

P530/2
BIOLOGY
PAPER 2
2½ hours
May-June 2023

Uganda Advanced Certificate of Education

BIOLOGY DEPARTMENT - 2023

SET TWELVE

PAPER 2

THEORY

2 hours 30 minutes.

INSTRUCTIONS TO CANDIDATES:

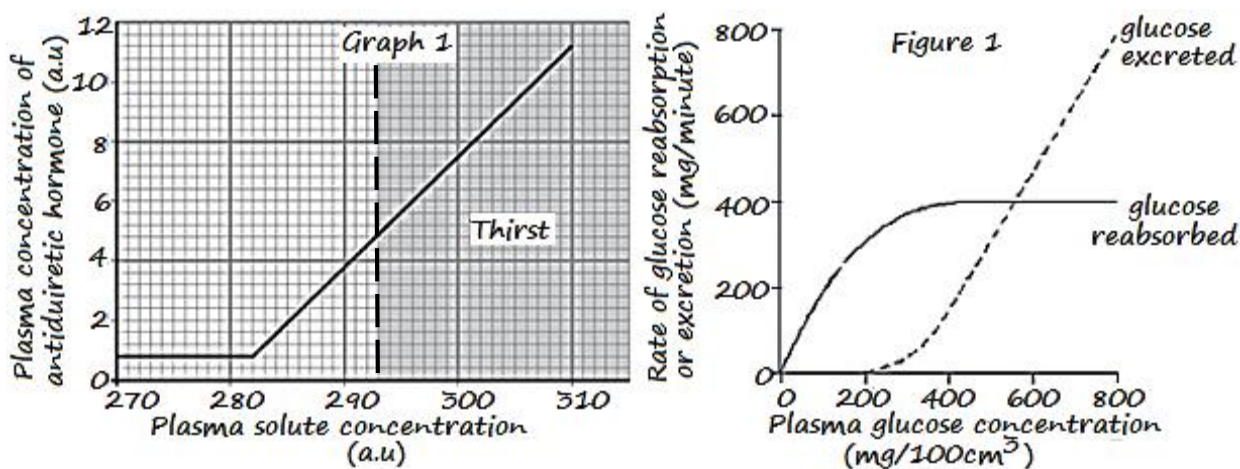
- ✓ Answer question one in section **A** plus three others from section **B**.
- ✓ Candidates are advised to read the questions carefully, organize their answers and present them precisely and logically, illustrating with well labeled diagrams where ever necessary.
- ✓ Write on the answer sheet, your name, index number and the questions attempted in their order as shown in the table.

QUESTION	MARKS
TOTAL	

SECTION A: (40 Marks)

Compulsory.

- Graph 1 below shows the variation changes in plasma concentration of antidiuretic hormone at varying solute concentration of plasma of a mammal. Figure 1 below shows the effect of plasma glucose concentration on the rate of glucose reabsorption and excretion by the kidney nephron.



- Account for the variations in plasma concentration of antidiuretic hormone with plasma solute concentration. (08marks)
- How significant are the changes to the survival of the animal. (05marks)
- Explain the effect of plasma glucose concentration on rate of glucose reabsorption and glucose excretion by the kidney nephron. (07marks)
- Explain the effect of each of the following on the on quantity and composition of urine.
 - Consuming large quantities of carbohydrates. (05marks)
 - Removal of the pancreas. (05marks)
 - Destruction of the posterior lobe of the pituitary gland. (05marks)
 - Drinking a large amount of water. (05marks)

SECTION B: (60 Marks)

Attempt only 3 questions from this section.

- Describe the neural mechanism that leads to habituation. (08marks)
 - Compare habituation and simple reflexes. (06marks)
 - Outline the advantages of territoriality among some animal species. (06marks)

3. (a) Describe how carbon dioxide from respiring tissues is transported to the lung capillaries in man. (10marks)
- (b) Explain the effect of increased levels of carbon dioxide on blood pressure in man. (10marks)
4. Briefly describe the following stages of mammalian growth.
- (a) Cleavage. (05marks)
- (b) Gastrulation. (05marks)
- (c) Neurulation. (05marks)
- (d) Organogeny. (05marks)
5. (a) Explain how animals and plants have successfully co-operated in evolution? (10marks)
- (b) Describe the ways in which plants have negatively responded to each other. (10marks)
6. (a) Describe the chemical structure of cellulose. (05marks)
- (b) Explain the relationship between the structure of cellulose and its functions. (08marks)
- (b) How does the structural diversity of proteins enable the plasma membrane function? (07marks)

END