



**higher education  
& training**

Department:  
Higher Education and Training  
**REPUBLIC OF SOUTH AFRICA**

**NATIONAL CERTIFICATE (VOCATIONAL)**

**ADVANCED PLANT PRODUCTION  
NQF LEVEL 4**

(1011014)

**13 November 2019 (X-Paper)  
09:00–12:00**

**This question paper consists of 10 pages.**

<p><b>TIME: 3 HOURS</b> <b>MARKS: 150</b></p>
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## **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 BLUE or BLACK pen.
  6. 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 Sexual reproduction in plants results in the formation of ...

- A leaves.
- B seeds.
- C seedlings.
- D ratoons.



1.1.2 Propagation method where parts of plants are used to propagate new plants:

- A Regrowth propagation
- B Seed propagation
- C Hybridisation
- D Vegetative propagation

1.1.3 Asexual reproduction is done through ONE of the following reproductive parts:

- A Seeds
- B Flowers
- C Roots
- D Seedlings



1.1.4 Transferring of pollen from the anthers of flower to stigma of another flower of same plant:

- A Cross pollination
- B Self-pollination
- C Water pollination
- D Insect pollination

1.1.5 Part of an embryo plant between the cotyledons and the radicle:

- A Micropyle
- B Integuments
- C Hypocotyl
- D Endosperm



1.1.6 Female reproductive part of flower:

- A Sepals
- B Pistil
- C Filament
- D Radicle

1.1.7 Male gametes combine with the ovum to form an/a ...



- A ovule.
- B embryo.
- C seed.
- D zygote.

1.1.8 Example of compound fruit:

- A Strawberries
- B Figs
- C Apples
- D Peaches

1.1.9 Cuttings still in growing, vegetative stage and rooting quickly:

- A Soft-wood cuttings
- B Hard-wood cuttings
- C Green-wood cuttings
- D Semi-ripe cuttings




1.1.10 Type of layering used to propagate plants more difficult to root:

- A Air layering
- B Mound layering
- C Trench layering
- D Tip layering



(10 × 1) (10)



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

COLUMN A		COLUMN B	
1.2.1	Lower part of plant used to form graft 	A	50 mm
1.2.2	Way to force seed to absorb water for quick germination	B	vermiculite
1.2.3	Most seedlings ready to be transplanted at this height	C	rootstock
1.2.4	Rooting medium made from mica, a form of clay	D	mulch
1.2.5	Decayed manure or straws forming layer on surface of soil	E	nicking
1.2.6	Propagation technique where part of plant is taken from parent and inserted in rooting medium	F	45 mm
1.2.7	When propagating by means of tip layering, the berry tip should be about ... mm	G	budding
1.2.8	Inserting a bud on the rootstock to propagate new plant 	H	cutting 
1.2.9	Natural plant regulator used to delay plant aging and death	I	cocoon
1.2.10	Cover of caterpillar for protection while growing	J	2,5 mm
		K	ethylene
		L	cytokinins
		M	2 mm
		N	grafting
		O	layering

(10 × 1)

(10)




1.3 Give ONE word or term for each of the following descriptions. Write only the word or term next to the question number (1.3.1–1.3.10) in the ANSWER BOOK.

- 1.3.1 Example of a macronutrient needed in relatively large quantities
- 1.3.2 Method of irrigation where plant container is placed in larger outer reservoir container with nutritious solution 
- 1.3.3 Plantlets ready to be transplanted permanently
- 1.3.4 Holes at the bottom of plant containers
- 1.3.5 First leaf of germinating seed
- 1.3.6 Method of propagation where flexible stem is allowed to touch the ground and detached once rooted to form a new plant
- 1.3.7 First root of germinating seed 
- 1.3.8 Group of plants with succulent leaves growing mostly in low rainfall areas or deserts
- 1.3.9 Easily detachable shoots such as suckers, bulbs, rhizomes, tubers and corms used to produce new plants
- 1.3.10 Fungal diseases on plants causing gradual covering of leaves by white powder patches

