circulatory system.
9. (a) Discuss how the munch's model demonstrate translocation of food through the phloem from the source to the sinks.

(b) (i) Give the evidence to show that food passes through the phloem by mass flow.

(ii) Explain features that facilitate passage of manufactured food through the phloem tissue (4 points)

10. (a) What is meant by accommodation, briefly explain the mechanism of accommodation to both bright and dim light

(b) Mention the significances of

(i) Tactic movements in organism (3 points)

(ii) Nastic movements in plants. (2 poins)