

TERM II ASSESSMENT  
DEPARTMENT OF BIOLOGY

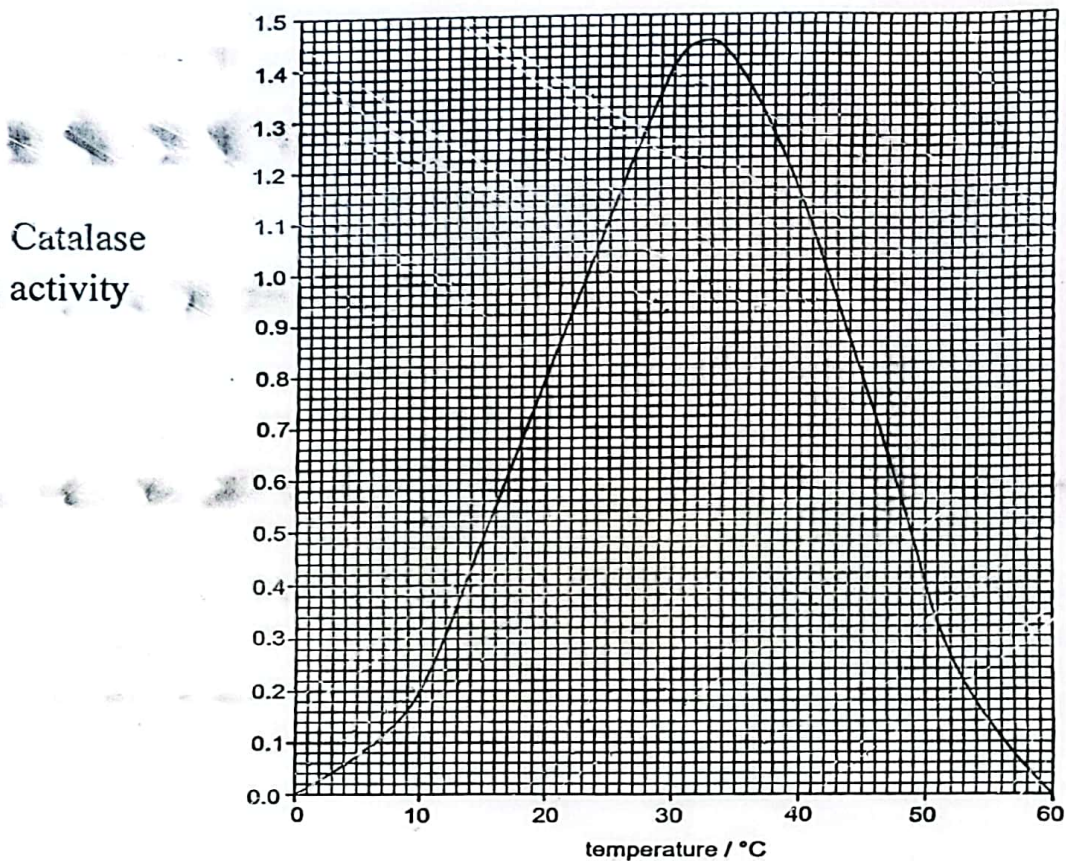
S.3

TIME: 2 hours

Instructions

Answer all questions

1. Catalase is an enzyme that breaks down hydrogen peroxide to **water** and **oxygen**. The affect of temperature on catalase activity was investigated and the results are shown.



- a) State the temperature at which catalase is the most active

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- b) Give a reason for your answer.

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- c) Explain for the observation on the graph at

