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NZQA

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Tick this box if there is no writing in this booklet.

Level 1 Biology 2020

90929 Demonstrate understanding of biological ideas relating to a mammal(s) as a consumer(s)

2.00 p.m. Thursday 26 November 2020
Credits: Three

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of biological ideas relating to a mammal(s) as a consumer(s).	Demonstrate in-depth understanding of biological ideas relating to a mammal(s) as a consumer(s).	Demonstrate comprehensive understanding of biological ideas relating to a mammal(s) as a consumer(s).

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

If you need more space for any answer, use the space provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–8 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

TOTAL

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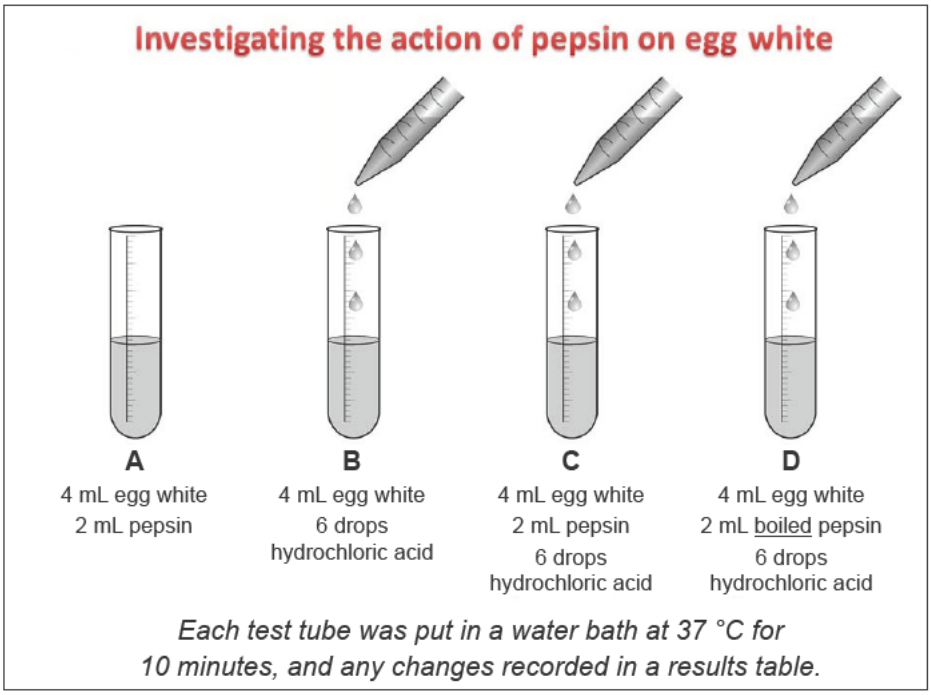
QUESTION ONE: INVESTIGATING DIGESTION IN THE STOMACH

Some students carried out an investigation into the digestion of protein that occurs in the stomach. The enzyme in the stomach that breaks down protein is called pepsin, and the students used egg white as their source of protein. They set up four test tubes, as shown below.



Adapted from: www.biologymann.com/year-8-nc-food-and-digestion html

Information table

Size of egg-white (protein) molecules	Soluble (dissolves) in water	Colour
large	no	cloudy / white
small	yes	colourless / clear

Results table

Test tube	Colour of solution at the start	Colour of solution in test tube after 10 minutes
A	cloudy / white	cloudy / white
B	cloudy / white	cloudy / white
C	cloudy / white	colourless / clear
D	cloudy / white	cloudy / white

Discuss the digestion of food that occurs in the stomach.

In your answer:

- describe the conditions necessary for the digestion of protein to occur in the stomach
- explain the results obtained for test tubes A, B, and D
- link the findings from the investigation to discuss how digestion of protein occurs in the stomach.

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QUESTION TWO: PRODUCTS OF DIGESTION

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Once food has been digested in the digestive system, the products are transported in the circulatory system for absorption by body-tissue cells, in places they are needed. The diagram below shows the site of absorption.

Adapted from: https://en.wikibooks.org/wiki/Anatomy_and_Physiology_of_Animals/Cardiovascular_System/Blood_circulation

Discuss how the products of digestion, e.g. glucose, are transported to ensure efficient distribution and absorption by the body cells.

In your answer:

- describe how the products of digestion, e.g. glucose, travel from the digestive system to the body cells
- explain how and why the products of digestion, e.g. glucose, move into the body cells
- link the functioning of the digestive system and circulatory system that ensures the products of digestion are absorbed efficiently into the places in the body where they are needed.

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QUESTION THREE: AEROBIC AND ANAEROBIC RESPIRATION

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Horses resting

Source: www horsetreks.com.au/albums/kerewong- property-horse-riding-holiday-farm/horses-resting-paddock

Horses running

Source: www.microsoft.com/en-nz/p/running-horses/9n4g5jc11127?activetabpivot:overviewtab

Some of the food molecules produced as a result of digestion, e.g. glucose, are transported around the body to be used in the process of respiration.

Compare and contrast the efficiency of the processes of aerobic and anaerobic respiration in mammals.

In your answer:

- describe the processes of aerobic and anaerobic respiration, their purpose and where they occur in the body of a mammal such as a horse
- explain why the ability to carry out both types of respiration is important for a mammal such as a horse
- discuss the efficiency of aerobic and anaerobic respiration in a mammal such as a horse.

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Extra space if required.
Write the question number(s) if applicable.

QUESTION NUMBER

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