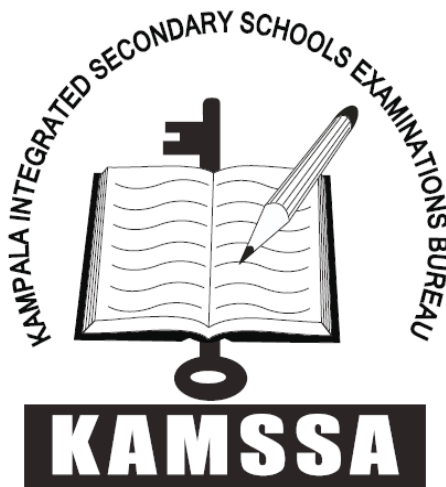


**P530/2**

**Biology**

**Paper 2**

**July/ August 2022**



## **KAMSSA JOINT MOCK EXAMINATIONS**

### **Uganda Advanced Certificate Of Education**

#### **BIOLOGY**

#### **Paper 2**

**2hours 30minutes**

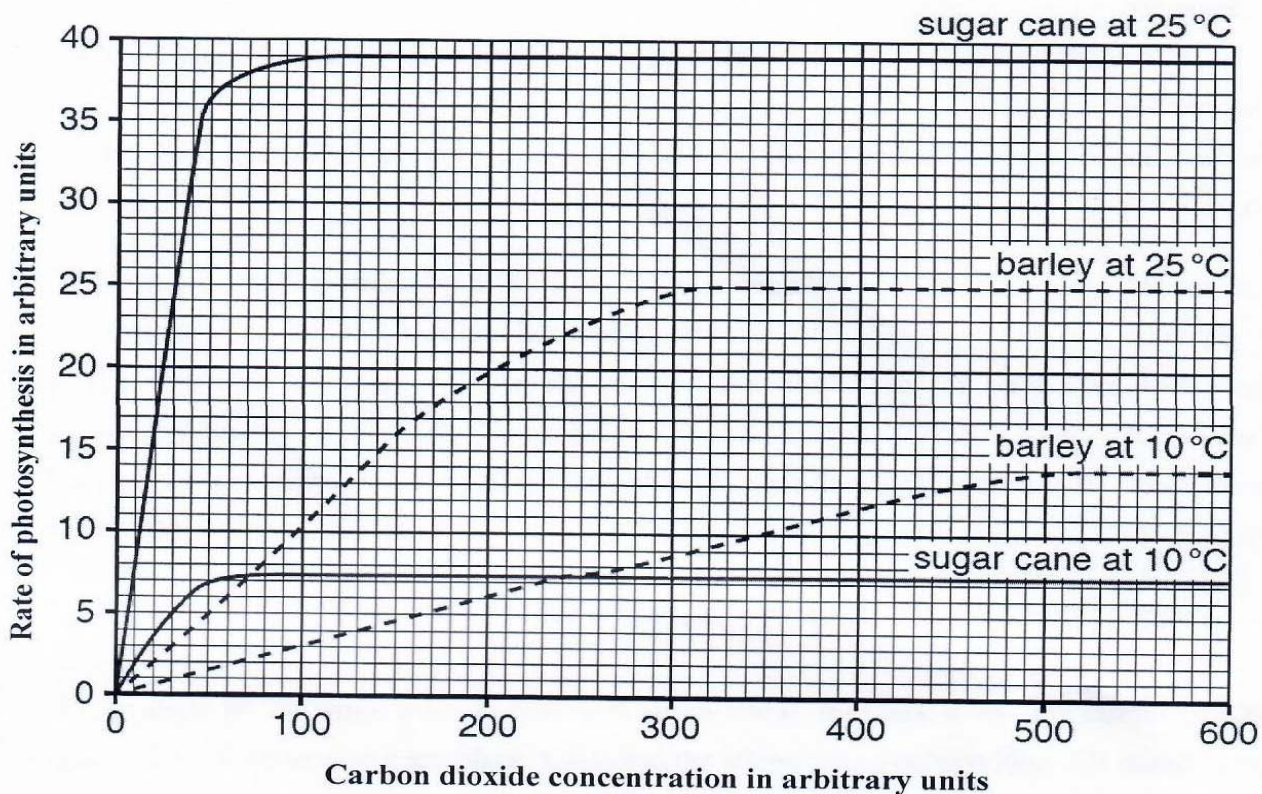
#### **Instructions to candidates:**

- *This paper consist of section A and B.*
- *Answer question **one** in section A plus **three** others from section B .*
- *Candidates are advised to write their full names, index numbers, sigture and question in the order attempted on the first page of their answer sheets.*
- *Candidate s should read questions carefully, organize their answers and present them precisely and logically, illustrating with well labeled diagrams where necessary.*

## SECTION A (40 MARKS)

### Question 1 is compulsory.

1. An investigation was carried out to measure the rate of photosynthesis at different concentrations of carbon dioxide in a crop a field. Two different plants, barley and sugar cane, were tested at two different temperatures, 10 °C and 25 °C. The results are shown in the figure below.



- (a) Describe the variations of rate of rate of photosynthesis in barley and sugar cane at 10 °C. **(08 marks)**
- (b) Compare the variations of photosynthetic rate of barley and sugarcane at 10 °C. **(06 marks)**
- (c) Give a generalized explanation for the trend of the photosynthetic rate shown by the results in the figure above. **(06 marks)**

- (d) Explain why sugar cane had a higher rate of photosynthesis than barley at 25 °C. **(07 marks)**
- (e) In a related investigation, the concentrations of carbon dioxide in air at different heights above the ground in a forest were found to vary over a period of 24 hours. Suggest an explanation for this finding. **(08 marks)**
- (f) Describe how microorganisms in a forest ecosystem make the carbon in a dead worm available to photosynthetic leaves of trees.

### SECTION B (60 MARKS)

2. (a) What is meant by a **codon**? **(02 marks)**
- (b) Compare translation and transcription. **(08 marks)**
- (c) Describe the properties of DNA that:
- (i) Allow self-replication to take place. **(06 marks)**
- (ii) Suggest it is a suitable genetic material. **(04 marks)**
3. (a) What is meant by **artificial selection**? **(04 marks)**
- (b) Explain how polyploidy arises in sexually reproducing organisms. **(08 marks)**
- (c) Describe how polyploidy may lead to speciation. **(08 marks)**
4. (a) Outline the various ways in which efficiency of receptors is ensured. **(07 marks)**
- (b) Explain the differences in acuity and sensitivity to light by different parts of the retina. **(13 marks)**
5. (a) How are plants adapted to reproduction on land? **(10 marks)**
- (b) Describe how female gametes are formed in dicotyledonous plants. **(10 marks)**

6. (a) What is meant by a **food chain**? **(04 marks)**
- (b) Explain how energy flows through an ecosystem. **(08 marks)**
- (c) How does temperature influence the distribution of organisms? **(10 marks)**

**END**