higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

PLANT PRODUCTION
NQF LEVEL 3

(1011013)

8 November 2022 (X-paper)
09:00–12:00

This question paper consists of 9 pages.

167Q1N2208

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TIME: 3 HOURS
MARKS: 150

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Start each question on a new page.
5. Use only a black or blue pen.
6. Write neatly and legibly.

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QUESTION 1

1.1 Choose a term from COLUMN B that matches a description in COLUMN A. Write only the letter (A–N) next to the question number (1.1.1–1.1.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
1.1.1	Piece of a parent plant that develops into a new plant	A	vineyard
1.1.2	Technique used during the dormant stage (winter)	B	node
1.1.3	Section of a new tree being grafted	C	reproduction
1.1.4	Part of a plant where leaves develop after grafting	D	asexual reproduction
1.1.5	Grafting shape of a plant	E	cutting
1.1.6	Field where grapevines are grown	F	scion
1.1.7	Process of producing one of the same	G	graft wood
1.1.8	Using the vegetative part of a plant to reproduce	H	sexual reproduction
1.1.9	Shoots used for grafting	I	rootstock
1.1.10	Propagating a plant using a seed	J	grafting
		K	apical wedge
		L	orchard
		M	greenhouse
		N	internodes

(10 × 1) (10)

1.2 Give ONE term for each of the following descriptions by writing it next to the question number (1.2.1–1.2.10) in the ANSWER BOOK.

1.2.1 Selection of the best plant materials for the purpose of plant propagation

1.2.2 Part of a plant used for grafting

1.2.3 Condition of a plant that is alive but not growing

1.2.4 Type of creeper that grows around poles and trees

1.2.5 Process of propagating by using the vegetative part of a plant

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1.2.6 Transfer of ripe pollen from the anther to the ripe stigma of the flower

1.2.7 Transfer of the bud from a budding stem to a root stem

1.2.8 Crossing that takes place in nature in an uncontrolled way

1.2.9 Techniques used when producing seeds under controlled conditions

1.2.10 Gradually exposing a plant to a harsh environment

(10 × 1) (10)

1.3 Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (1.3.1–1.3.10) in the ANSWER BOOK.

1.3.1 … are harvested by loosening the soil with a fork and pulling it out one by one.

A Onions
B Carrots
C Beans
D Cabbage

1.3.2 … are harvested by cutting the head just above the ground level as soon as it is firm.

A Onions
B Carrots
C Beans
D Cabbage

1.3.3 … are harvested when leaves start to turn brown and bulbs have a dry skin.

A Onions
B Carrots
C Beans
D Tomatoes

1.3.4 … are harvested by picking only when slightly red in colour.

A Onions
B Carrots
C Beans
D Tomatoes

1.3.5 A tall, cylindrical structure used for storing a harvested crop:

A Tanker
B Silo
C Silo bag
D Harvester room

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1.3.6 The best time to practice budding is in …

A spring.
B winter.
C autumn.
D summer.

1.3.7 An animal that hunts and eats other animals:

A Prey
B Predator
C Vector
D Parasite

1.3.8 Animals that are eaten by other animals:

A Prey
B Predator
C Vector
D Parasite

1.3.9 Crop grown with the main purpose of keeping the ground from being bare and protecting the soil:

A Cover crop
B Mulching
C Tillage
D Rotational cropping

1.3.10 Means to cover soil as a way of preventing weed growth, water loss and overheating of soil, while improving its composition:

A Cover crop
B Mulching
C Tillage
D Rotational cropping

(10 × 1) (10)
[30]

