higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

PLANT PRODUCTION
NQF LEVEL 3

(1011013)

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09:00–12:00

This question paper consists of 10 pages.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)
PLANT PRODUCTION
NQF LEVEL 3
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 section on a new page.
5. Use only a blue or black pen.
6. Write neatly and legibly.

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SECTION A

QUESTION 1

1.1 Choose a/an item/word from COLUMN B that matches a description in COLUMN A. Write only the letter (A–O) next to the question number (1.1.1–1.1.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
1.1.1	Equipment used for scouting	A	host
1.1.2	Insects that chew growing tips and leaves of seedlings at ground level	B	pest
1.1.3	The insect damages the roots, root collars and bark of newly planted trees	C	biological control
1.1.4	Insects that suck the sap from leaves and plants	D	cutworms
1.1.5	A plant that insects or diseases live in	E	army worms
1.1.6	Any crop residues left after harvesting	F	tank
1.1.7	Organisms that damage crops or land fertility	G	magnifying glass
1.1.8	Insect pests that damage crops by attacking fruit trees and their fruits	H	trash
1.1.9	A tall cylindrical structure for storing a harvested crop	I	termites
1.1.10	The use of natural enemies of a plant pest to control it	J	air-dusting
		K	leaf suckers
		L	aphids
		M	snout-beetle
		N	silo
		O	chemical control

(10 × 1) (10)

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1.2 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 (1.2.1–1.2.10) in the ANSWER BOOK.

1.2.1 The method used to propagate plants using the vegetative part of the plant is called … .

A artificial plant propagation
B sexual reproduction
C asexual reproduction
D cross-pollination

1.2.2 The use of a scion and a root stock when propagating plants is known as … .

A grafting
B budding
C apex
D layering

1.2.3 Grafting of plants is recommended during the … season.

A winter
B summer
C autumn
D spring

1.2.4 The upper shoot that is used to make a graft:

A Root stock
B Apex
C Scion
D Node

1.2.5 A propagation method:

A Bulbs
B Runners
C Budding
D Rhizomes

1.2.6 Material that is grown for the purpose of being ploughed back into the soil is known as … .

A green manure
B inorganic fertilisers
C compost
D mulch

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1.2.7 A disease that causes organisms in plants:

A Vector
B Infection
C Pathogen
D Botrytis

1.2.8 An element needed in the soil by plants in large quantities:

A Manganese
B Phosphorus
C Iron
D Zinc

1.2.9 A vertical framework to which the shoots or branches of a tree or vine are attached to guide their growth in a desired direction:

A Poles
B Scaffolding
C Vertical section
D Trellis

1.2.10 The type of farming where planted crops depend on natural rain in an open field:

A Intensive farming
B Arable farming
C Communal farming
D Commercial farming

(10 × 1) (10)

1.3 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (1.3.1–1.3.10) in the ANSWER BOOK.

1.3.1 Dryland trails are conducted on a farm where there is no irrigation and the crops depend on rainfall only.

1.3.2 The growing of crops like grains, vegetables and forages between rows of trees is known as alley-cropping.

1.3.3 Rotational cropping is the practice of growing only one kind of plant over extensive areas of land for commercial reasons.

1.3.4 Nodules are small round structures on the roots of the plant.

1.3.5 Soil erosion is the covering of the soil with sawdust or crop residues.

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1.3.6 Water that drops off the edge of the canopy onto the ground is known as sub-irrigation.

