higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

PLANT PRODUCTION
NQF LEVEL 2

(1011012)

12 November 2018 (X-Paper)
09:00–12:00

This question paper consists of 8 pages.

NCV

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. Write neatly and legibly.

NC(V)

QUESTION 1

1.1 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'True' or 'False' next to the question number (1.1.1–1.1.6) in the ANSWER BOOK. Correct the statement if it is FALSE.

1.1.1 Selective weed killer kills both weeds and planted crops.

1.1.2 Leaves are the only part of a plant responsible for photosynthesis.

1.1.3 A pine tree is an example of a gymnosperm.

1.1.4 The amount of water lost from a plant and the amount that evaporates from soil is known as evapotranspiration.

1.1.5 Tuberous crops such as potatoes grow well in heavy clay soil.

1.1.6 Climate includes rainfall, temperature, humidity and soil. (10)

1.2 Choose a description from COLUMN B that matches a term in COLUMN A. Write only the letter (A–K) next to the question number (1.2.1–1.2.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
1.2.1	Mosaic	A	stunts growth, leaves have tube appearance
1.2.2	Bacterial blight	B	Dithane 45
1.2.3	Control of *Powdery mildew*	C	viral disease causing yellow and green patches on leaves
1.2.4	Control of *Mosaic virus*	D	fungicide
1.2.5	Control of *Bacterial spot*	E	bacterial disease of cauliflower
1.2.6	Potato leaf roll	F	ensure correct planting time and control aphids
1.2.7	Black rot	G	copper containing chemicals
1.2.8	Control of *Early and late blight*	H	bean leaves and pods develop brown pots
1.2.9	Control of *Black rot*	I	treat wounds with chemicals containing ascorbic acid or copper
1.2.10	Control of *Bacterial canker*	J	fungal disease
		K	treat seeds/seedlings and apply crop rotation

(10 × 1) (10)

NCV

1.3 Define each of the following terms:

1.3.1 Integument

1.3.2 Intercropping

1.3.3 Fumigation

1.3.4 Nematode

1.3.5 Evaporation pan

(5 × 2) (10)
[30]

QUESTION 2

2.1 2.1.1 Differentiate between *sexual* and *asexual* reproduction. (2 × 2) (4)

2.1.2 Tabulate THREE differences between the flowers of *monocotyledonous* and *dicotyledonous* plants. (3 × 2) (6)

2.2 An emerging farmer in your area owns five hectares of land of which four hectares are arable land where vegetables are produced. The land has been divided land into four fields. Spinach, cabbage, beetroot, onion, tomatoes and beans are in high demand in his area. The farmer has been planting the same vegetables in the same field for consecutive growing seasons and realises that there is a drop in yield even though he applies the same management and maintenance practices as the first time.

2.2.1 What could be a reason for the decrease in yield? (1)

2.2.2 Which planting practice can be applied to correct this situation? (1)

2.2.3 Briefly explain how the planting practice mentioned in QUESTION 2.2.2 can be applied effectively. (4)

2.2.4 Give TWO major reasons for this practice. (4)

2.3 Briefly explain the impact of each of the following factors during plant growth:

2.3.1 Root depth

2.3.2 Temperature

2.3.3 Close plant spacing

2.3.4 Steep slope of the land

2.3.5 Weeds

(5 × 2) (10)
[30]

NSC

QUESTION 3

3.1 Briefly explain how each of the following practices will increase photosynthesis in plants:

3.1.1 Trellising

3.1.2 Pruning

3.1.3 Greenhouse

(3 × 2) (6)

3.2 Irrigation is used to supplement rainfall because water is the most important requirement for plant growth.

3.2.1 Name FIVE chemical and physical processes that will be affected by the shortage of water in plants. (5)

3.2.2 Describe how root hairs are adapted to absorb water. (5)

3.2.3 Explain the influence of mulching on each of the following aspects with regard to plant water:

(a) Infiltration rate

(b) Evapotranspiration (2 × 2) (4)

3.3 Recommend the correct agricultural practice that can be applied in each of the following cases:

3.3.1 Seedlings are too overcrowded

3.3.2 Transplanted cabbage and some seedlings have died and there are now gaps in the rows

(2 × 2) (4)

