



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

AGRICULTURAL SCIENCES P1

EXEMPLAR 2007

MEMORANDUM

This memorandum consists of 7 pages.

SECTION A / AFDELING A**QUESTION 1.1 / VRAAG 1.1**

1.1.1	A	B	C	X
1.1.2	A	X	C	D
1.1.3	A	B	X	D
1.1.4	X	B	C	D
1.1.5	A	B	C	X
1.1.6	A	B	C	X
1.1.7	X	B	C	D
1.1.8	A	B	X	D
1.1.9	A	X	C	D
1.1.10	A	X	C	D

QUESTION 1.2 / VRAAG 1.2

1.2.1	A	B	X	D
1.2.2	X	B	C	D
1.2.3	X	B	C	D
1.2.4	A	B	X	D
1.2.5	X	B	C	D

QUESTION 1.4 / VRAAG 1.4

1.4.1	displace other in sequence of liotrope series divalent ions like Ca ²⁺ replace two monovalent ions	(2)
1.4.2	Al ³⁺ Aluminum	(1)
1.4.3	a)hydrogen ions (H ⁺)	
	b)Calcium ions (Ca ²⁺) Magnesium ions (Mg ²⁺)	(2)
		[5]

QUESTION 1.3 / VRAAG 1.3

- 1.3.1 silt
- 1.3.2 Field water capacity
- 1.3.3 ions
- 1.3.4 Bacteria or protozoa
- 1.3.5 cellulose
- 1.3.6 autotrophic
- 1.3.7 Maltose/ disaccharide
- 1.3.8 Haematite / Iron
- 1.3.9 glycogen
- 1.3.10 physical/mechanical weathering

START THIS QUESTION OF SECTION B ON A NEW PAGE**SECTION B****QUESTION 2: BASIC CHEMISTRY.**

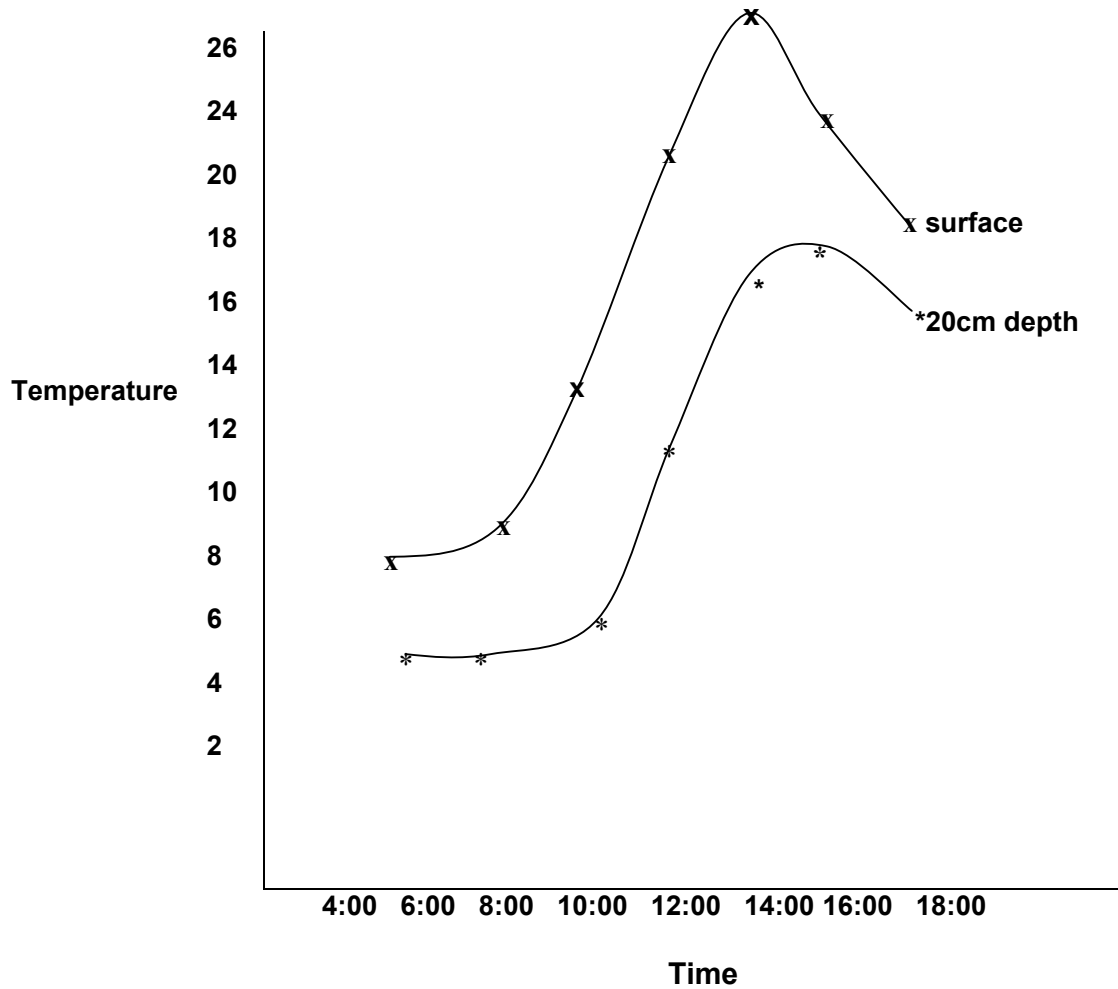
- 2.1.1 Ionic bond-Transfer of one electron from the one atom to the other. (2)
- 2.1.2 Covalent bonds- Atoms share a pair of bonding electrons (2)
[4]
- 2.2.1 A – Glucose
B – Fat molecule
C – Glycerol
D – Amino acid
E – Butanic acid (5)
- 2.2.2 Glycerol and butanic acid (alcohol) (2)
- 2.2.3 A (2)
- 2.2.4 Starch
Glycogen
Dextrin
Cellulose (4)
- 2.2.5 D – Carboxyl group (4)
E – Amino and Carboxyl group
[17]
- 2.3.1 A - Colloidal solution
B – Suspension
C - True solution (3)
- 2.3.2 C (2)
- 2.3.3 Tyndall effect (3)
Light beam travel through the colloidal system path can be seen clearly with out deflection of light. (2)
- 2.3.4 B
- 2.3.5 Hydrochloric acid will dissociate in water
H⁺ ions attaches to negative pole of H₂O Hydrated cations H₃O⁺ and H⁺ ions
bind colloids – flocculation take place (4)