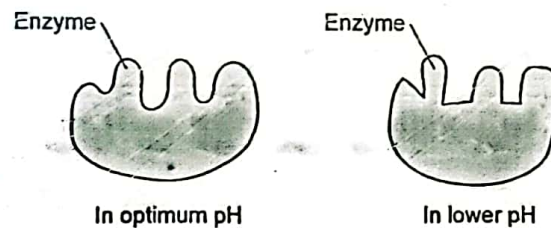
i) 0°C

ii) 60°C

d) State any 3 other factors that affect enzyme activity apart from temperature

### SECTION B

2. The figure below shows an enzyme in its optimum pH and a pH that is much lower.

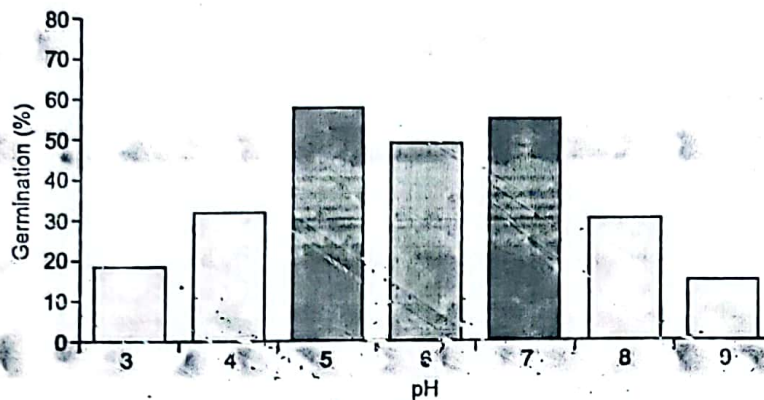


ai) Observe the figure carefully and describe what has happened to the enzyme

iii) Sketch the appropriate substance for the above enzyme.



b) A farmer tested a range of pH of soils in a section of field and recorded the percentage of germination of carrot seedlings at each pH



i) Which PH is optimum for carrot seedlings? Give a reason.

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ii) **Radish seedlings** grow well in **alkaline soils**. A certain farmer suggested that they should be also grown at the carrot's seedling's optimum pH. Explain why his idea is correct or not.

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3. Some animals produce milk to feed their offspring. Table 1 shows the mass of the substance found in 100g milk from two animals.

substance	mass in 100g of milk / g	
	human milk	water buffalo milk
protein	1.10	4.50
fat	4.50	8.00
carbohydrate	7.50	4.90
calcium	0.03	2.00
water		

a) Calculate the mass of water in both human milk and the water buffalo milk

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b) State the name of the substance that is present in a higher concentration in human milk than in water.

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c) Briefly describe what happens when such a substance lands in the mouth

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d) State the name of the component balance diet that is missing from the table I and also state its sources.

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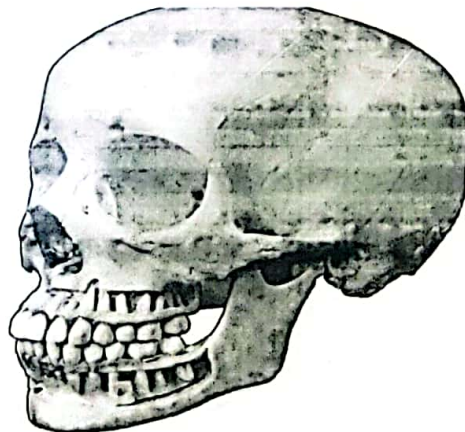
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e) Producing milk for offspring is a characteristic of a particular group of animals. State the name of this group.

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4. The figure below shows teeth in a human skull



a) Add label lines and labels to identify **incisor** tooth and **molar** tooth

b) What is the role of the teeth in digestion?

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c) Identify any other two forms of physical digestion apart from that performed by the teeth.

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5. Water is needed for the process of photosynthesis

a) Describe where and how water enters the plant

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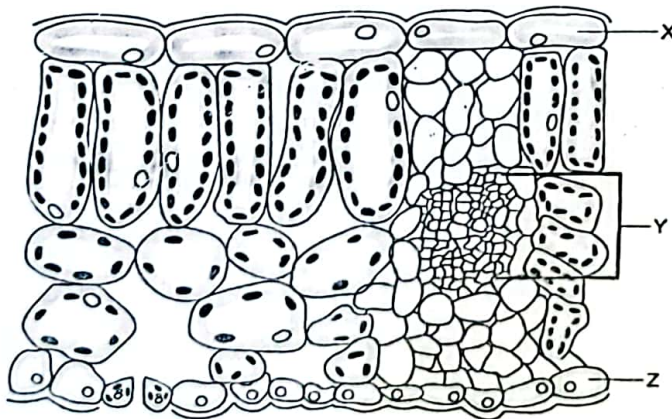
b) Describe two functions of water in a plant other than photosynthesis.

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c) State the name of the tissue in plant that transport water

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6. Figure below shows the cross sector of a leaf.



a) Structure Y represents a Vascular bundle.

i. Identify two types of tissues found in Y



ii. Describe the function of each type of tissue identified at part

b) Layer X and Z form the outer boundaries the leaf.

i) State one visible difference between layer X and Z.

ii) The cells of in layer X are transparent. Explain the importance of this to plant.

c) A gardener is setting up his green house.

He is given an advice from two friends on the correct conditions of his green house to grow the most vegetables.

**Friend X.** suggested that he provides plenty of water to his vegetables but should cover all the windows in black card to prevents the plant getting too hot.

**Friend Y** suggested that he should provide plenty of want and open the windows of the green house but did not suggest covering then.

Should the farmer follow the advice of friend X or friendly Y. explain your choice