3.4 The severe drought makes hydroponics an option for producing vegetables.

3.4.1 Define *hydroponics.* (2)

3.4.2 Suggest the appropriate irrigation system to use in gravel culture. (1)

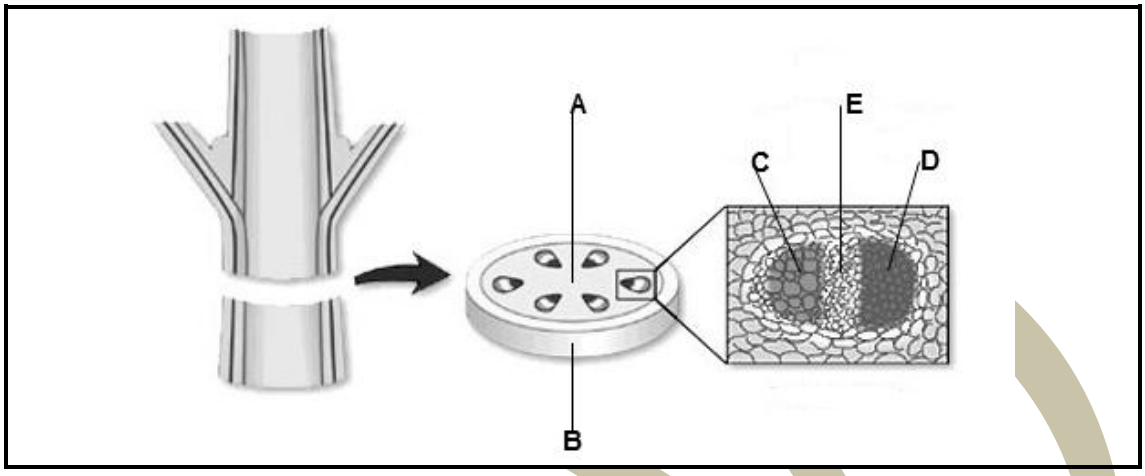
3.4.3 Why is micro-irrigation often a good option for small scale farmers? (3)

[30]

NCV

QUESTION 4

4.1 Study the diagram below and answer the questions.



F IGURE 1 *www.vascular bundles in plants*

4.1.1 Identify the part of the plant in FIGURE 1. (1)

4.1.2 Label the parts by writing only the answer next to the letter (A–E) in the ANSWER BOOK. (5)

4.1.3 Give the main function of parts C, D and E. (3)

4.2 Tomatoes are widely used in South Africa as a fresh fruit and for other cooking needs. A variety of value-added products are created from tomatoes hence the vegetable is in demand.

4.2.1 Briefly explain the soil type and soil conditions suitable for producing tomatoes. (5)

4.2.2 How should the soil for planting tomatoes be prepared? (3)

4.2.3 Describe the climatic conditions suitable for planting tomatoes. (2)

4.2.4 What are the disadvantages of using sprinkler irrigation on tomatoes? (2)

4.3 Incorrect harvesting and storage of crops affect the quality of the produce.

4.3.1 What would be the best time to harvest tomatoes? (1)

4.3.2 Describe how and when tomatoes are harvested. (3)

4.3.3 Explain the correct storage procedure for tomatoes if they are to be used as fresh fruit. (3)

4.3.4 Name TWO factors that affect the shelf life of tomatoes. (2)

[30]

