



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

NATIONAL
SENIOR CERTIFICATE

GRADE 11

AGRICULTURAL SCIENCES

ASSIGNMENT
MARKING GUIDELINES

MARKS: 50
TIME : 1 HOUR

The question paper consists of 5 pages

SECTION A**QUESTION 1**

- | | | | | |
|-----|-------|----------------------|---------|-----|
| 1.1 | 1.1.1 | Transpiration pull ✓ | | |
| | 1.1.2 | Chloroplast ✓ | | |
| | 1.1.3 | Nitrates ✓ | | |
| | 1.1.4 | Hygroscopic water ✓ | | |
| | 1.1.5 | Foliar application ✓ | (5 x 1) | (5) |
| 1.2 | 1.2.1 | Chlorophyll ✓ | | |
| | 1.2.2 | macro ✓ | | |
| | 1.2.3 | inorganic ✓ | | |
| | 1.2.4 | calcitic ✓ | | |
| | 1.2.5 | Top dressing ✓ | (5 x 1) | (5) |

TOTAL SECTION A: [10]**SECTION B****QUESTION 2**

- 2.1 **Photosynthesis**
- | | | |
|-------|--|-----------|
| 2.1.1 | Photosynthesis ✓ | (1) |
| 2.1.2 | Photosynthesis is the process by which green plants use sunlight, carbohydrates from carbon dioxide. ✓✓ | (2) |
| 2.1.3 | TWO methods for manipulation of photosynthesis. <ul style="list-style-type: none"> • Pruning ✓ • Trellising ✓ • Greenhouses ✓ • Space ✓ | Any 2 (2) |
| 2.1.4 | The important product of the process in the structure labelled B <ul style="list-style-type: none"> • Carbohydrates/glucose ✓ | (1) |
| 2.1.5 | TWO reasons why photosynthesis is important in agriculture. <ul style="list-style-type: none"> • Radiant energy are converted to chemical energy for other organisms to consume. ✓ • Produces oxygen for respiration of all living organisms. ✓ • Uses carbon dioxide cleans the atmosphere. ✓ • The origin of fossil fuels used as coal and petrol/ traps energy for biofuel ✓ • It is the foundation of the production of food ✓ | |

- Economic implication- crop production. ✓ Any 2 (2)

2.2 Extract

2.2.1 The method that is appropriate for each of the process

- (a) Active absorption ✓ (1)
- (b) Passive absorption ✓ (1)

2.2.2 Differences between osmosis and diffusion

Diffusion is the movement of substances from a region of high concentration to a region of lower concentration. ✓

Osmosis is the diffusion of water molecules from a region of higher concentration to a region of lower concentration through permeable membrane. ✓ (2)

2.2.3 TWO functions of water in a plant.

- It is a medium for metabolic processes ✓
- It regulates temperature. ✓
- It serves as a structural support. ✓
- It transports nutrients. ✓

Any 2 (2)

2.3 Mineral nutrients for plant.

2.3.1 Labelled

- A- Phosphorus ✓
- B- Potassium ✓
- C- Micro ✓
- D- chlorosis ✓ (4)

2.3.2 TWO methods that the farmers can use to determine the nutrient status of their lands.

- Soil analysis ✓
- Plant analysis ✓ (2)

2.3.3 TWO factors that affect the availability of nutrients to plants.

- Soil texture ✓
- Soil pH ✓ (2)

QUESTION 3

3.1 fertiliser mixture.

3.1.1 What does the figure 3:2:1 indicate

3 Nitrogen/N ✓ : 2 Phosphorus/P ✓: 1 Potassium/K ✓ (3)

3.1.2 **Calculate the percentage of Nitrogen in the fertiliser mixture**

$$\frac{3}{6} \times 22 \checkmark$$

$$11\% \checkmark$$

(2)

3.2 3.2.1 Organic fertiliser ✓

(1)

3.2.2 **TWO physical benefits of animal manure.**

- Improves soil structure. ✓
- Increase water holding capacity ✓
- Improves drainage of clay soil. ✓

Any 2

(2)

3.2.3 **TWO potential risks associated with the use animal manure.**

- It may contain pathogens. ✓
- Too much fertiliser can lead to eutrophication of water sources. ✓

(2)

3.2.4 Green manure ✓

(1)

3.2.5 **TWO advantages of green manure.**

- It stimulates the growth of micro-organisms in the soil ✓
- It covers the soil surface ✓
- Prevents soil erosion. ✓
- It decreases water and nutrient loss ✓
- Improves soil structure by adding organic manure ✓
- It can help with weed control. ✓

Any 2

(2)

3.3 **Fertiliser application.**

3.3.1 Top dressing ✓

(1)

3.3.2 Broadcasting ✓

(1)

3.3.3 Foliar application ✓

(1)

3.3.4 Band placing ✓

(1)

TOTAL SECTION B: (40)**GRAND TOTAL: [50]**