



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

**AGRICULTURAL SCIENCES / P2 MEMO
NOVEMBER 2007
PILOT**

MARKS: 150

TIME: 2 Hours

This memo consists of 9 pages.

SECTION A / AFDELING A

Question 1.1 / Vraag 1.1

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

10X2 [20]

Question 1.3 / Vraag 1.3

- 1.3.1 Root hair region
- 1.3.2 Phosphorus
- 1.3.3 Urea
- 1.3.4 Bisexual flower
- 1.3.5 Cross pollination
- 1.3.6 Weeds
- 1.3.7 Quarantine
- 1.3.8 Micro/Spray
- 1.3.9 Drainage
- 1.3.10 Tensiometer

10X1 [10]

Question 1.2 / Vraag 1.2

- 1.2.1 C
- 1.2.2 F
- 1.2.3 B
- 1.2.4 H
- 1.2.5 A/D

5X2 [10]

Question 1.4 / Vraag 1.4

1.4.1	Hydroponics	(2)
1.4.2	-Crops can be grown where there is no suitable soil -No soil preparation is necessary -System gives maximum yield per unit area -Conserves water and nutrients as plants are given exactly what they need -Less soil borne diseases than with growing in soil (Three only)	(3)
		[5]

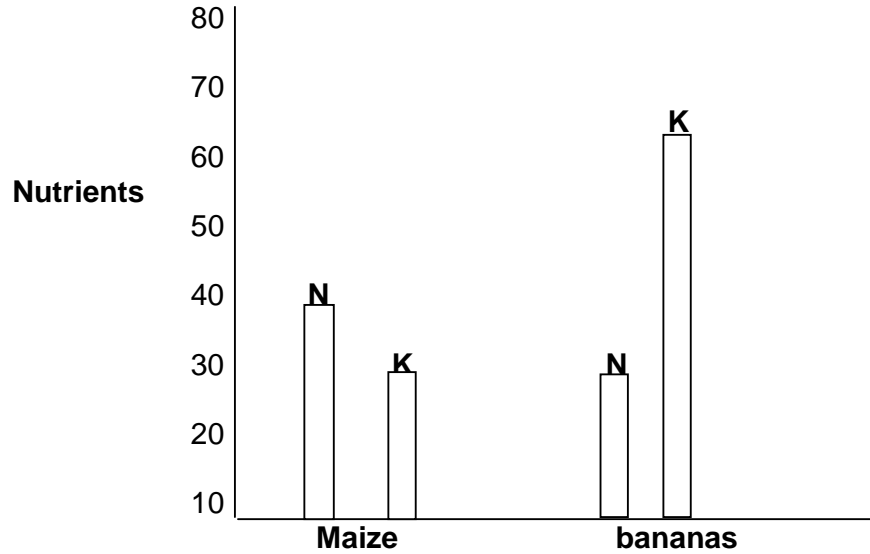
TOTAL SECTION A: [45]

SECTION B**QUESTION 2: PLANT NUTRITION.**

- 2.1 2.1.1 **Plant leaf**
 A. Chloroplast
 B. CO₂
 C. Glucose
 D. Oxygen (4)
- 2.1.2 **Role of photosynthesis**
- Photosynthesis takes CO₂ from the atmosphere and turns it into organic compounds/glucose/protein inside the body of plants e.g. grass
 - Animals feeds on grass
 - Gets carbohydrates stored in the grass
 - Uses the for energy to make its own carbohydrates, proteins and lipids
 - People in turn get their carbohydrates by eating the cow
 - Release off oxygen (any 5) (5)
- 2.2 **Fertilizer recommendations**
- 2.2.1 Potassium chloride/Potassium sulphate
- 2.2.2 LAN/Agricultural line (3)
- 2.2.3 Super phosphate
- 2.3 2.3.1 **Solutions-Marginal crop production**
- Balance fertilization
- The application of all nutrients must be done carefully/ judiciously as sandy soil is generally a poor soil/poor in plant nutrients. Prevent application of fertilizer in one dose (2)
- Nitrogen fertilization
- Nitrogen fertilizers must be given in small doses at short intervals (2)
- Application of Lime
- Must be done with great care,/correct pH
 - As sandy soil pH rise rapidly, a shortage of micro elements may occur
 - Application of fertilizers must be done judiciously (any 2) (2)

- 2.4 2.4.1 **Pest control methods**
- A=Biological/organic
 - B=chemical /pesticide control
- (2)
- 2.4.2 B
- (1)
- 2.4.3 **Disadvantages**
- They become resistant
 - They can get into water
 - Kill useful insects
 - Can be dangerous to the person using them
 - Expensive
 - End up in feeding chain
 - Not regradable
- (any 3) (3)
- 2.4.4 **Organic pest control methods**
- Choice of crop
 - Use planting material that is free of pests or diseases
 - Keep your plants healthy
 - Check plants for pests or diseases
 - Control the vectors of viral diseases
 - Use light to trap flying insects
 - Pick large pests off the plants
 - Wash small pests off the plants
 - Inter crop
 - Don't overcrowd plants
 - Burry fallen fruit
 - Use clean tools
 - Home made pesticides
 - Plant disease resistant cultivars
 - Plant early or when the pest or disease is not present/timing
- (One only) (1)

2.5
2.5.1



The following rubric can be used for marking this question.

