



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

PLANT PRODUCTION NQF LEVEL 3

(1011013)

**10 December 2020 (Y-paper)
13:00–16:00**

This question paper consists of 9 pages.

521Q1N2010

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. Use only a black or blue pen.
 5. Write neatly and legibly.
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QUESTION 1

1.1 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 (1.1.1–1.1.10) in the ANSWER BOOK.


1.1.1 ... is the ability of pests or diseases to tolerate the presence of a chemical or poison

- A Resistance 
- B Adaptation
- C Biological ability
- D Natural ability

1.1.2 ... methods are not effective for controlling pests.

- A Biological
- B Physical
- C Chemical
- D Cultural

1.1.3 ... are small chewing insects that live their life cycle in the stems of plants.

- A Stem borers
- B Leaf suckers
- C Leaf eaters 
- D Soil pests


1.1.4 ... attack the root system of crop plants from either inside or outside the plant.

- A Grubs
- B Nematodes
- C Stem borers
- D Red spider mites

1.1.5 ... are dark, grey, smooth worms with waxy appearance and they roll up in a ring when disturbed.

- A Cutworms
- B Wire worms
- C Nematodes
- D Grubs

1.1.6 ... is an insect vector of a major citrus disease known as 'greening' which causes pock-like malformation of the leaves

- A Psylla
- B Orange dog 
- C Bollworm
- D Fruit fly

1.1.7 ... control is the use of the natural enemies of a plant to control weeds.

- A Chemical
- B Physical
- C Biological
- D Mechanical



1.1.8 A ... is the plant that the insect or disease depends on.

- A host
- B cocoon
- C ratoon
- D trash

1.1.9 ... is a form of research which is designed to detect any signs of insect pests in an orchard, field or forest.

- A Lure
- B Scouting
- C Investigation
- D Timing

1.1.10 An infectious micro-organism is known as a/an ...

- A vector
- B nutritional disorder
- C pathogen
- D immunity



(10 × 1) (10)

1.2 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (1.2.1–1.2.10) in the ANSWER BOOK.

1.2.1 A crop that has been bred to have certain features is known as a cultivar.

1.2.2 Nematodes are microscopic worms that feed on the roots of a plant.


1.2.3 Crop rotation principles have nothing to do with legume crops.

1.2.4 It is advisable to intercrop plants of the same growth habit in order to compete for same nutrients.

1.2.5 A trial conducted on a farm where there is no irrigation and crops depend on rainfall only is called a balance trial.





1.2.6 Adding compost or decomposed plant material to the surface of the soil improves soil fertility.

- 1.2.7 Nodules are small round structures on the roots of the plant.
- 1.2.8 Liquid manure can be used in sprays for effective spraying, but it can also be mixed with irrigation water.
- 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 is called a trellis. 
- 1.2.10 Plant density is a combination of inter-row and intra-row spacing in a given area.




(10 × 1) (10)

- 1.3 Choose an item from COLUMN B that matches a description in COLUMN A. Write only the letter (A–N) next to the question number (1.3.1–1.3.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
1.3.1	A method of propagation where the leaf is removed from the parent plant	A	vineyard
1.3.2	A propagation technique which is done when the plant is dormant	B	node
1.3.3	Plants with soft, green stems, not hard, woody stems	C	reproduction 
1.3.4	The part of a plant where leaves develop after grafting	D	asexual reproduction
1.3.5	Comprised of plant and animal waste	E	cutting
1.3.6	A place where grape vines are grown	F	scion
1.3.7	Process of producing the same	G	herbaceous plants
1.3.8	Using vegetative part of the plant to reproduce	H	sexual reproduction
1.3.9	Part of a plant used for grafting 	I	cambium
1.3.10	Propagating a plant using a seed	J	grafting
		K	compost
		L	orchard
		M	greenhouse
		N	internodes

(10 × 1) (10)
[30]

QUESTION 2

- 2.1 The aim of site preparation is to improve the establishment, survival and rapid early growth of seedlings and plantlets.
- 2.1.1 State FIVE main aims of site preparation before planting any crops in the field.  (5)
- 2.1.2 What is the purpose of harrowing and disking during soil preparation? (6)
- 2.1.3 Primary cultivation is traditionally done using a plough.
Name FIVE reasons for ploughing the soil. (5)
- 2.2 Planting of agronomic crops and fruit trees need planning and sufficient knowledge of growing them.
- 2.2.1 Briefly explain how the soil is prepared for planting fruit trees. (6)
- 2.2.2 Why should plant spacing be considered when preparing the land for planting fruit trees?  (6)
- 2.2.3 Weeds are normally regarded as unwanted plants when growing crops or fruit trees.
Name FIVE reasons why weeds should be removed from a planted area. (5)
- 2.2.4 Why is soil sampling important before planting any crop? (2)
- 2.3 Agroforestry systems have not yet received much attention in South Africa from the agriculture or the forestry industries.
Name FIVE problems that are associated with agroforestry  (5)

