Names' of student……

School Name……

BIOLOGY

PAPER 2

P530/2

SENIOR FIVE

COMPREHENSIVE BIOLOGY TRANSFORMATION INITATIVE (CBTI)

END OF TERM ONE – 2023.

UACE BIOLOGY

SENIOR FIVE (5)

PAPER 2

2 HOURS AND 30 MINUTES

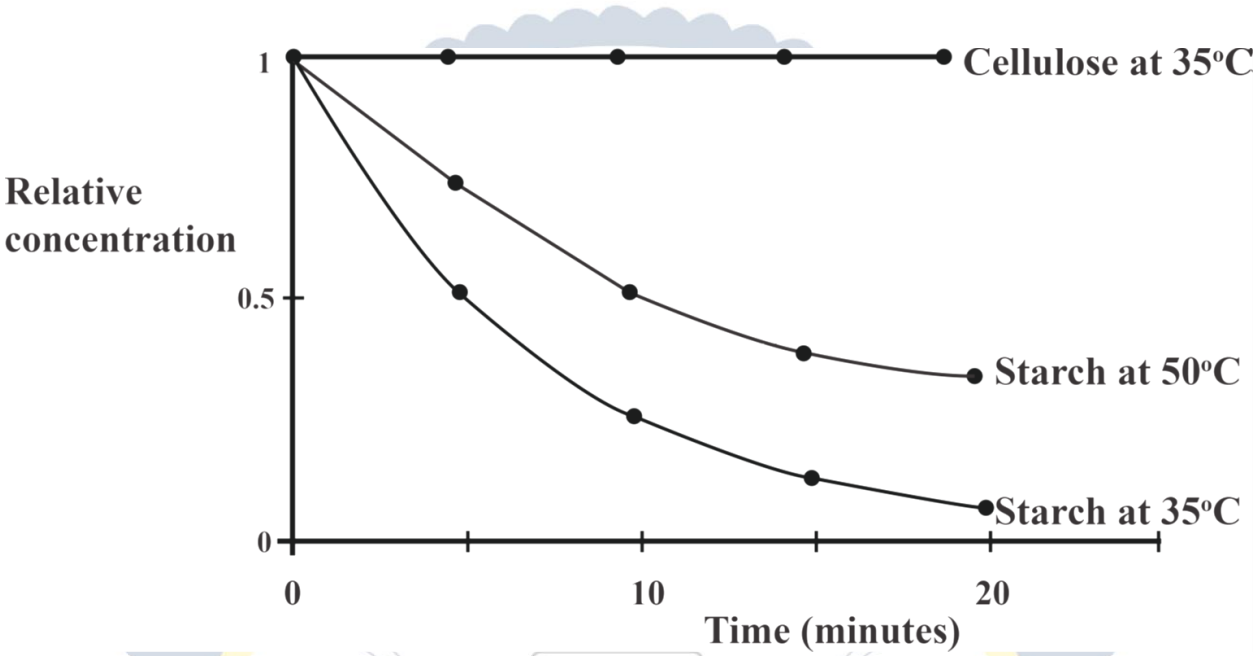
INSTRUCTIONS TO THE CANDIDATES:

This paper consists of section A and B.
Answer question one in section A plus 3 questions in section B
Candidates are advised to read questions carefully, organize their answers and present them precisely and logically, illustrating with well labelled diagrams wherever necessary.

SECTION A (40 MARKS)

N.B <u>THIS SECTION IS COMPULSORY TO ALL STUDENTS.</u>

1. In an experiment to investigate the reaction of Starch and cellulose. Starch and Cellulose were crushed in warm water and filtered to obtain the filtrate. Enzyme Amylase was added to separate filtrates of starch and cellulose. The concentration of starch was monitored at 35°c and 50°c while that of cellulose was monitored only at 35°c. The results of the experiment are shown below. Study the graph carefully to answer questions below.



a) Compare the relative Concentrations of cellulose and Starch at 35°c. (03 marks)

b) Describe the effect of Amylase enzyme on the relative concentrations of the following.

(i) Cellulose.

(ii) Starch. (05 marks)

c) Explain the effect of Amylase on the relative concentration of

(i) Starch at 50°c

(ii) Cellulose at 35°c

(iii) Starch at 35°c (17 marks)

d)(i) Calculate the average rate of breakdown of starch by amylase for the first 10 minutes at both temperatures. (03 marks)

(ii) Suggest why cellulose and starch were crushed into a filtrate.
(02 marks)

e) Explain the adaptations of the following to their roles.

(i) Starch **(05 marks)**

(ii) Cellulose. **(05 marks)**

SECTION B (60 MARKS)

Choose three questions from this section.

2a) Describe the properties of water which makes it a good temperature buffer. **(10 marks)**

b) Explain the following observations.

(i) Non-ionic substances dissolve in water.

(ii) Water forms a skin at its surface.

(iii) Water molecules are sticky and wet. **(10 marks)**

3a) (i) What is meant by Compartmentalization of cells? (03 marks)

(ii) How do the hydrophilic and hydrophobic properties of phospholipids explain the basic structure of the cell membrane?
(07 marks)

b) Explain the key roles of the chemical components of the cell membrane.
(09 marks)

4a)(i) Describe the structure of an enzyme molecule. **(05 marks)**

(ii) Point out the Classification of enzymes basing on the type of reactions they catalyse. **(06 marks)**

b) Explain the effect of inhibitors on the rate of enzyme-controlled reaction.
(09 marks)

5a) Describe the major components of connective tissues. (03 marks)

b) Describe the classification of covering epithelia basing on

(i) Cell Shapes.

(ii) Cell arrangements. **(07 marks)**

c) Explain the adaptations of the following tissues to their roles.

(i) Collenchyma cells. **(03 marks)**

(ii) Parenchyma cells. **(05 marks)**

(iii) Sclerenchyma cells. **(02 marks)**

6)a) Differentiate between cytokinesis and nuclear division. (05 marks)

b) Explain the role of the following concepts as related to nuclear division.

(i) Advantages of two sets of chromosomes.

(ii) Homologous chromosomes increase variation. (07 marks)

c) Describe the adaptations of DNA to its role of information storage.

(08 marks)

END

Contributions made by MUGWE MARTIN.

Kampala-Uganda.

Cc-Comprehensive Biology transformation initiative.