Education and Sport Development

Department of Education and Sport Development
Departement van Onderwys en Sportontwikkeling
Lefapha la Thuto le Tlhabololo ya Metshameko
NORTH WEST PROVINCE

PROVINCIAL ASSESSMENT

GRADE 11

AGRICULTURAL SCIENCES

MARKING GUIDELINE

JUNE 2018

MARKS: 150

This marking guideline consists of 8 pages

SECTION A

QUESTION 01

1. MULTIPLE CHOICE QUESTIONS.

1.1.1 C√√
1.1.2 C√√
1.1.3 D√√
1.1.4 B√√
1.1.5 A√√
1.1.6 D√√
1.1.7 C√√
1.1.8 A√√
1.1.9 B√√
1.1.10 A√√ (10 X 2) (20)

1.2 COLUMN A/COLUMN B

1.2.1 B√√

1.2.2 A√√

1.2.3 B√√

1.2.4 Both A and B√√

1.2.5 None√√ (5 X 2) (10)

1.3 ONE WORD TERM

1.3.1 Molecule√√

1.3.2 Solubilisation√√

1.3.3 Saturation point √

1.3.4 Soil imbalances√

1.3.5 Platy√ (5 x 2) (10)

1.4 CHANGE THE UNDERLINED WORDS

1.4.1 Polysaccharides √

1.4.2 Isomers √

1.4.3 trans-animation√

1.4.4 Non-homogenous √

1.4.5 Exchange Capacity√ (5 x 1) (5)

TOTAL SECTION A: 45

SECTION B

QUESTION 02: BASIC AGRICULTURAL CHEMISTRY

2.1

2.1.1 (a) B√ (1)

(b) C √ (1)

(c) A√ (1)

(d) D√ (1)

2.1.2 Its burning produces a greenhouse gas √which contributes to global warming.√ (2)

2.1.3 It produces fewer √air pollutants than petrol or diesel.√ (2)

2.1.4 B- Hydroxyl/OH√

C-Carboxyl/COOH√ (2)

2.2

2.2.1 Name –Sodium Chloride √

Formula- NaCl √ (2)

2.2.2 Ionic bond√ (1)

2.2.3

- It was used as preservative to stop bacteria in the food √
- Used for the treatment of skins and hides√
- To enhance flavor√ (3)

2.3

2.3.1

Acid	Base
Donates H+ ion when reacting with water √	Accepts H+ ion when dissolves in water√
Tastes sour√	Tastes bitter√
High concentration of hydrogen ion√	High concentration of hydroxide ion (OH)√
Turns litmus paper red√	Turns litmus paper blue√ Any 2×2

(4)

2.3.2 Neutralization √ (1)

2.3.3

- Water√
- Salt√ (2)

2.4

2.4.1 Amino acid√ (1)

2.4.2 (a) B√ (1)

(b) A√ (1)

2.4.3 Condensation√ (1)

2.4.4

- Needed for growth and repair worn out tissues√
- For the production of hormones and enzymes√
- They produce antibodies in animals√
- They are involved in process of cell signaling√
- They transport other substances in the body√ Any 3 (3)

2.5.1 Fructose√ (1)

2.5.2 Galactose√ (1)

2.5.3 Sucrose√ (1)

2.5.4 Lignin√ (1)

2.5.6 Cellulose√ (1)

[35]

<u>QUESTION 03</u>: SOIL SCIENCES

3.1.1 Farm B√ (1)

3.1.2 Grey color is a sign of water logging.√
Texture is clayey with micro-pores which limit water movement.√ (2)

3.1.3 Farm A√ (1)

3.1.4 Increased soil depth√ to encourage a well-established root system.√

- Crumb structure√ ideal for soil cultivation.√ (4)

3.1.5 Favorable porosity and aeration√

- No soil compaction/reduced soil crusting√
- Improved root penetration√
- Reduced soil erosion√
- Improved emergence of seedlings√
- Great water infiltration, retention and availability√
- Improved biological activity.√ Any 3 (3)

3.2

3.2.1 (a) Soil depth –pore spaces decreases with the increase in soil depth√ (1)

(b) Soil cultivation – soil which is constantly cultivated have a lowered pore space.√ (1)

3.2.2

- Soil texture√
- Soil structure√ (2)

