KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA



NATIONAL SENIOR CERTIFICATE

GRADE 11

LIFE SCIENCES

COMMON TEST

JUNE 2021

MARKS: 60

TIME: 1 hour

This question paper consists of 8 pages.

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INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. Answer ALL the questions.
2. Write ALL the answers in the ANSWER BOOK.
3. Start the answers to each question at the top of a NEW page.
4. Number the answers correctly according to the numbering system used in this question paper.
5. Present your answers according to the instructions of each question.
6. Do ALL drawings in pencil and label them in blue or black ink.
7. Draw diagrams, tables or flow charts only when asked to do so.
8. The diagrams in this question paper are NOT necessarily drawn to scale.
9. Do NOT use graph paper.
10. You may use a non-programmable calculator, protractor and a compass.
11. Write neatly and legibly.



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SECTION A

QUESTION 1

1.1 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A to D) next to the question number (1.1.1 to 1.1.3) in the ANSWER BOOK, for example 1.1.4 A.

1.1.1 Which one of the following substances can directly be absorbed by blood without further digestion?

A Fats
B Starch
C Glucose
D Proteins

1.1.2 Cells that control the closing and opening of the stomata during photosynthesis.

A Spongy mesophyll cells
B Palisade mesophyll cells
C Guard cells
D Parenchyma cells

1.1.3 Aerobic respiration and anaerobic respiration are similar in that...

A CO_2 and alcohol are released
B they both use CO_2
C they both use water and glucose
D they both release energy from food (2 x 3) **(6)**

1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question number (1.2.1 to 1.2.4) in the ANSWER BOOK.

1.2.1 The form of carbohydrate in which energy is stored in most plants

1.2.2 The organic molecules that act as catalysts and control the chemical reactions during photosynthesis

1.2.3 The organelle in which respiration takes place

1.2.4 Folded structures found on the inner membrane of the Mitochondria (1 x 4) **(4)**

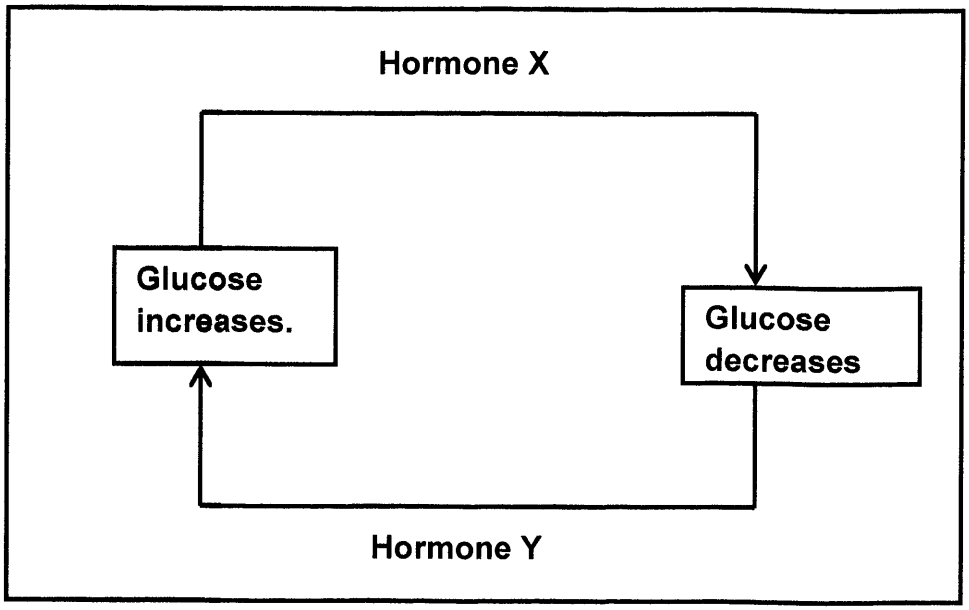
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1.3 Indicate whether each of the descriptions in COLUMN I applies to **AONLY, B ONLY, BOTH A AND B** or **NONE** of the items in COLUMN II. Write **A only**, **B only**, **both A and B** or **none** next to the question number (1.3.1 to 1.3.5) in the ANSWER BOOK.

