



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

AGRICULTURAL SCIENCES

ASSIGNMENT

20/08/2025

MARKS: 50

This question paper consists of 7 pages

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO sections, namely SECTION A and SECTION B.
2. Answer ALL the questions in ANSWERSHEET.
3. Start EACH question in SECTION B on a NEW page.
4. Number your answer correctly according to the numbering system used in the question paper.
5. Write neatly and legibly

SECTION A**QUESTION 1**

1.1 Give ONE word /term /phrase for each of the following descriptions and write it next to the question numbers (1.1.1 – 1.1.5) on the ANSWER SHEET.

- 1.1.1 The period during which plants seeds do not germinate due to unfavourable environmental conditions.
- 1.1.2 The form in which nitrogen is absorbed by plants.
- 1.1.3 The process by which soluble nutrients are washed downwards and out of the soil profile by percolating water.
- 1.1.4 The harmful effects on plant growth and development caused by excessive concentrations of chemical substances such as salts, pesticides and metals.
- 1.1.5 The attractive force between water molecules due to hydrogen bonding that allows water molecules to stick together and form a continuous column in the xylem.

(5X1) **(5)**

1.2 Change the UNDERLINED WORD/S in each of the following sentences to make them TRUE. Write only the answer next to the question number (1.2.1 – 1.2.5) in the ANSWER SHEET.

- 1.2.1 Autotrophic plants are unable to manufacture their own food through the process of photosynthesis.
- 1.2.2 Hypotonic solution is a solution with a higher solute concentration and lower water concentration compared to the inside of a cell.
- 1.2.3 Divalent phosphate is more available to plants when the soil pH is low.
- 1.2.4 Bulbs are fleshy underground horizontal stems that store food and energy in the form of starches for plants.
- 1.2.5 Evaporation is the process when plants extruded droplets of water through the tips or edges of leaves due to root pressure.

(5X1) **(5)**

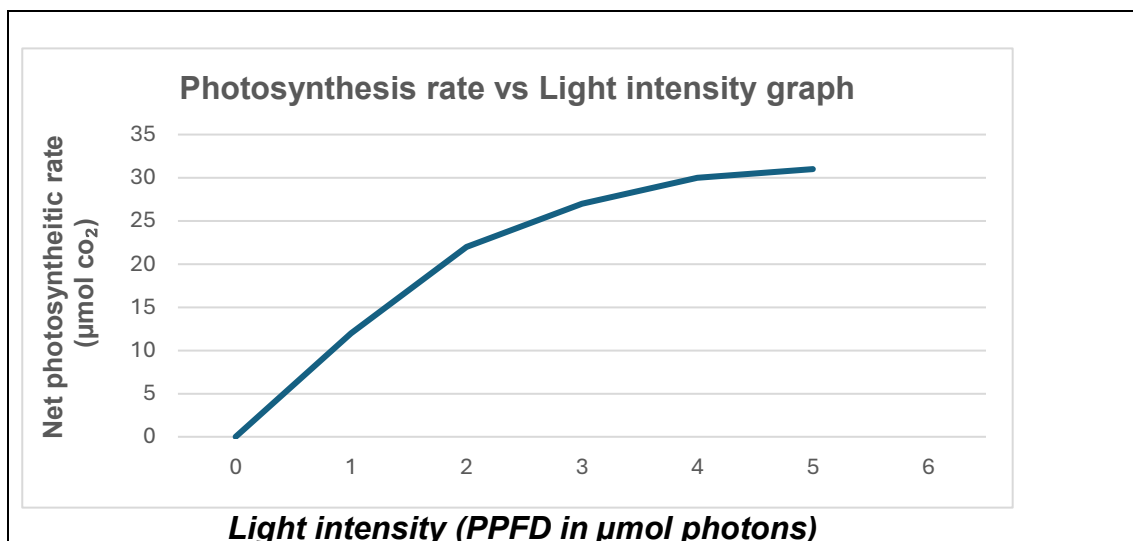
TOTAL SECTION A: [10]

SECTION B

Start each question on a new page

QUESTION 2 : PHOTOSYNTHESIS, WATER AND NURIENTS

2.1 The graph below shows the rate of photosynthesis.



- 2.1.1 Write down the balanced chemical equation for the process of photosynthesis. (2)
- 2.1.2 Describe the overall relationship between light intensity and the rate of photosynthesis shown in the graph above. (2)
- 2.1.3 Identify TWO main products of the process of the photosynthesis. (2)
- 2.1.4 Name THREE factors other than light that could limit the rate of photosynthesis. (3)
- 2.1.5 Suggest what would happen to the rate of photosynthesis if the light intensity was increased beyond the values shown on the graph above. (2)
- 2.1.6 Name the specific site within a chloroplast where the following phases of photosynthesis occur:
- (a) Light dependent phase. (1)
 - (b) Light independent phase. (1)

2.2 Study the picture below and answer the questions that follow:

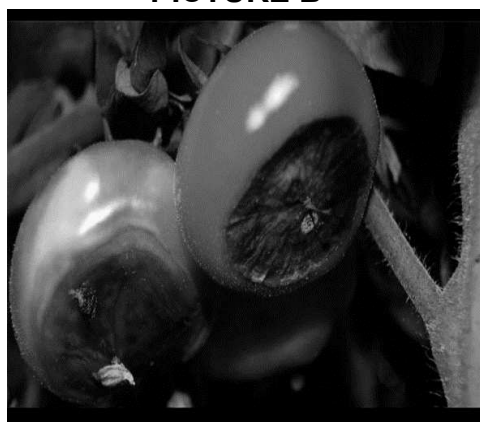


- 2.2.1 Identify THREE plant adaptation factors visible on the plant above to reduce water loss. (3)
- 2.2.2 Deduce TWO consequences of the lack of adaptations by plants. (2)
- 2.2.3 Describe the process of transpiration pull. (2)

[20]

QUESTION 3 : MINERAL NUTRITION, PLANT NUTRIENT UPTAKE, AND ANALYSIS.**Start this question on a new page**

- 3.1 Study the pictures below and answer the questions that follow:

PICTURE A**PICTURE B**

- 3.1.1 Identify the following related to pictures **A** and **B** above.
- (a) Mineral deficient in each picture. (2)
 - (b) ONE visible symptom in each picture (2)
 - (c) The form in which mineral identified in QUESTION 3.1.1 (a) is absorbed by the plants in the soil. (2)
- 3.1.2 Suggest ONE cause of the condition shown in Picture **A**. (1)
- 3.1.3 Name the common physiological disorder shown in Picture **B** as a result of a shortage of a mineral. (1)
- 3.1.4 Briefly describe the difference between chlorosis and necrosis. (2)
- 3.2

Plant nutrient uptake is the absorption of nutrients by a plant. Plant absorbs nutrients in their ionized form through the roots.
- 3.2.1 Name the vascular tissue that transports nutrients from the roots to other parts of the plant. (1)
- 3.2.2 Identify TWO processes through which plants absorb nutrients (2)

- | | | |
|-------|---|-------------|
| 3.2.3 | Describe the form of energy required by each process identified in QUESTION 3.2.2. | (2) |
| 3.3 | Name THREE factors that affect the availability of nutrients to plants. | (3) |
| 3.4 | List TWO inexpensive methods commonly used in the classroom to test the pH of the soil. | (2) |
| | | [20] |
| | TOTAL SECTION B: | [40] |
| | GRAND TOTAL: | [50] |

