higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

PLANT PRODUCTION
NQF LEVEL 2

(1011012)

13 November 2019 (Y-Paper)
13:00–16:00

This question paper consists of 9 pages.

Copyright reserved

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 BLUE or BLACK ink.
6. Write neatly and legibly.

Copyright reserved

SECTION A

QUESTION 1

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

COLUMN A		COLUMN B	
1.1.1	Small parts that make up air, water or solids	A	compound fruit
1.1.2	Anything that carries disease from one plant to another	B	trellis
1.1.3	Carries nutrients upwards and downwards through the plant	C	ablactation
1.1.4	A large vein in the centre of a leaf.	D	pathogen
1.1.5	A first leaf of a plant	E	irrigation
1.1.6	A small curly stem that twists around a support as the plant grows	F	parthenocarpy
1.1.7	Fruit that develops from ovaries of separate flowers	G	stone fruit
1.1.8	The falling off of blossoms and already set fruit within few days of their formation	H	molecule
1.1.9	An amount of water the soil can hold	I	field-moisture capacity
1.1.10	Applying water to a planted area	J	cotyledon
		K	vector
		L	internode
		M	petiole
		N	xylem
		O	auxiliary node
		P	midrib
		Q	pedicel

(10 × 1) (10)

1.2 Various options are given as possible answers to the following questions. Choose the correct 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 Seed treatment is done to control … disease.

A soil-borne
B wind-borne
C seed-borne
D water-borne

1.2.2 Instrument to measure the amount of water in the soil is known as …

A evaporation pan.
B tension meter.
C evapotranspiration.
D transpiration ratio.

1.2.3 A common example of stem tuber is …

A ginger.
B garlic.
C onion.
D potato.

1.2.4 A weed that flowers and sets seeds twice a year is called a/an … weed.

A annual
B biennial
C perennial
D pre-emergent

1.2.5 A variety of crops produced to have certain characteristics is called …

A hybrid.
B tissue culture.
C GMO.
D cultivar.

1.2.6 … is NOT part of the technique used in hybridisation.

A The transfer of pollen
B Collecting pollen
C Emasculate
D Use of two plants to bridge the stems together

1.2.7 Micro-irrigation is also called… irrigation.

A nano-
B petite
C localised
D flood

1.2.8 … is an example of lettuce cultivar.

A Drumhead
B Crisphead
C Various
D Napa

1.2.9 The field water efficiency is determined by water …

A transpired by crop – water applied to field.
B absorbed by crop ÷ water applied to field × 100%.
C absorbed by crop – water applied to field.
D transpired by crop ÷ water applied to field × 100%.

1.2.10 A common non-chemical method for weed control in vegetable crops is …

A surface compaction
B granular application
C side dressing
D mulching

(10 × 1) (10)

1.3 Define the following terms.

1.3.1 Reproduction

1.3.2 Chlorosis

1.3.3 Crop

1.3.4 Pollen

1.3.5 Mosaic

(5 × 2) (10)
[30]

TOTAL SECTION A: 30

SECTION B

QUESTION 2

2.1 'Natural crop plants produce food for their growth through the process of photosynthesis.'

2.1.1 Define *photosynthesis.* (2)

2.1.2 Discuss the light phase of photosynthesis. (8)

2.1.3 Explain the differences between *photosynthesis* and *respiration.* (2 × 4) (8)

2.2 Certain plants have been selected and domesticated in order to supply food to people. Crops are also grown as fodder for livestock.

2.2.1 Name FOUR factors that can manipulate plants to increase the production of food (4)

2.2.2 Name THREE ways in which crops could be differentiated from natural vegetation. (3)

2.2.3 State FOUR advantages of producing vegetables in greenhouses. (4)

2.2.4 Describe TWO methods of fertiliser application that are often used in a greenhouse. (2 × 2) (4)

[33]

QUESTION 3

3.1 Complete the following table

Name of vegetable	Edible part	Temperature requirement	Life cycle
e.g. (Swiss chard)	**Leaves**	**Cool season**	**Annual**
Turnip	3.1.1 …	3.1.2 ...	3.1.3 …
Asparagus	3.1.4 …	3.1.5 …	3.1.6 …
Broccoli	3.1.7 …	3.1.8 …	3.1.9 ...
Tomato	3.1.10 …	3.1.11 …	3.1.12 ...
Lettuce	3.1.13 …	3.1.14 …	3.1.15 …

(15)

Copyright reserved

3.2 Cultivar choice is one of the important factors in successful crop production

3.2.1 Name FIVE factors to consider when selecting a cultivar. (5)

3.2.2 Give THREE reasons for seed treatment. (3)

3.2.3 Discuss the appropriate practices to be applied to improve yield and produce quality vegetables at reduced production costs. (7)
[30]