	COLUMN I	COLUMN II
1.3.1	A lymph vessel in the villus of the small intestine that transport fats.	A: lacteal B: lymph node
1.3.2	Gas released and not used during photosynthesis.	A: oxygen B: carbon dioxide

(2 x 2) **(4)**

1.4 Study the flow diagram showing blood glucose control.



1.4.1 Name the gland that secrets hormone X and Y. (1)

1.4.2 Identify hormone:
(a) X (1)
(b) Y (1)

1.4.3 Briefly describe the role of hormone X in decreasing the blood glucose levels. (3)
(6)

TOTAL SECTION A [20]

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SECTION B

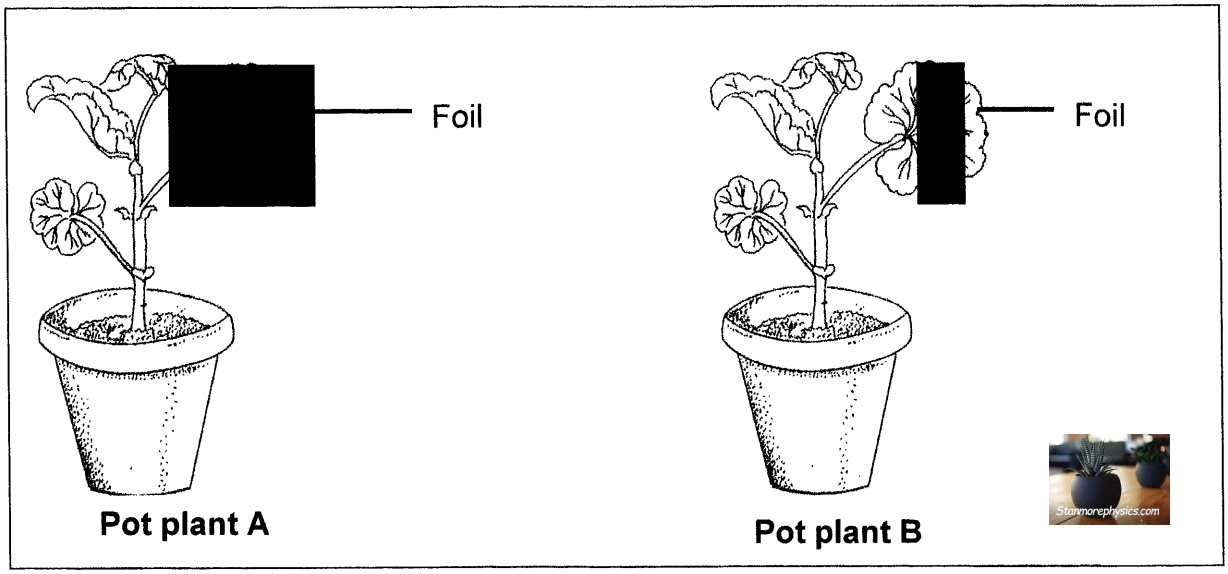
QUESTION 2

2.1 Scientists investigated to determine whether light is essential for photosynthesis.

The procedure for the investigation:

- Two pot plants were used.
- Both pot plants were left in the dark for 24 hours before they were used.
- Pot plant **A** the whole leaf was covered with a foil.
- Pot plant **B,** section of a leaf was covered with a foil.
- Both pot plants were left in a sunny area.
- After some time, a leaf from each pot plant was tested for the presence of starch

The diagrams below show how the investigation was set up.



