



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

AGRICULTURAL SCIENCES P2

EXEMPLAR 2007

MEMORANDUM

This memorandum consists of 6 pages.

NAME

Question 1.1 / Vraag 1.1

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

(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	A	B	X	D
1.1.2	X	B	C	D
1.1.3	X	B	C	D
1.1.4	A	X	C	D
1.1.5	A	B	C	X

(10)

Question 1.4 / Vraag 1.4

1.4.1	runner
1.4.2	layering
1.4.3	grafting
1.4.4	rhizome
1.4.5	budding

(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)
- 2.2.1.1 Absorption of water from soil
2.2.1.2 Cell division and growth take place
2.2.1.3 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 $3/6 \times 22/1 = 11\%$
P $2/6 \times 22/1 = 7.3\%$
K $1/6 \times 22/1 = 3.7\%$ (6)
- 2.3.3 $10/3.7 \times 100\text{Kg} = 270 \text{ kg fertilizer}$ (2)

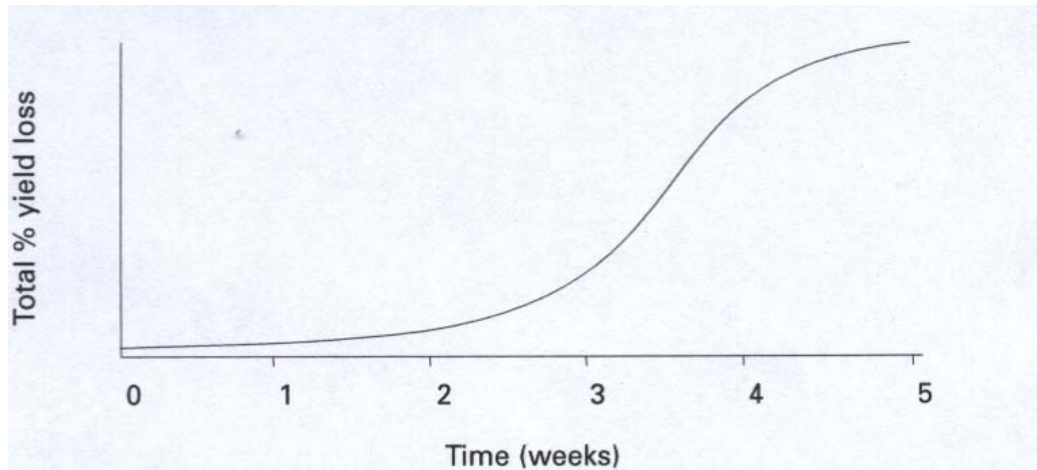
[35]

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)

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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)
- 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 (2)
 - Crop rotation
 - Permaculture
- 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]