



# education

---

Department:  
Education  
**REPUBLIC OF SOUTH AFRICA**

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 11**

**AGRICULTURAL SCIENCES P2**

**EXEMPLAR 2007**

**MEMORANDUM**

**MARKS: 150**

**TIME: 2 URE**

**This memorandum consists of 6 pages.**

NAME .....

**Question 1.1 / Vraag 1.1**

1.1.1	<b>X</b>	<b>B</b>	<b>C</b>	<b>D</b>
1.1.2	<b>A</b>	<b>B</b>	<b>C</b>	<b>X</b>
1.1.3	<b>A</b>	<b>B</b>	<b>X</b>	<b>D</b>
1.1.4	<b>A</b>	<b>X</b>	<b>C</b>	<b>D</b>
1.1.5	<b>A</b>	<b>B</b>	<b>X</b>	<b>D</b>
1.1.6	<b>A</b>	<b>X</b>	<b>C</b>	<b>D</b>
1.1.7	<b>X</b>	<b>B</b>	<b>C</b>	<b>D</b>
1.1.8	<b>A</b>	<b>B</b>	<b>X</b>	<b>D</b>
1.1.9	<b>A</b>	<b>B</b>	<b>C</b>	<b>X</b>
1.1.10	<b>X</b>	<b>B</b>	<b>C</b>	<b>D</b>

(20)

**Question 1.3 / Vraag 1.3**

- 1.3.1 Mitotic  
 1.3.2 Tugor  
 1.3.3 Genetically  
 1.3.4 Integrated pest management  
 1.3.5 Permaculture  
 1.3.6 Drip  
 1.3.7 increase  
 1.3.8 Veld  
 1.3.9 Androecia  
 1.3.10 Inorganic Fertilizers (10)

**Question 1.2 / Vraag 1.2**

	Only A	Only B	A & B	None
1.1.1	<b>A</b>	<b>B</b>	<b>X</b>	<b>D</b>
1.1.2	<b>X</b>	<b>B</b>	<b>C</b>	<b>D</b>
1.1.3	<b>X</b>	<b>B</b>	<b>C</b>	<b>D</b>
1.1.4	<b>A</b>	<b>X</b>	<b>C</b>	<b>D</b>
1.1.5	<b>A</b>	<b>B</b>	<b>C</b>	<b>X</b>

(10)

**Question 1.4 / Vraag 1.4**

1.4.1	Runner
1.4.2	Layering
1.4.3	Grafting
1.4.4	Budding
1.4.5	Rhizome

(5)

**[45]**

**START THIS QUESTION OF SECTION B ON A NEW PAGE****SECTION B****QUESTION 2: PLANT NUTRITION**

- 2.1.1     Photosynthesis  
Carbohydrates are synthesised from carbon dioxide and water with the aid of light energy in the chlorophyll with the release of O gas (3)
- 2.1.2     A        Radiant Energy  
              B        Chloroplasts  
              C        Oxygen  
              D        Carbon Dioxide  
              E        Starch (5)
- 2.1.3     Synthesise carbohydrates that is used for plant growth eaten by animals. (2)
- 2.1.4     Suitable temperature  
Sunlight  
Chlorophyll  
Water  
Carbon Dioxide (4)
- 2.2.1.a   Absorption of water from soil  
2.2.1.b   Cell division and growth take place  
2.2.1.c   Concentration of dissolved nutrients – osmosis take place for absorption of water (6)
- 2.2.2     Capillary movement of water  
Suction power of water  
Root pressure (3)
- 2.3.1     N:P:K (Total nutrient) (4)
- 2.3.2     N      $\frac{3}{6} \times \frac{22}{1} = 11\%$   
              P      $\frac{2}{6} \times \frac{22}{1} = 7.3\%$   
              K      $\frac{1}{6} \times \frac{22}{1} = 3.7\%$  (6)
- 2.3.3      $10/3.7 \times 100\text{Kg} = 270 \text{ kg fertilizer}$  (2)

**[35]**

**QUESTION 3: PLANT REPRODUCTION**3.1.1.1 **B**3.1.1.2 **A** (2)

3.1.2.1 Maize, wheat

3.1.2.2 Sunflower, beans (2)

3.1.3 **B**

Colourful petals,  
nectar production,  
long filaments,  
smell of flower

(5)

3.1.4

Monocot	Dicot
Large feathery stigma	Small sticky stigma
Anthers are large	Small anthers
Gluma for protection	Sepal corolla for protection
Receptacle is absent	Receptacle carries various corollas
Absence of pedicel	Pedicel connects flower to plant
Petals absent	Brightly colored petals

Any three per flower (6)

3.2.1 It is resistance to pesticides

More productive

Less pesticides sprayed on lands that limit pollution (3)

3.2.2 Selection

Breeding

Mutation

(2)

3.2.3 Scientists identify specific genes associated with desirable traits in an organism and transfer it to the other crop. Eg. Genes from bacteria or animals may be transferred into plants to produce genetically modified plants.