2.1.1 Identify the dependent variable of the investigation. (1)

2.1.2 State THREE other factors that must have been kept constant during the investigation except those mentioned above. (3)

2.1.3 In what TWO ways can the scientists increase reliability of their results. (2)

2.1.4 After the starch test in pot plant B, what is the expected colour change on the part of a leaf exposed to light? (1)

2.1.5 What conclusion can be drawn regarding the results in pot plant B. (2)
(9)

2.2 Study the following extract and answer the questions which follow.

Fermentation of food is the process of converting carbohydrates to alcohol or organic acids using microorganisms such as yeast and bacteria under anaerobic respiration. Cheese, wine, and beer industries depend on this process to manufacture their products. Some of these foods and beverages manufactured are sold locally and others are exported to other countries

2.2.1 Name TWO uses of fermentation process in industry mentioned in the extract. (2)

2.2.2 Explain TWO other ways in which the production of foods and beverages made by fermentation benefit the South African economy. (4)

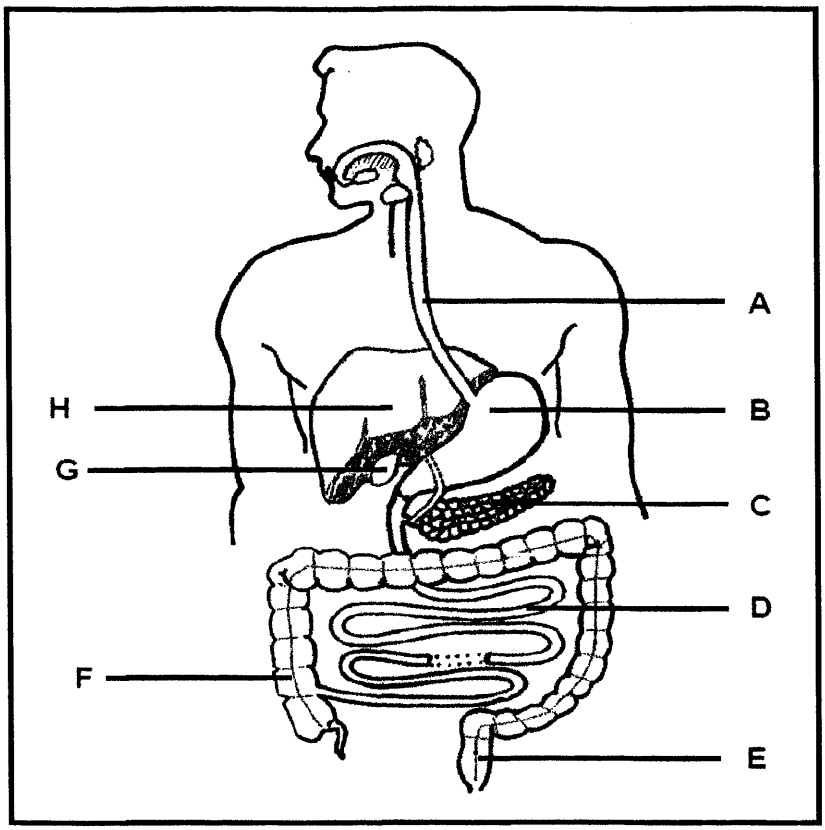
2.2.3 Describe anaerobic respiration in animals. (5) **(11)**

TOTAL QUESTION 2 [20]

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QUESTION 3

3.1 Study the diagram below showing a human digestive system.



3.1.1 Give the **LETTER** of a part of the digestive system that:

(a) secrete hormones (1)
(b) contains enzymes (1)
(c) stores bile (1)
(d) absorbs most of the nutrients (1)

3.1.2 Explain the consequence to the digestive system if part **B** is severely damaged and cannot perform its function. (2)

3.1.3 Explain TWO structural adaptations of the villus for its function. (4)

3.1.4 Describe the process of peristalsis as it occurs in part A (3)
(13)

3.2 The process of photosynthesis occurs in two phases.

3.2.1	Name the site for the light phase of photosynthesis.	(1)
3.2.2	Explain the role of carbon dioxide during the dark phase of photosynthesis.	(2)
3.2.3	Draw and label the structure of an organelle where photosynthesis occurs	(4)
		(7)

TOTAL QUESTION 3 [20]

GRAND TOTAL [60]

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