QUESTION 4

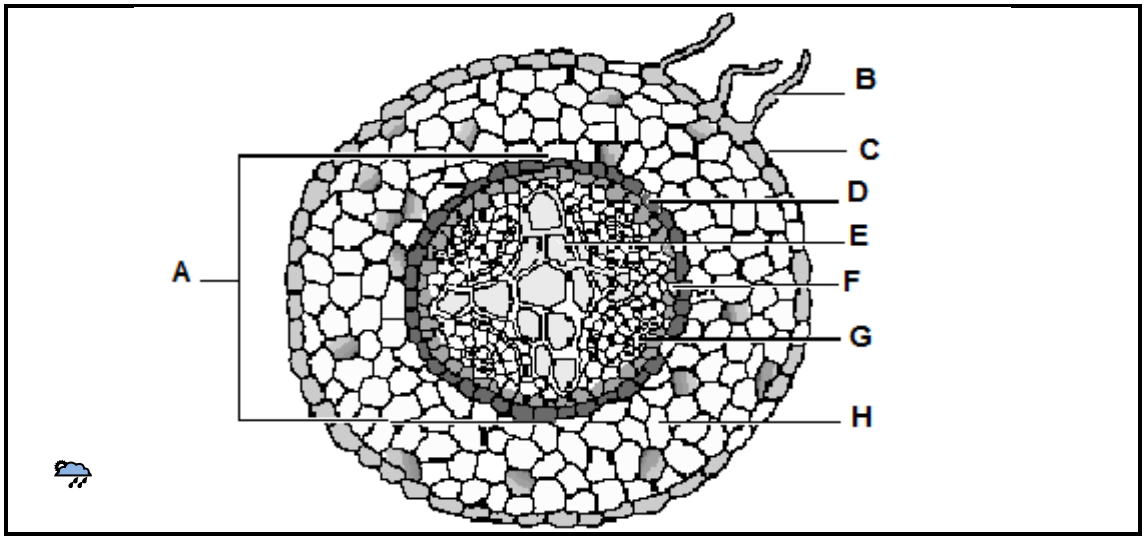
4.1 Plant density is ONE of the important aspects of crop production.

4.1.1 Define *plant density*. (2)

4.1.2 Differentiate between *inter-* and *intra-spacing* in crop production. (2 × 2) (4)

4.1.3 Explain the major benefits of wider spacing in vegetable crops. (4)

4.2 Study the diagram below and answer the questions.



[Source: http://mandevillehigh.stpsb.org]

4.2.1 Identify the structure depicted in the diagram above (1)

4.2.2 Label parts A, C, E, F and H. (5)

4.2.3 Briefly explain how the part labelled as B adapted to absorb water. (4)

Copyright reserved

4.3 'In general, weeds are one of the major threats to the natural environment and crop production.'

4.3.1 Discuss the impact of weeds in crop production. (5)

4.3.2 Explain the economic cost of weeds in crop production. (3)

[28]

QUESTION 5

5.1 The time of harvesting vegetables depends on several things. Some vegetables are harvested when they are fully grown to get the best yield.

5.1.1 Name FOUR properties of vegetables that must be considered when judging them for harvesting. (4)

5.1.2 Define *shelf life* of a crop produce. (2)

5.2 5.2.1 Name each of the SIX maturity or ripeness stages of tomatoes. (6)

5.2.2 'Often tomatoes are harvested at stage B.' (The second stage)

Give ONE reason of harvesting tomatoes at this stage. (1 × 2) (2)

5.2.3 Indicate the method of harvesting tomatoes intended for:

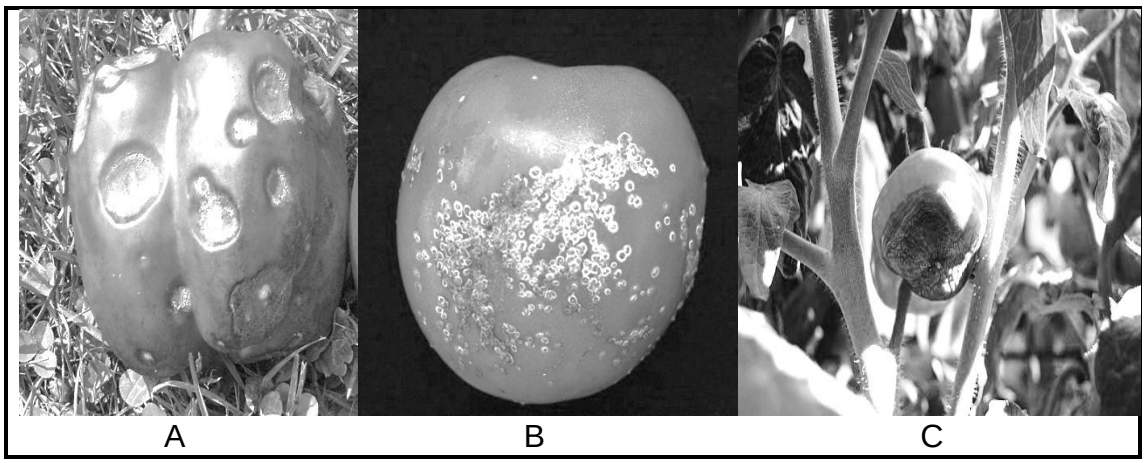
(a) The fresh fruit market
(b) Processing

(2 × 1) (2)

5.2.4 Name FOUR places where a farmer can sell their vegetables (4)

5.2.5 Explain how intercropping can be used to maximise crop production. (3)

5.3 Study the pictures below and answer the questions.



A B C

5.3.1 Name the disease (A–C) affecting each crop. (3)

5.3.2 Give the main cause of the disease in each crop named in QUESTION 5.3.1. (3)

[29]

TOTAL SECTION B: 120
GRAND TOTAL: 150

Copyright reserved