

SAVANA SECONDARY SCHOOL
DEPARTMENT OF BIOLOGY
Uganda Advanced Certificate of Education
BIOLOGY (Theory)
S.5 END OF TERM 3 EXAMINATIONS 2024
Paper 2
2 hours
30minutes

INSTRUCTIONS

Attempt question 1 plus other 3 questions from section B

SECTION A (40 MARKS)

1. The figure 1 below shows the effects of non-competitive and competitive inhibitors on the rate of an enzyme catalysed reaction. Also included in the experiment is the rate of the enzyme when there is no inhibitor. Temperature of the reaction was maintained constant at optimum. Study the figure and answer the questions that follow.

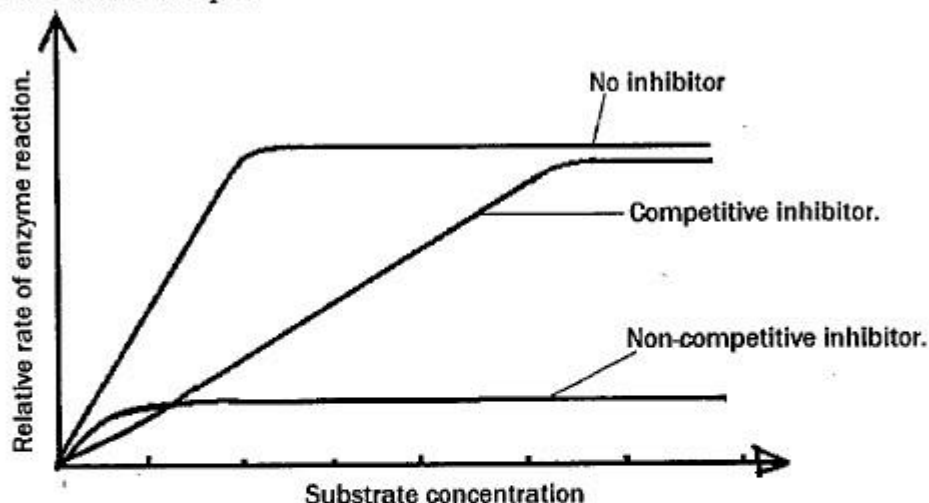


Figure 1.

- (a) Compare the rate of enzyme reactions for competitive and non-competitive inhibition at varying substrate concentration. (09marks)
- (b) Explain the trend of the rate of enzyme reactions under,
- (i) Competitive inhibitor. (12 marks)
 - (ii) Non-competitive inhibitor. (10 marks)
- (c) Explain why,
- (i) The rate of reaction was determined when there was no inhibitor. (03marks)
 - (ii) It is important to keep temperatures constant at optimum. (03marks)
- (d) Explain briefly useful applications of Inhibitors. (03 marks)

SECTION A

2 (a). Distinguish between action spectrum and absorption spectrum of a plant (2marks)

(b) Describe mechanisms of ATP synthesis in thylakoid membrane of chloroplast of green plants (10marks)

(c). Explain how photorespiration is avoided in C4 plants (8marks)

3 (a). Describe the structure of the genetic material of cells (12marks)

(b). How does the above structure contribute to its functioning (8marks)

4 (a). Describe the structure of the chloroplast . (6marks)

(b). Explain the semi autonomous nature of chloroplast and mitochondrion (6marks)

(c). Explain the origin of mitochondrion and chloroplast according to the endosymbiotic theory (8marks)

5 (a). Distinguish between negative and positive feedback mechanisms (4marks)

(b). Describe homeostatic regulation of glucose (8marks)

(c). Explain how the liver is adapted to its function (8marks)

6 (a). Explain the advantages of a predator-prey relationship (8marks)

(b) What are the advantages and disadvantages of animals forming territories. (12marks)

E

END