1.3.7 Soil micro-organisms form part of the organic fertilisers that penetrate the soil.

1.3.8 The use of a shade cloth or a net can protect seedlings from being damaged.

1.3.9 The older the seed, the higher the germination percentage.

1.3.10 Black plastic seedling trays are warmer than white seedling trays.

(10 × 1) (10)

[30]

QUESTION 2

2.1 Placing of crops correctly when planting is important for successful production.

2.1.1 Differentiate between intra-row spacing and inter-row spacing. (4)

2.1.2 State FIVE factors that will determine the distance between and within rows of the planted crops. (5)

2.1.3 Give THREE reasons why larger distances between crops are important. (3)

2.2 Any kind of agriculture that involves the combination of trees and crops is known as agro-forestry.

2.2.1 Name SEVEN benefits of agro-forestry. (7)

2.2.2 State THREE problems associated with agro-forestry systems. (3)

2.2.3 Farmers regard mulching as a method that helps to protect the soil. What are the advantages of a soil mulch? (3)

[25]

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QUESTION 3

3.1 The propagation of crops, plants, vines, fruit trees and forest trees can take different forms.

3.1.1 Define the term *propagation*. (1)

3.1.2 Differentiate between *sexual reproduction* and *asexual reproduction.* (3)

3.1.3 List FOUR methods or techniques of asexual reproduction that can be done on fruit trees. (4)

3.1.4 What is the main function of a scion when performing grafting? (1)

3.1.5 State TWO factors that should be considered when choosing a root stock for grafting. (2)

3.1.6 Name FIVE qualities of a good root stock. (5)

3.2 Explain how fertilisers can be applied by using each of the following methods of application:

3.2.1 Fertigation

3.2.2 Side/Top dressing

3.2.3 Band placing

3.2.4 Broad casting

(5 × 1) (5)

3.3 Irrigation is an important practice when growing crops and if not done, crops will die and lead to poor yields.

Name FOUR factors that influence the water requirements for crop growth. (4)

[25]

QUESTION 4

4.1 State any FIVE factors that have to be considered by the farmer when constructing seedbeds for the production of seedlings. (5)

4.2 State any general factors that must be considered when sowing seeds by referring to:

4.2.1 Seed germination (2)

4.2.2 The growth medium (5)

4.3 Complete the table below and answer the questions that follow.

COLUMN A	COLUMN B	COLUMN C
Type of crop	Harvesting method	Indicator(s) of ripeness
Tomato	(a) …	(e) …
Cabbage	(b) …	(f) …
Carrots	(c) …	(g) …
Onions	(d) …	(h) …

4.3.1 Complete COLUMN B by describing the harvesting method of each type of crop listed in COLUMN A. Write only the answer next to the question number (a)–(d) in the ANSWER BOOK. (4)

4.3.2 Complete COLUMN C by describing the indicator of ripeness of each type of crop listed in COLUMN A. Write only the answer next to the question number (e)–(h) in the ANSWER BOOK. (4)

[20]

QUESTION 5

5.1 Study FIGURE 1 and answer the questions that follow.



FIGURE 1

5.1.1 Identify the type of disease illustrated in FIGURE 1. (1)

5.1.2 State FIVE symptoms of the disease illustrated in FIGURE 1. (5)

5.1.3 List THREE groups of organisms that cause plant diseases. (3)

5.1.4 Briefly explain FIVE agricultural practices that can be used to control plant diseases without the use of chemicals. (10)

5.2 Pests cause damage to planted crops and have a negative effect on the yield.

State FOUR disadvantages of using chemical methods to control pests. (4)

5.3 Give any TWO examples of pests on which chemicals or sprays can be used. (2)

[25]

QUESTION 6

6.1 Distinguish between a pathogen and a vector. (4)

6.2 Give FIVE recommended ways for the safe use of pesticides. (5)

6.3 Briefly explain how each of the following pests or insects cause damage to crops:

6.3.1 Leaf suckers

6.3.2 Sap suckers

6.3.3 Stem borers

6.3.4 Soil pests

(4 × 2) (8)

6.4 Harvesting crops or grains is the final stage of crop production before crops are sent to the market.

6.4.1 Name FOUR factors that should be considered when preparing for harvesting. (4)

6.4.2 Identify FOUR post-harvest activities that should be done on the farm before the produce is sent to the market. (4)

[25]

TOTAL: 150

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