[35]

QUESTION 3: SOIL SCIENCE: Classification, Profiles and properties

- 3.1.1 I. O-horizon
II. A- horizon
III. B- horizon
IV. C- horizon (4)
- 3.1.2 Illuvial-Mineral salts are washed in or carried from the O/A horizon to the B-horizon (2)
- Eluvial - Export of soil minerals are washed out from the A horizon in to the B horizon. (2)
- 3.1.3
 - climate
 - vegetation
 - topography
 - man and his activities
 - age (four only) (4)
- 3.1.4
 - occurs usually at the surface
 - developed through accumulation of organic matter
 - mixed with mineral fraction
- 3.1.5 Irrigation –structural development for water capacity (3)
Drainage- soil forms
Chemical adjustments- soil samples
Soil preparation- creates favourable physical conditions. for germination
Crop adaptation- better adapted under specific conditions. (2)

3.2.1



Use the following rubric to mark this question:

CRITERIA	INDICATORS		
Use of space	Not in proportion, incorrect size and wrong scale. 0	In perfect proportion or correct size or correct scale 1	In perfect proportion and correct size and correct scale 2
Correctness	Not a bar graph, incorrect values and no headings 0	Bar graph or correct headings. 1	Bar graph and correct values and correct headings. 2
Neatness	No neat bars and did not use a ruler for lines and no measured distances 0	Neatly drawn bars or used a ruler for lines or measured distances. 1	Neatly drawn bars and used a ruler for lines and measured distances. 2
TOTAL			

(6)

- 3.2.2 Surface-14:00
20 cm depth-16:00 (2)
- 3.2.3
- Daily variation in the soil temperatures decreases with increase in depth in the soil (2)
 - Minerals –higher heat conductivity as air (1)
 - The denser the particles are packed , the less air there is, (1)
 - The more heat conducted to the deeper layers of soil (1)
 - Moist air will therefore heat up much slower than dry so (1)
- 3.2.4
- Day and night temperature variation will be reduced
 - the denser the plant cover, the less radiation /heat energy will be received by the soil,
 - less heat will be lost during the night due to radiation
 - Vegetation acts as a buffer to temperature variation in the soil (4)
- [35]**

QUESTION 4: SOIL SCIENCE: Chemical, Colloidal properties and soil microbiology.

- 4.1.1 a. Clay (2)
b. Sand (2)
- 4.1.2
- Darker in colour becomes warmer
 - Promoted a crumb structure
 - Water absorption improved
 - Water holding capacity is improved
 - Well aerated and well drained,
 - Easily cultivated
 - Does not become compacted
 - Less water and wind erosion (8)
- 4.1.3
- Kaolinite
 - Montmorillonite
 - Illite
 - Vermiculite
 - Chloride (4)

- 4.2.1 Soil flora
- protozoa
 - bacteria
 - fungi
- Soil fauna
- earthworms
 - ants
 - termites
- 4.2.3
- nitrogen
 - sulphate
- 4.2.4
- Decomposition of plant and animal residues
 - Liberation of nutrients
 - Liberation of carbon dioxide
 - Improvement of soil structure
 - Transformation of other essential mineral elements
- (any two)
- 4.3.1 Alkalinity (Black brack)
- Sodium carbonate
- Salinity (White brack)
- Chlorides and Sulphates of sodium and calcium
- 4.3.2
- Salts can be toxic to plants
 - Soil surface becomes powdery
 - Causes plasmolysis in plant cells
- 4.3.3
- Absorbs water with difficulty
 - Poorly drained and aerated
 - Difficult to cultivate
 - Usually cold

[35]

TOTAL SECTION B: 105
TOTAL PAPER: 150