higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

ADVANCED PLANT PRODUCTION
NQF LEVEL 4

(1011014)

7 November 2022 (X-paper)
09:00–12:00

This question paper consists of 8 pages.

071Q1N2207

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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 Complete the following sentences by writing only the missing word or words next to the question number (1.1.1–1.1.10) in the ANSWER BOOK.

1.1.1 Asexual reproduction is also known as … reproduction.

1.1.2 … refers to the control method where a predator is introduced to control pests.

1.1.3 … is a method of layering used to propagate rootstock for orchards.

1.1.4 … are unwanted plants that compete with cultivated crops/flowers.

1.1.5 The blades of a grafting knife should always be … and sharp.

1.1.6 … is a process that allows air to move in and out of a nursery.

1.1.7 The … technique is used to propagate some difficult-to-root plants.

1.1.8 The artificial covering for seedbeds is called …

1.1.9 Removal of seedlings and planting them on a new and permanent place is called …

1.1.10 Cuttings taken from herbaceous plants are known as …

(10 × 1) (10)

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

COLUMN A		COLUMN B	
1.2.1	Propagation technique where a part of a plant is taken from its parent and inserted into a rooting medium	A	asexual
		B	hybrid
1.2.2	Reproduction involves the coming together of male and female gametes.	C	cutting
		D	insect pollinated
1.2.3	Plants produced from crossbreeding	E	grafting
1.2.4	Lower part of a plant used to form a graft	F	sexual
1.2.5	Method of inserting a bud onto a rootstock to propagate a new plant	G	mulch
		H	systemic
1.2.6	Straw or sawdust used to form a layer on the surface of soil	I	vegetative
1.2.7	Insecticide taken up by a plant killing insects that eat or suck the plant parts	J	semi-ripe cutting
		K	rootstock
1.2.8	Rooted shoot growing from below ground level	L	scion
1.2.9	Type of cutting older than green wood but younger than hardwood cuttings	M	softwood cutting
		N	sucker
1.2.10	Shoot of a plant used to form a graft		

(10 × 1) (10)

1.3 Give ONE term for each of the following descriptions by writing it next to the question number (1.3.1–1.3.10) in the ANSWER BOOK.

1.3.1 Propagation method where part of the stem remains attached to the parent while it is rooting

1.3.2 Type of rooting medium that improves drainage and aeration but provides no nutrients

1.3.3 Cutting practised during winter when leaves have dropped, and woody plants have gone dormant

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1.3.4 The nursery style commonly built by farmers

1.3.5 Hormone commonly used in the fruit industry to ripen still green fruit

1.3.6 Hormone that ends seed dormancy after winter when favourable conditions for germination are present

1.3.7 Structure where plants are grown for protection against harsh weather conditions

1.3.8 Propagation technique done with a single vegetative bud

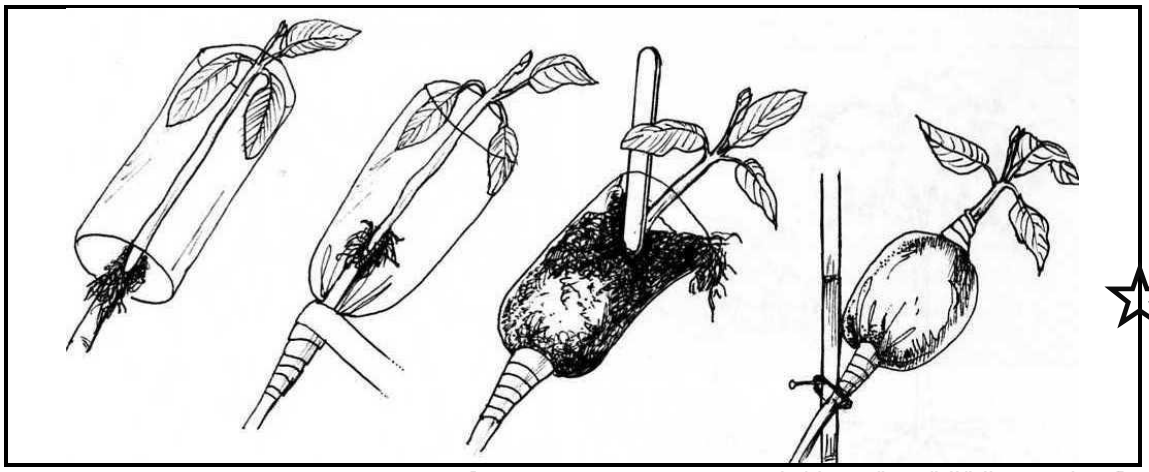
1.3.9 Biotic agent of pollination that forces pollen to move from one flower to another

