

Kisana Seed Secondary School

END OF TERM II EXAMINATIONS 2019
SENIOR FIVE BIOLOGY PAPER

INSTRUCTIONS TO CANDIDATES

This paper consists of **six** questions.

Answer question **one** in section **A** plus **three** others from section **B**.

Candidates are advised to read the questions **carefully**, **organise** their answers and present them **precisely** and **logically**, illustrating with well labelled diagrams where necessary.

SECTION A

1. The graph in **Figure 1** below shows the relationship between temperature, time and amount of product formed in an enzyme catalyzed reaction. In the experiment, the samples were incubated at temperatures for periods of 1 hour, 2 hours and 5 hours. The amount of product formed was then measured.

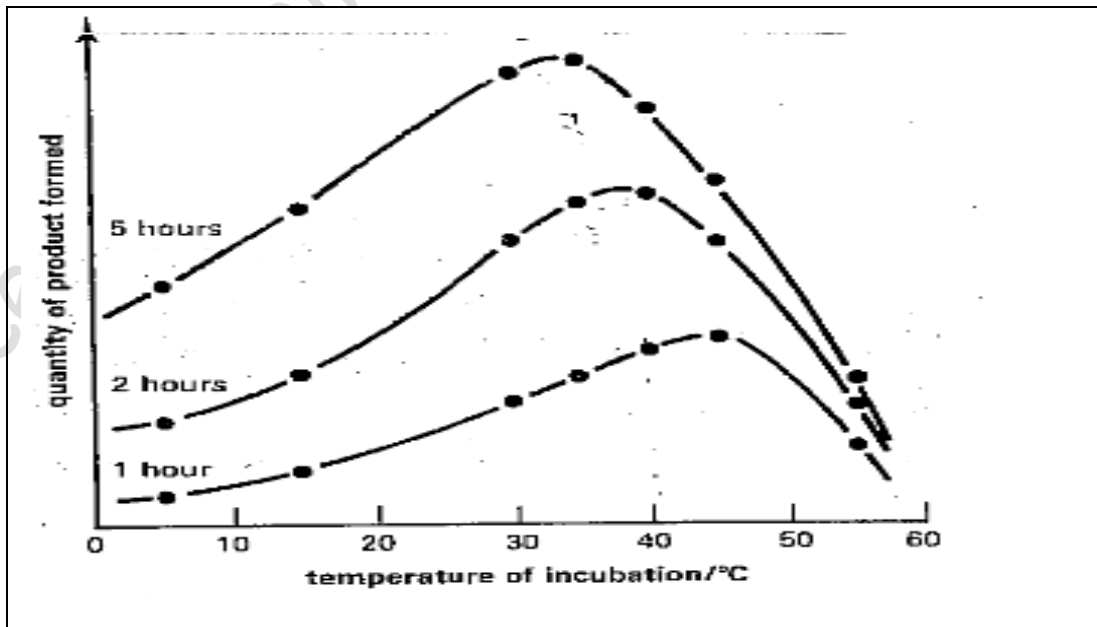
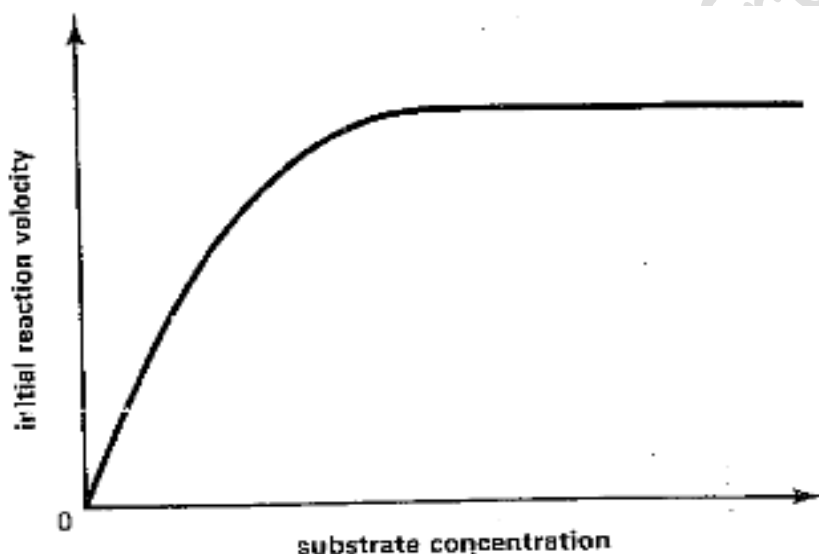


Figure 1

- a) Describe the changes in the quantity of product formed at different temperature after:
- i) One hour 04 marks
 - ii) 5 hours 04 marks
- b) Explain the effect of increasing the incubation temperature on the amount of product formed 08 marks
- c) Suggest an explanation for the high optimum temperature when the incubation period is done for One hour than when it is done for 5 hours 06 marks

Figure 2 shows the effect of substrate concentration on the rate of an enzyme-catalyzed reaction when temperature is constant.



- i) Explain the initial increase in the initial reaction/rate of reaction when the substrate concentration is low 06 marks
- ii) What changes would increase the rate of reaction/reaction velocity at high substrate concentration? 06 marks
- iii) Explain one way in which a high enzyme activity is achieved in mammals compared to other organisms 04 marks

SECTION B (Attempt any 3 questions of your choice)

- 2. What factors affect the distribution of organisms in an ecosystem? 20 marks
- 3. a) How is transpiration responsible for the movement of water up a plant? 10 marks

b) Explain how each of the following factors affect the rate of water loss in plants

i) Temperature

05 marks

ii) Light intensity

05 marks

4. a) Describe the functioning of the organelle responsible for secretion of substances in a cell **10 marks**

b) Discuss the significance of the distribution of membranes in a cell
10 marks

5. a) Distinguish between innate and learned behavior **06 marks**

b) Discuss the significance of each of the following types of learned behavior

I. territoriality

08 marks

II. courtship behavior

04 marks

6. a) What is meant by a food chain? **(2 marks)**

b) Explain how energy flows through an ecosystem. **(8 marks)**

c) How does temperature influence the distribution of organisms? **(10 marks)**

END

Good luck