(4)

3.2.4 Socio-economic implications – it is very expensive

Human health may be at risk

The effect on the environment is unknown

(3)

3.3.1 Low infestation rates might not damage the crop

High initial infestation rates might lead to total crop loss

The shorter the duration of the infestation, the smaller the damage to the yield

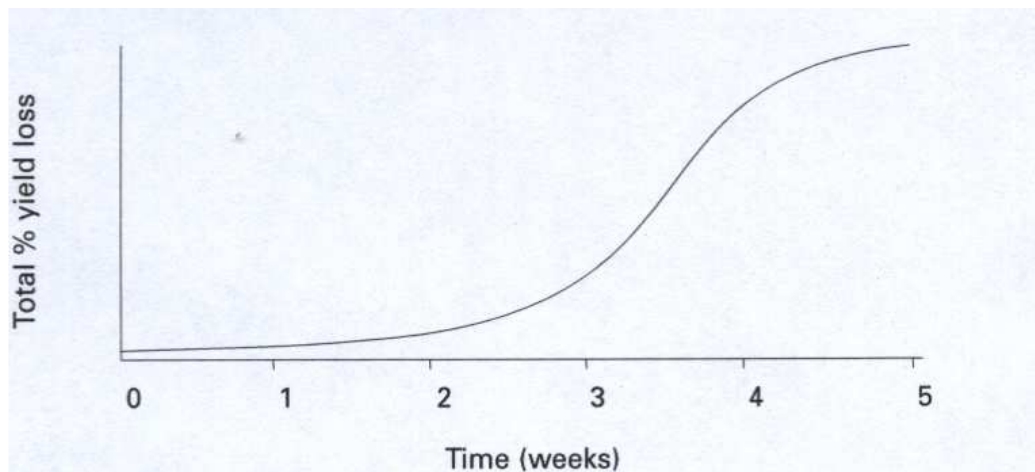
The longer the duration of the infestation, the larger the damage to the yield

Time of infestation and rates will influence the control strategy

(2)

3.3.2 The possible damage that the pest will cause to the yield must be more than the cost of treatment – must make economic sense to pest control. (2)

3.3.3



(4)

[35]

**QUESTION 4: OPTIMAL RESOURCE UTILIZATION.**

- 4.1.1 Zero tillage plant residues are left on the soil thereby acting as a protective layer on the soil. Because with conventional tillage the soil is exposed to the forces of erosion, it is left bare thus easily eroded.
- 4.1.2
- Zero tillage is that tillage system whereby the residues of the previous crop are left on the soil surface whereas (4)
  - Conventional tillage heavy implements are used to prepare for the seedbed
- 4.1.3 Zero tillage (4)  
Because the crop residues left on the soil surface acts as a sponge (1)  
Helping with the retention of water (2)
- 4.1.4
- Inter cropping
  - Crop rotation
  - Permaculture (2)
- 
- 4.2.1
- Out of season crops can be cultivated
  - Crops that would normally not thrive in that area can be grown
  - High quality products can be produced for a specific market
  - Damage due to wind or rain is eliminated (4)
- 4.2.2 Tunnels (2)
- 4.3
- Prepare the soil for planting
  - Loosen the soil by breaking hard layers
  - Mix fertilizers with soil
  - Mechanical weed control (5)
  - For improved water infiltration
- 4.4 Diagram A: Mould board plough-loosening the soil for seedbed preparation (4)  
Diagram B: Disc plough –breaking clods, mixing organic matter with the soil
- 4.5 Evaporation pan/ Class A pan (2)  
Tensiometer
- 4.6 Subsistence farming
- Focuses on producing for the household ,live on the farm
  - Sell excess produce produced to be able to purchase seeds etc
  - Mainly to supplement their own needs (2)
- Commercial farming
- Focuses on producing more than their family needs
  - Surplus produce is sold at local markets or it is exported
  - Crops are grown to obtain an income, it's a business. (2)

**[35]****TOTAL SECTION B [105]****TOTAL PAPER [150]**