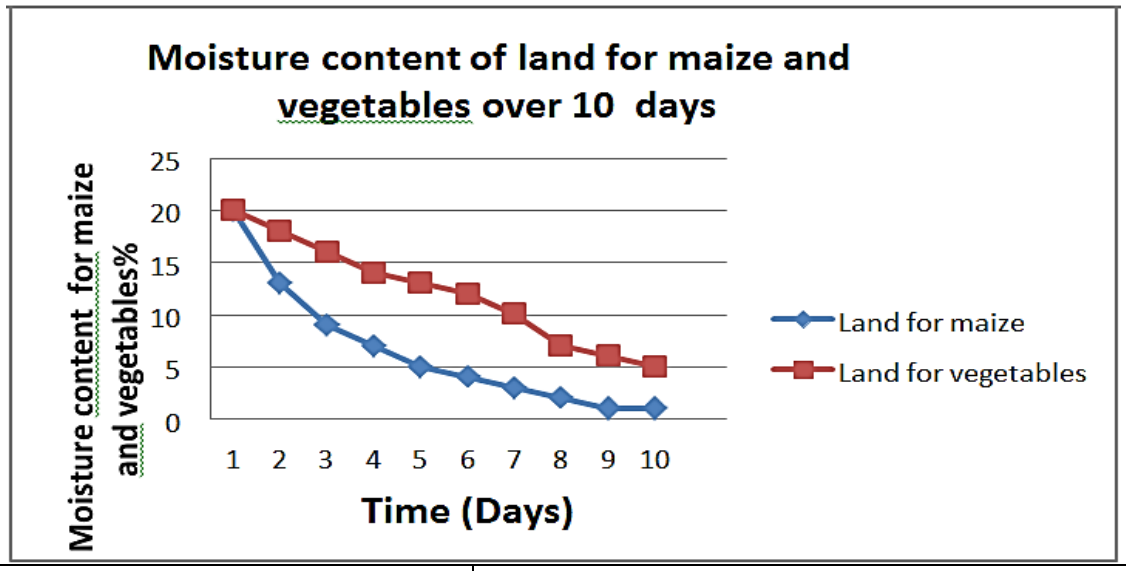
3.3

3.3.1 Dark/Black√ (1)

3.3.2 Red√ (1)

3.3.3. Light√ (1)

3.4



Marking graph with following checklist		
Criteria	**Yes : 1 mark**	**No : 0 mark**
1. Line graph	1	0
2. Y-axis labeled(with units)	1	0
3. X-axis labeled	1	0
4. Points correctly plotted	1	0
5. Correct heading	1	0
6. Key	1	0

(6)

3.4.2

- Ground cover/ mulch√
- Wind breakers √
- Minimum tillage√
- Application of organic matter√ Any 3 (3)

3.5

3.5.1 Radiation and reflection of sun's energy.√ (1)

3.5.2 Under moist and cloudy conditions, sun rays which are reflected up from the land√ will be reflected back down to the earth again.√ (2)

- Light colored soils reflect much more light and heat√ and dark colored soils absorb more light.√ (2)

3.5.3 Soil microbes are activated√

- Seeds germinate faster √
- Optimum plant growth and production √ (3)

[35]

QUESTION 04: SOIL SCIENCES

4.1

4.1.1 The rock expands and contract leading to physical weathering.√

- Small pieces of formed C-horizon√
- Weathered rock undergo chemical weathering to form soil which become the medium for vegetation to grow√
- Through the process of littering, plants will drop leaves and twigs onto soil to form O-horizon√
- Micro-organisms convert organic debris on the soil through the process of humification√
- A-horizon is formed.√ (6)

4.1.2 Removal of particles due to leaching /low clay content / poor in organic matter.√

(1)

4.1.3

- Accumulation of organic matter√
- Accumulation of clay.√
- Accumulation of minerals.√ (3)

4.2.

4.2.1.

- Demarcate master horizons√
- Identify diagnostic horizons.√
- Establish the soil form.√
- Identify the series characteristics.√
- Determine the soil series.√ (5)

4.2.2

- For optimal utilization of a country natural resources.√
- For scientific planning of a farm.√
- The development of new regions.√
- For valuation of soil.√ Any 2 (2)

4.3

4.3.1 (a) K^{+}√ and Na^{+}√ (2)

(b) H^{+}√ and Al^{+3} √ (2)

(c) Ca^{+2}√ and Mg^{+2}√ (2)

4.3.2

- Toxic quantities of aluminum stops the root growth.√
- Phosphorus become fixated.√
- Molybdenum become less available.√
- Exchangeable calcium and magnesium ion is small. Any 2 (2)

4.3.3 Add agricultural lime $CaCO_3$√ (1)

4.4

4.4.1 Photosynthesis√

3. Feeding √

4. Respiration √

5. Decomposition √

6. Combustion√ (5)

4.4.2 Bacteria√ / fungi√ (2)

4.4.3

- Soil moistures√
- Mineral nutrients √
- Soil air√
- Optimum temperature √
- Optimum pH√ Any 2 (2)

[35]

TOTAL SECTION B: 105

GRAND TOTAL: 150