[40]

QUESTION 3

3.1 Study FIGURE 1 below and answer the questions.





A



B

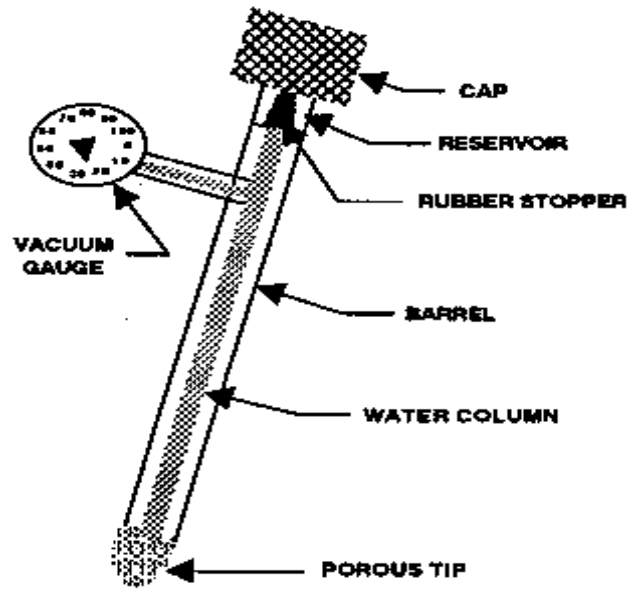
FIGURE 1

- 3.1.1 Identify the irrigation systems marked A and B.  (2)
- 3.1.2 Name FOUR advantages of the irrigation system marked A (4)
- 3.1.3 Name FOUR disadvantages of the irrigation system marked A (4)
- 3.1.4 Name FOUR advantages of the irrigation system marked B. (4)
- 3.1.5 Name FOUR disadvantages of the irrigation system marked B. (4)
- 3.1.6 The success or failure of an irrigation system depends on careful selection, thorough planning and good management. 
Briefly discuss the factors to be considered in the selection of an irrigation system. (10)

3.2 Study FIGURE 2 below and answer the questions that follow.



A







B

FIGURE 2

- 3.2.1 Identify the instruments marked A and B. 🌍 (2)
- 3.2.2 What is the function of the instrument marked A? (2)
- 3.2.3 What is the function of the instrument marked B? (2)
- 3.2.4 Irrigation is used to supplement natural rainwater but it may have negative effects on the soil and crops, namely salinisation.
 - 3.2.4.1 Define salinisation. 🌍 (2)
 - 3.2.4.2 What are the effects of salinisation as a result of irrigation? (4)

[40]

QUESTION 4

- 4.1 An area experiencing harsh conditions, especially during summer, autumn and winter, forces farmers to grow different kinds of vegetables.
- 4.1.1 Name FIVE effects that monocropping can have on the area. (5)
- 4.1.2 Name FIVE factors to consider when a farmer plans a crop rotation programme.  (5)
- 4.1.3 Why it is important to consider legume crops when practising crop rotation? (2)
- 4.2 Indigenous methods to protect the soil are productive and therefore popular among subsistence farmers.
- 4.2.1 Define the term *mulching*. (2)
- 4.2.2 Name THREE aims of cultivation before mulching the soil. (3)
- 4.2.3 Name FOUR disadvantages of bare cultivation.  (4)
- 4.3 Grains such as maize, rice and wheat are staple foods for many people and can be stored for a longer period than fresh produce.
- 4.3.1 Name the common fumigant that is used to prevent insect infestation. (2)
- 4.3.2 Name SEVEN properties of the fumigant named in QUESTION 4.3.1.  (7)
- 4.3.3 Name the factors that should be considered when storing grain crops. (5)
- 4.4 Pests and diseases cause major decreases in crop production.
- 4.4.1 What are the symptoms of a plant that is damaged by nematodes? (1)
- 4.4.2 Nematodes affect both crop plants and fruit trees. 
Suggest FOUR ways to control nematodes. (4)
- [40]**

TOTAL: 150