(10 × 1)

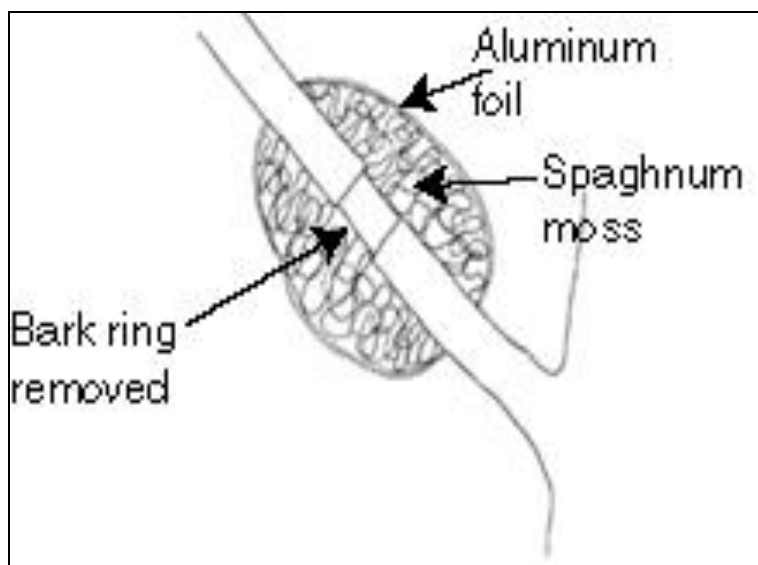
(10)  
**[30]**

**QUESTION 2**

- 2.1 Identify THREE groups of flowers based on their growth habit. (3)
- 2.2 Briefly explain the growth habit of each group of flowers identified in QUESTION 2.1.  (6)
- 2.3 What makes farming with flowers challenging? (2)
- 2.4 Why do flower producers prefer vermiculite as a growing medium in their nurseries? (1 X 4) (4)
- 2.5 Why is a borehole or tap water not good for cut flower farming?  (1)
- 2.6 Suggest a way in which the farmer can correct the acidity and /or alkalinity of irrigation water. (1)
- 2.7 What pH value is ideal for flower production? (1)
- 2.8 What are the negative consequences on plants when the pH is not correct? (4)
- 2.9 Name the requirements that should be met by farmers in each of the following situations:
- 2.9.1 Exporting cut flowers  (4)
- 2.9.2 Preparing flowers for transporting (2)
- 2.9.3 Transporting of cut flowers (2)
- [30]**

**QUESTION 3**

3.1 Study **FIGURE 1** below and answer the questions that follow:





Source: <https://www.americancamellias.com/care-culture-resources/propagation>

**FIGURE 1**

- 3.1.1 What type of propagation is illustrated in FIGURE 1? (1)
- 3.1.2 Briefly explain this propagation technique. (6)
- 3.1.3 Identify the group of plants that can be used by the propagation technique described above (2)
- 3.1.4 What is the best time of day and season to propagate plants? (2)
- 3.1.5 Why is propagating done during the time of the day and year named in QUESTION 3.1.4? (2)
- 3.2 Explain the actions that are required when transplanting plants. (5)
- 3.3 Name TWO types of propagation techniques often used when preparing to plant in an orchard.. (2)
- 3.4 Provide reasons why flower production is best suited to intensive nursery production. (6)
- 3.5 Name FOUR features of a cut flower that makes trade profitable for growers. (4)
- [30]**