QUESTION 2

2.1 Crops need a suitable environment to grow. Each crop has its own adaptation to certain climatic conditions.

2.1.1 State FIVE effects of monocropping. (5)

2.1.2 List FIVE factors to consider when planning a crop-rotation programme. (5)

2.1.3 Why it is important to consider legume crops when practising crop rotation? (2)

2.2 Give FOUR disadvantages of bare cultivation. (4)

2.3 Grains can be stored for a longer period than fresh produce.

2.3.1 Name a common fumigant used to prevent insect infestation on grain crops. (1)

2.3.2 List FIVE properties of the fumigant named in QUESTION 2.3.1. (5)

2.4 It is important to know how to correctly treat and handle crops and fruits after harvesting.

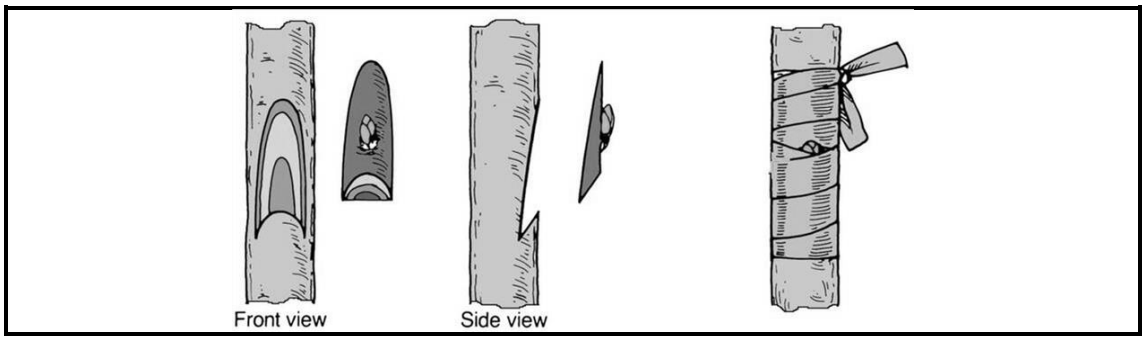
2.4.1 Name FIVE factors to consider when storing grain crops. (5)

2.4.2 Explain why it is important to check the moisture content of grain crops before storage. (3)

[30]

QUESTION 3

3.1



[Source: *https://images.google.com*]

3.1.1 Identify the propagation method. (1)

3.1.2 Define the propagation method identified in QUESTION 3.1.1. (2)

3.1.3 Briefly explain the process illustrated in the figure. (5)

3.1.4 State FOUR factors to consider when choosing a rootstock. (4)

3.2 The more trees are grown, the better for the environment.

3.2.1 Define the term *agroforestry*. (2)

3.2.2 Briefly explain why farmers would prefer agroforestry other than agronomic crops. (5)

3.3 State THREE criteria to use when selecting plants for an agroforestry system. (3)

3.4 List THREE factors that will determine the effectiveness of irrigation. (3)

3.5 Briefly state how a farmer can solve each of the following problems associated with irrigation:

3.5.1 Evaporation

3.5.2 Waterlogging

3.5.3 Leaching

3.5.4 Salination

3.5.5 Erosion

(5 × 1) (5)
[30]

QUESTION 4

4.1 Site preparation for growing crops is very important.

4.1.1 Give FIVE reasons why the site for planting any type of crop should be prepared. (5)

4.1.2 Give THREE reasons for ploughing soil. (3)

4.1.3 What is the function of a disc harrow? (1)

4.1.4 Briefly explain each of the following terms used in sustainable farming:

(a) Ploughing in

(b) Land resting

(2 × 1) (2)

4.1.5 Give FOUR reasons why soil mulching is important to farmers when using land. (4)

4.2 Give FIVE reasons why weeds in a planted area should be removed. (5)

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4.3 Briefly explain how the soil for establishing orchards and vineyards is prepared under each of the following headings:

4.3.1 Profile holes

4.3.2 Planting pits

4.3.3 Deep planting

4.3.4 Lime application

4.3.5 Nutrient status of soil

(5 × 2) (10)
[30]

QUESTION 5

5.1 Briefly explain how each of the following methods is used to apply fertilisers on crops:

5.1.1 Band application

5.1.2 Broadcasting

5.1.3 Fertigation

5.1.4 Foliar application

(4 × 1) (4)

5.2 Name the source or composition of each of the following organic fertilisers:

5.2.1 Compost

5.2.2 Animal manure

5.2.3 Guano

5.2.4 Green manure

5.2.5 Bone manure

(5 × 2) (10)

5.3 Name the type of organism that can cause each of the following diseases in plants:

5.3.1 Powdery mildew

5.3.2 Black rot

5.3.3 Crown gall

(3 × 1) (3)

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5.4 Name ONE symptom of each of the diseases named in QUESTION 5.3. (3)

5.5 State TWO ways in which a farmer can control the occurrence of powdery milk dew. (2)

5.6 Briefly explain how each of the following may be used in controlling pests:

5.6.1 Predators

5.6.2 Resistant cultivars

5.6.3 Insect repellents

(3 × 1) (3)

5.7 Name FIVE good cultivation practices that a farmer can apply to prevent the spread of diseases and pests. (5)

[30]

TOTAL: 150

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