Criteria	Indicators		
Use of space	Not in relation, Not the correct size and wrong scale. 0	In perfect proportion or correct size or correct scale l. 1	In perfect proportion and correct size and correct scale 2
Correctness	Not a line graph. Incorrect values and no headings . 0	Line graph or correct values or correct heading . 1	Line graph and correct values and correct heading 2
Neatness	Not neat bars , never 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, used a ruler for lines ,measured distance 2

(6)

- 2.5.2 Tea (1)
- 2.5.3
- Nitrogen promotes leaf and stem growth
 - Nitrogen is applied on a regular basis as tea leaves are always harvested so fast growth is important (2)
- 2.5.4
- 70 kg N ton absorbed
- They utilize it for:
- Fruit growth or
 - Development of colour
 - Quality of crops
 - Disease resistance (any one) (1)

[35]

QUESTION 3: PLANT REPRODUCTION.

- 3.1.1 Disadvantages of hybrid seeds
- Seed must be brought every year
 - Needs inputs like fertilizers, irrigation and pesticides
 - Seed controlled by few large companies
 - Their use causes many other seeds to disappear
 - Not adapted to local conditions
- (any Four) (4)
- 3.1.2 Genetically modified seeds (GMO)
- Plants created by the process of genetic material between organisms with the aim of changing their characteristics/resistance for pest
- (2)
- 3.1.3 Public concerns
- May pose serious health concerns
 - Their environmental effects on other plants are not known
 - Poor developing countries that could benefit from them cannot afford them
- (3)
- 3.2 3.2.1 Layering: pegging a branch or shoot to the ground so that it roots where it touches the ground (2)
- 3.2.2 Cutting: production of a whole plant from a piece of a leaf root or stem (2)
- 3.2.3 Division: pulling apart of fibrous rooted plants to make smaller plants with their own roots and stem system e.g. grass divided for established pasture (2)
- 3.3 3.3.1 **The reproductive parts of a plant.**
1. Stigma
 2. Style
 3. Anther
 4. Pollen
 5. Filament
 6. Ovary/Ovule
- (6)
- 3.3.2 **Process of sexual propagation**
- Pollen produced in the anthers by meiosis is
 - Transferred to the stigma by the process of pollination
 - Pollen grain grows down the style towards the ovules produced meiosis in the ovaries
 - Pollen grain fuses with an ovule (fertilization)
 - Forming an embryo
 - Endosperm containing food is also formed during fertilization
 - Embryo and endosperm develop into a seed
- (any 6) (6)

3.4 **Methods of grafting**

- 3.4.1 A. Cleft
B. Approach/Tongue grafting
C. Wedge/Split grafting (3)

3.4.2 **Wedge grafting**

- Cut the base of a scion to a long wedge sloping downwards and inwards
- Make three cuts and widen almost to the centre of the stud
- Put three scions into the studs
- Match the cambium layers of the scion and rootstock
- Cover the graft union and the scion with grafting wax

(5)
[35]**QUESTION 4: OPTIMAL RESOURCE UTILIZATION.**4.1 **Drain pipes**

- 4.1.1. A Parallel or gridiron system
A. Natural system
B. Herring bone system (3)

4.1.2 **Topography / terrain for systems**

- A. Level ground
B. Undulating land with scattered wet patches
C. Land with clear depression in the middle (3)

4.2 4.2.1 **Aims of soil surveying**

- To determine the exact agricultural value of your soil
- that production aim
- for which is most suited (any 2) (2)

4.2.2 **Steps of soil surveying**

- Aerial photographs of a region are taken
- Preliminary indication of the layout is made
- Survey area is visited and various details indicated
- Preliminary mapping of the land and veld types is done
- Profile holes and test holes are used to identify soil profile
- Morphological properties of the soil are indicated (5)

- 4.5.1 Crop Rotation (2)
- 4.5.2 Advantages –crop rotation
- Assists in combating pests and diseases
 - Aids in maintaining the organic fraction in the soil
 - Prevents one sided utilisation of plant nutrients by a single crop
 - Leaching out of nutrients is prevented
 - Risk of crop failure is spread
 - Decreases slack period on the farm
 - Two or more crops may be produced at the same time
 - Soil is utilised in total due to the different rooting depths used
- (any Five) (5)
- 4.5.3 **Monoculture**
- Climatic adaptability of the crop to be planted
 - Suitability of the soil to limited number of crops
 - High producer prices
- (2)
[35]

TOTAL SECTION B: [105]

TOTAL PAPER: [150]