



LIMPOPO

PROVINCIAL GOVERNMENT

REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION

GRADE 11

AGRICULTURAL SCIENCES

2023 TERM 3 CONTROL TEST

MARKS: 100

TIME: 2 HOURS

DATE: SEPTEMBER 2023

This paper consists of 11 pages

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions from SECTION A and SECTION B.
2. Study the questions carefully and make sure you answer what is required.
3. Number your answers correctly according to the numbering system used in this question paper.
4. Write neatly and legibly.

SECTION A**QUESTION 1**

- 1.1 Various possible options are provided as answers to the following questions. Choose the answer and write only the letter (A-D) next to the question numbers (1.1.1 to 1.1.10) in the answer book, e.g. 1.1.11 B

1.1.1 Which ONE of the following elements does not fit with the rest?

- A Potassium
- B Copper
- C Nitrogen
- D Phosphorus

1.1.2 During photosynthesis.....is the starting molecule from which other complex compounds are formed.

- A Fructose
- B Maltose
- C Galactose
- D Glucose

1.1.3 The active absorption of cations in the plant cell takes place by means of ...

- A diffusion.
- B osmosis.
- C carrier molecule.
- D respiration.

- 1.1.4 The quantity of nitrogen measured in kilogram in a 50 kg bag of urea (46%) is ... kg.
- A 23
 - B 12
 - C 46
 - D 30
- 1.1.5 If the cost of a ton of LAN (28%) is R 868 then the unit price would be ...
- A R 11,00
 - B R 21,00
 - C R 31,00
 - D R 41,00
- 1.1.6 Which one of the following is NOT a contributory factor to soil erosion in South Africa?
- A Incorrect cultivation
 - B Temperature
 - C Slope of land
 - D Veld fires
- 1.1.7 An important requirement for pesticides to be registered is the ...
- A degradability of the pesticide.
 - B period of activity.
 - C toxicity of the pesticide
 - D proposed price.

- 1.1.8 The depletion of the amount of inorganic nitrogen in the soil by micro-organisms.
- A Mineralization
 - B Immobilization
 - C Nitrogen fixation
 - D Podzolization
- 1.1.9 At a recent Agricultural EXPO a patent for a unique small plough was exhibited. This plough can be used to till the soil by a pushing action from the operator. This plough was developed from knowledge gained from primitive ploughs used by indigenous people. This plough has commercial value because ...
- A it can be used by a commercial farmer planting large areas.
 - B it can be used by a researcher who investigate tillage practices for deep rooted crops.
 - C it can be used by a subsistence or small farmer for the tillage of small pieces of land.
 - D it is a local patent, developed and built in South Africa.
- 1.1.10 A fertilizer mixture of 100kg 3:1:5 (24) contains ... nitrogen
- A 24%
 - B 12,7%
 - C 8%
 - D 6%

(10 x 2) [20]

1.2. Match the statement in column A with the relevant concept in column B.
Write only the letter next to the correct term in column B :-e.g. 1.3.6. M.

	COLUMN A		COLUMN B
1.2.1.	Passive move of nutrients from a higher concentration to a lower concentration.	A.	Evaporation.
1.2.2.	Loss of water through plant leaves.	B.	Symptoms
1.2.3.	A substance added to improve the nutrient status of the soil.	C.	Osmosis
1.2.4.	Signs of nutrient shortage in plants.	D.	Active ion uptake
1.2.5.	Direct loss of soil water to the atmosphere.	E.	Deficiency.
		F.	Fertilizer
		G.	Difusion.
		H.	Transpiration

(10)

1.2 Give one term / phrase for each of the following descriptions.
Write only the term/ phrase next to the question number
(1.3.1- 1.3.5)

- 1.2.1. The movement of nutrients from a higher concentration of water molecules to a lower concentration through a semi-permeable membrane.
- 1.2.2. The process whereby plants manufacture their own food.
- 1.2.3. Group name for minerals needed in very small quantities by plants.
- 1.2.4. The ploughing under of freshly growing crop into the soil.
- 1.2.5. A fertilizer containing all the three major minerals N, P and K.
(5x1) (5)

1.4 Change the underlined words in the following statements to make them TRUE. Write the appropriate word next to the question number (1.4.1 – 1.4.5) on the ANSWER SHEET provided.

1.4.1 Filament is the male reproductive part of a flower, which produces pollen.

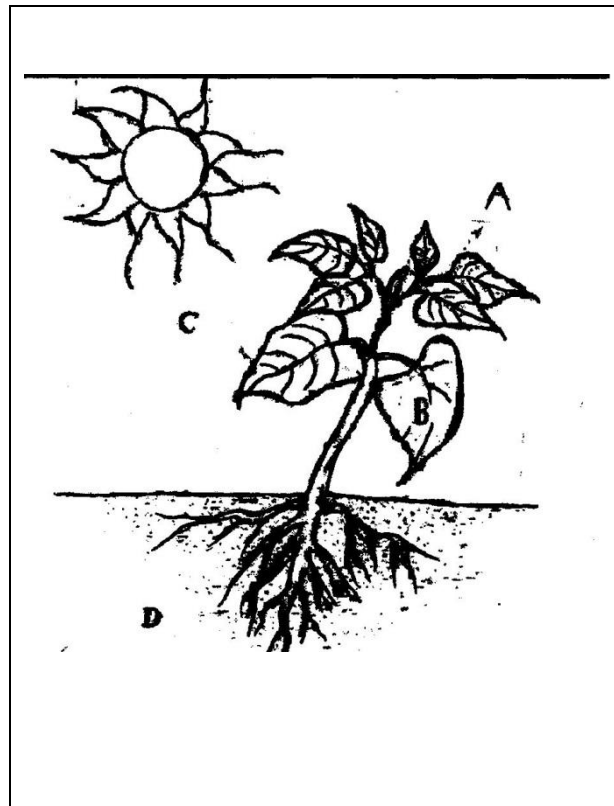
- 1.4.2 More or less uniform spreading of fertiliser over the area planted or to be planted is called band placement.
- 1.4.3 The stamen of the flower consists of the stigma, style and ovary.
- 1.4.4 An organic fertiliser that is made from household waste, kitchen waste, etc. is called farm manure.
- 1.4.5 Passive ion absorption is the absorption of plant nutrient elements from soil against the concentration gradient. (5X1)