Copyright reserved

QUESTION 5

5.1 Study FIGURE 2 below and answer the questions.

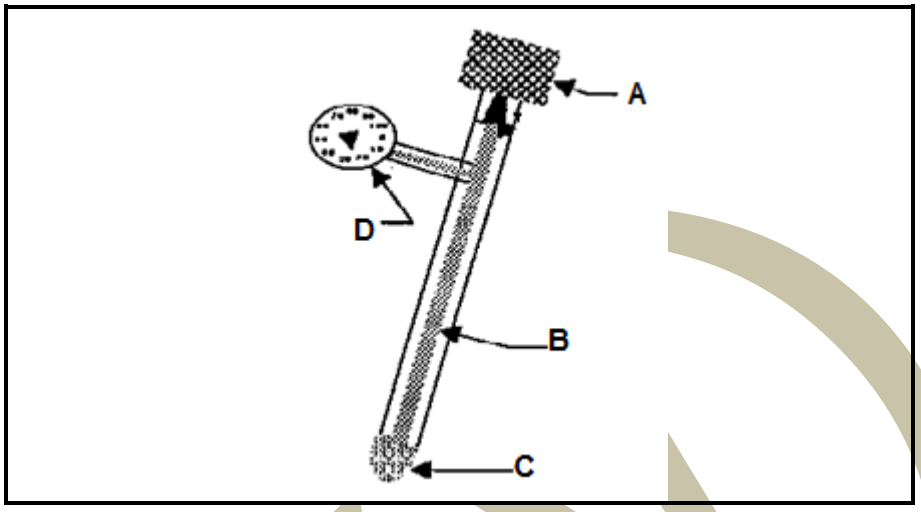


FIGURE *2* *www.sws.uiuc.educ*

5.1.1 Label the parts of the tensiometer by writing only the answer next to the letter (A–D) in the ANSWER BOOK. (4)

5.1.2 Why do farmers use this instrument during crop production? (2)

5.1.3 Where in the soil profile is a tensiometer installed? (2)

5.1.4 Give a reason for the answer to QUESTION 5.1.3. (2)

5.2 Weeds in vegetables lead to major economic losses.

5.2.1 Classify the THREE main groups of weeds. (3)

5.2.2 Give ONE example of each group of weeds classified in QUESTION 5.2.1. (3)

5.2.3 State FOUR economic losses that may ne posed by weeds in vegetable production if not controlled early and effectively. (4)

NCV

5.3 Study FIGURE 3 below and answer the questions.

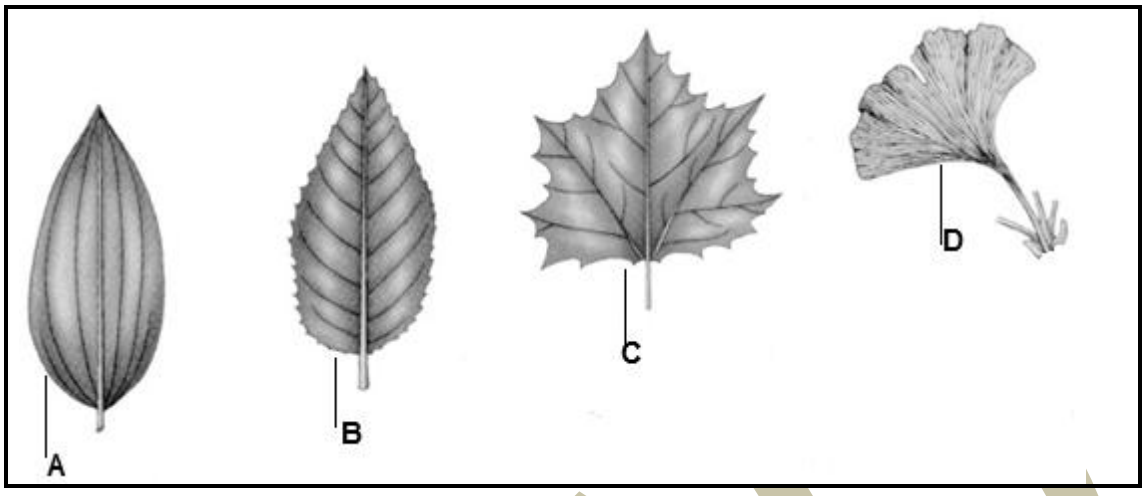


FIGURE 3 *www.different types of leave arrangement*

5.3.1 Identify the type of the leaf venation labelled A–D. (4)

5.3.2 Will the leaf size influence the rate of photosynthesis? (1)

5.3.3 Justify the answer to QUESTION 5.3.2. (2)

5.3.4 Starch is one of the insoluble forms in which plants store food.

Give THREE reasons why it is necessary for plants to store food in insoluble form. (3)

[30]

TOTAL: 150

NCV

Copyright reserved