1.3.10 Fungal disease on plants causing leaves to become gradually covered by whitish powder patches

(10 × 1) (10)
[30]

QUESTION 2

2.1



[Source: *www.ces.ncsu.edu/depts/hort/hil/hil-8701.html*]

2.1.1 Identify the vegetative reproduction method illustrated above. (1)

2.1.2 Briefly explain the process of plant propagation illustrated above. (6)

2.1.3 Which season is best suited for optimum rooting? (1)

2.1.4 Why is the season named in QUESTION 2.1.3 suitable for optimum rooting? (2)

2.1.5 Provide another reason for performing this propagation method in this particular season. (1)

2.2 Name SIX characteristics of desirable crops. (6)

2.3 Name FOUR growth-medium factors that should be considered before planting. (4)

2.4 Briefly explain FIVE factors that determine the water needs of plants in containers. (5)

2.5 The use of growth stimulants can influence the characteristics of fruit.

Name FOUR of the possible displayed characteristics. (4)
[30]

QUESTION 3

3.1 Most farmers prefer a nursery to produce cut flowers.

3.1.1 Give TWO advantages of using a nursery to produce flowers or plants. (2)

3.1.2 Name FIVE hygienic habits that workers should consider when working in a nursery. (5)

3.2 Give THREE reasons why nursery managers prefer to use plastic containers. (3)

3.3 Explain how to use containers without drainage holes. (2)

3.4 Name THREE basic factors to keep in mind when growing plants in containers. (3)

3.5 Briefly explain why each of the following daily management practices should be conducted in a nursery other than to increase output:

3.5.1 Irrigation

3.5.2 Spraying for diseases and pests

3.5.3 Thinning

3.5.4 Blanking

(4 × 2) (8)

3.6 State THREE inherent characteristics that artificially propagated plants have over natural vegetative reproduced plants. (3)

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3.7 Explain how each of the following factors influence the water requirements of plants in a nursery:

3.7.1 Temperature

3.7.2 Type of the plant

(2 × 2) (4)
[30]

QUESTION 4

4.1 Differentiate between each of the following flower productions:

4.1.1 Perennials and annuals

4.1.2 Bulbs and corns

4.1.3 Shrubs and hedges

(3 × 2) (6)

4.2 Explain THREE ways in which integrated pest management can be used to fight pests and diseases by referring to plant health and worker hygiene.
(3 × 2) (6)

4.3 Briefly explain TWO symptoms of bacterial leaf spot and bacterial canker.
(2 × 2) (4)

4.4 Flower producers should have a thorough knowledge of the causes and symptoms of diseases before deciding on control measures.

4.4.1 Name the part of the plant that soft rot attacks. (1)

4.4.2 Give the type of pathogen that causes soft rot on plants. (1)

4.4.3 Name the symptoms of soft rot on plants. (1)

4.4.4 Explain THREE biological methods to control soft rot.
(3 × 2) (6)

4.5 Explain how aphids, thrips and white flies cause viral diseases in plants. (2)

4.6 Explain why it is crucial to destroy weeds while they are seedlings (3)
[30]

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QUESTION 5

5.1 List FOUR important cut-flower cultivars grown in South Africa. (4)

5.2 Why do flower producers prefer to grow flowers in a nursery? (4)

5.3 Long distances from the markets and the availability of cooling facilities will influence a flower grower's decision on the type of flower to produce.

Which TWO options are available for the flower producer in South Africa? (2)

5.4 What is the economic importance of the flower production industry in South Africa? (4)

5.5 Flower harvesting is a delicate process that needs the harvester's utmost concentration.

5.5.1 Which time of the day is suitable for harvesting flowers? (1)

5.5.2 List FOUR pieces of harvesting equipment necessary for harvesting flowers. (4)

5.5.3 Name THREE physical signs that indicate that a flower is ready for harvesting. (3)

5.6 Name FIVE post-harvest activities that should be done or concluded before flowers are transported to the market. (5)

5.7 Briefly describe flowers that have symptoms of plant deficiency and will not be picked for a market. (3)

[30]

TOTAL: 150

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