(5)

TOTAL: [40]

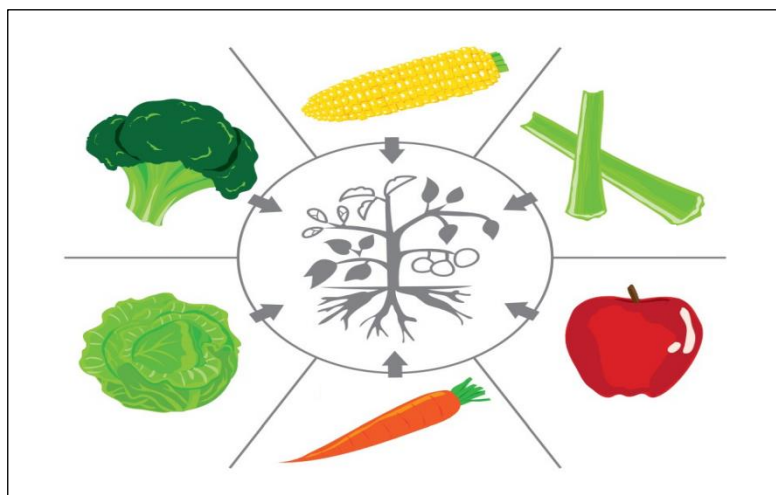
SECTION B**QUESTION2**

2.1 study. the illustration below and answer the questions that follow:



- 2.1.1 Identify the process illustrated above. (1)
- 2.1.2 Define the process. (2)
- 2.1.3 Indicate FOUR requirements for this process. (4)
- 2.1.4 Name the important product of the process in the structure labelled B (1)
- 2.1.5 Give the TWO reasons why this process is important in Agriculture. (2)
- 2.1.6 Mention the FOUR methods used to manipulate plant to increase photosynthesis. (4)

- 2.2 Plants store excess products of photosynthesis in various manners :
Identify each of the storage organs in the following diagram (6)



- 2.3 Use the words in the list below to describe EACH of the statements which follow.

fertigation; basal application; top-dressing; broadcasting; band placing; foliar application

- 2.3.1 Application of fertiliser at planting (1)
- 2.3.2 The even distribution of fertiliser over the whole surface of a field (1)
- 2.3.3 Plant nutrients are dissolved in water and sprayed onto leaves (1)
- 2.3.4 The adding of fertilisers on one or both sides of a row of plants or underneath plants (1)
- 2.3.5 Fertilisers are dissolved in irrigation water and applied using irrigation infrastructure (1)
- 2.4 Provide labels for A- C (3)

Mineral	Form in which it is absorbed by plants	Mineral type	Deficiency symptom
Nitrogen	A	B	Chlorosis
Zinc	Zn ²⁺	C	Small leaf disease

[28]

Question 3

- 3.1. Study the following information and answer the questions that follow:

Chemical analysis of water shows that it contains varying amounts of mineral nutrients. The movement of water from the roots to the aerial parts of plants transports these mineral nutrients to the different organs of the plant. Some of the processes take place through diffusion and osmosis

- 3.1.1 List **FOUR** functions of water in plants. (4)
 3.1.2 Suggest **THREE** forces/ factors that may influence the upward movement of water in plants. (3)
 3.1.3 Clearly distinguish between diffusion and osmosis. (4)
- 3.2 Two ion-uptake mechanisms have been indicated in the word box below. Match the ion-uptake mechanisms to the statements in QUESTIONS 3.2.1. – 3.2.3

<i>Passive ion uptake</i>	<i>Active ion uptake</i>
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- 3.2.1 Movement of molecules from an area of low concentration to an area of high concentration. (1)
 3.2.2 Requires energy and the use of carrier proteins to move nutrients (1)
 3.2.3 Mineral nutrient ions cross the cell membrane without requiring energy (1)

- 3.3 Study the figure below and answer the questions that follow:



- 3.3.1 What does the figure 3:2:1 indicate? (3)
 3.3.2 Calculate the percentage of N, P and K in the above fertilizer mixture. (6)
- 3.4. 3.4.1 Besides "Green manuring" list TWO other organic fertilizers (2)
 3.4.2 Briefly explain the process of "Green manuring" (3)

3.4.3 Indicate TWO advantages of “ Green manuring” (2)

3.4.4 State TWO crops suitable to use as green manure (2)

[32]

TOTAL SECTION B= 60