

**P530/2 SET 2**

**BIOLOGY**

**PAPER 2**

**JULY 2022**

**2 ½ HOURS**

**UGANDA ADVANCED CERTIFICATE OF EDUCATION  
MOCK EXAMINATIONS 2022**

**BIOLOGY**

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**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, stream, index number and the questions attempted in their order as shown in the table.*

Question	Marks
Total	

### SECTION A (60 MARKS)

1. The figure 1 below is a graph which shows the effect of temperature on the rate of photosynthesis of two grass species, *Agropyron* and *Bouteloua*. Study the graph and answer questions that follow.

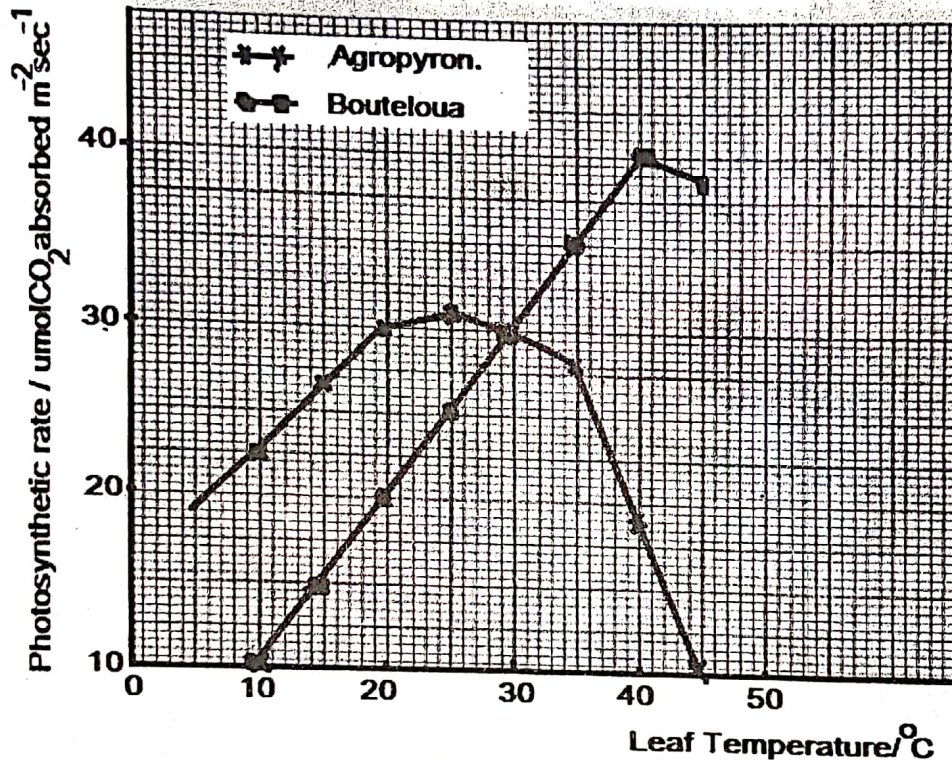


Fig.1

- Compare the activities shown by the two curves. (08 marks)
- Account for the rate of photosynthesis of *Agropyron* from,
  - 10 - 25°C. (10 marks)
  - 25 - 45°C. (06 marks)
- Explain the differences in the photosynthetic rate between *Agropyron* and *Bouteloua* beyond 40°C. (08 marks)
- Predict the trend in the rate of photosynthesis of the *Agropyron* when temperatures continue to rise beyond 45°C and give reason(s) for your answer. (03 marks)
- Basing on the figure 1 above, outline the physiological and ecological advantages of *Bouteloua* over *Agropyron*. (05 marks)

## SECTION B (60 MARKS).

- 2 (a) What is meant by the term "Lethal gene". (02 marks)  
(b) Explain how lethal gene condition leads to evolution. (07 marks)
- (c) Chickens with shortened wings and legs are called Creepers. A cross between creepers produce creepers and normal winged chicken in the ratio of 2 : 1 respectively. Explain the results of a cross between a creeper and normal winged chicken which produced creepers and normal birds in equal proportion of 1 : 1. (11 marks)
- 3 (a) Describe,  
(i) Processes which will lead to formation of Dipeptide in a cell. (07 marks)  
(ii) Physiological significance of monosaccharides to plants. (05 marks)  
(b) Explain the effect of changes in pH on the enzyme activity. (08 marks)
4. (a) Differentiate between the hormones insulin and glucagon. (07 marks)  
(b) Explain the large production of each of the following under certain conditions,  
(i) Sweat on the skin surface. (06 marks)  
(ii) very dilute urine in very cold environment among mammals. (07 marks)
5. (a) Describe the structure of cardiac muscle. (05 marks)  
(b) Account for,  
(i) how cardiac muscles contraction is initiated. (06 marks)  
(ii) Significance of alternate contraction and relaxation of smooth muscles in mammals. (09 marks)
6. (a) What is meant by the term environmental degradation. (02 marks)  
(b) Explain the ecological impact of each of the following human activities,  
(i) Use of polythene papers. (06 marks)  
(ii) Use of pesticides. (06 marks)  
(c) What are the benefits of conserving nature. (06 marks)

END