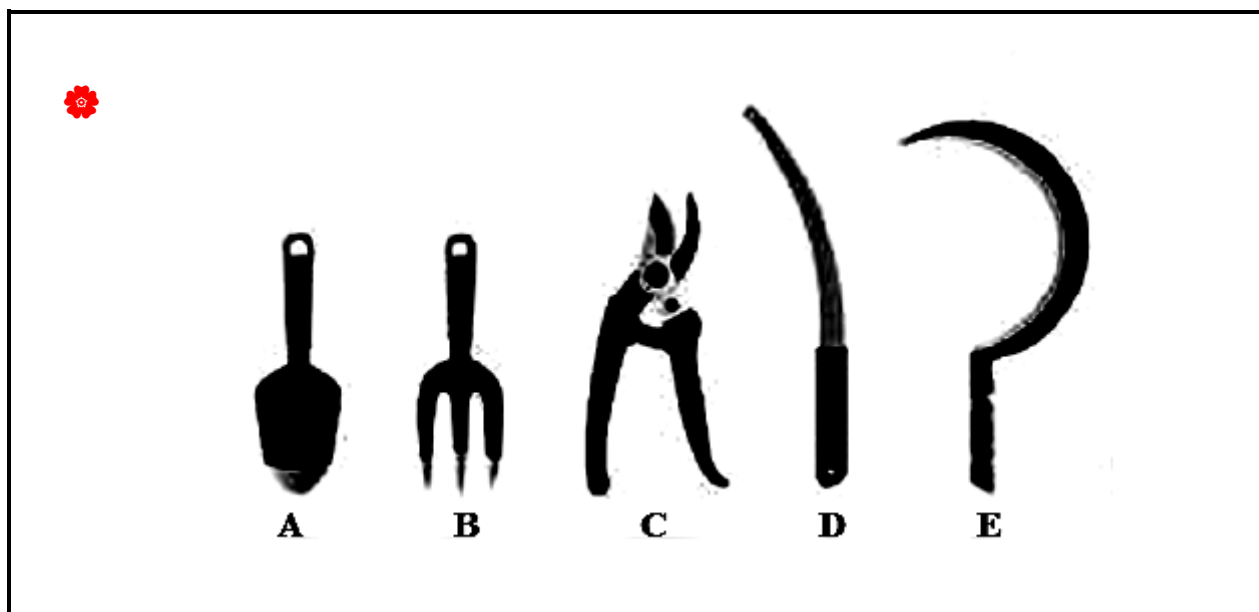


**QUESTION 4**

- 4.1 How can a pest population be managed by using an integrated pest management (IPM) system? (6)
- 4.2 What symptoms indicate the presence of each of the following pests?
- 4.2.1 Slugs and snails (2)
- 4.2.2 Aphids (4)
-  4.2.3 Mites (4)
- 4.2.4 Scale insects (2)
- 4.3 Name a predator each that can be introduced in the farming system to eliminate the pests in QUESTION 4.2. (4)
- 4.4 The use of certain chemicals without due consideration can cause danger to users and plants.
- Explain the effective use of each of the chemicals below.
- 4.4.1 Contact poison
- 4.4.2 Stomach poison 
- 4.4.3 Systemic poison (3 × 2) (6)
- 4.5 State ONE advantage and ONE disadvantage of using systemic insecticides. (2)
- [30]**

**QUESTION 5**

Study **FIGURE 2** and answer the questions.

**FIGURE 2**

- 5.1 State the function of each of the hand tools above by writing the answer next to the letter (A–E) in the ANSWER BOOK. (5)
- 5.2 State THREE ways of caring for the hand tools identified in QUESTION 5.1. (3)
- 5.3 What are the advantages of using a nursery to produce flowers or plants? (2)
- 5.4 Name FIVE hygienic habits workers should apply when working in a nursery. (5)
- 5.5 Name TWO daily management practices in a nursery. (2)
- 5.6 Briefly explain why each of the management practices in QUESTION 5.5 should be done in a nursery. (4)
- 5.7 Name any FOUR factors that should be considered before harvesting flowers in a nursery. (4)
- 5.8 Most farmers prefer a nursery for cut flower production because of its advantages. (5)
- Discuss the economic importance of flower production in South Africa. (5)

**[30]****TOTAL: 150**