



**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.**

**TIME: 3 HOURS  
MARKS: 150**




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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]**

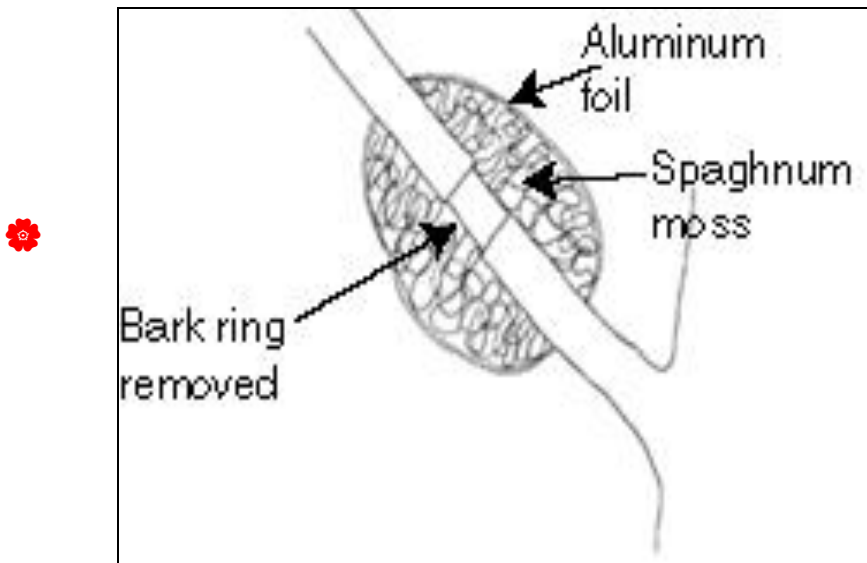
**QUESTION 2**

- 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]**

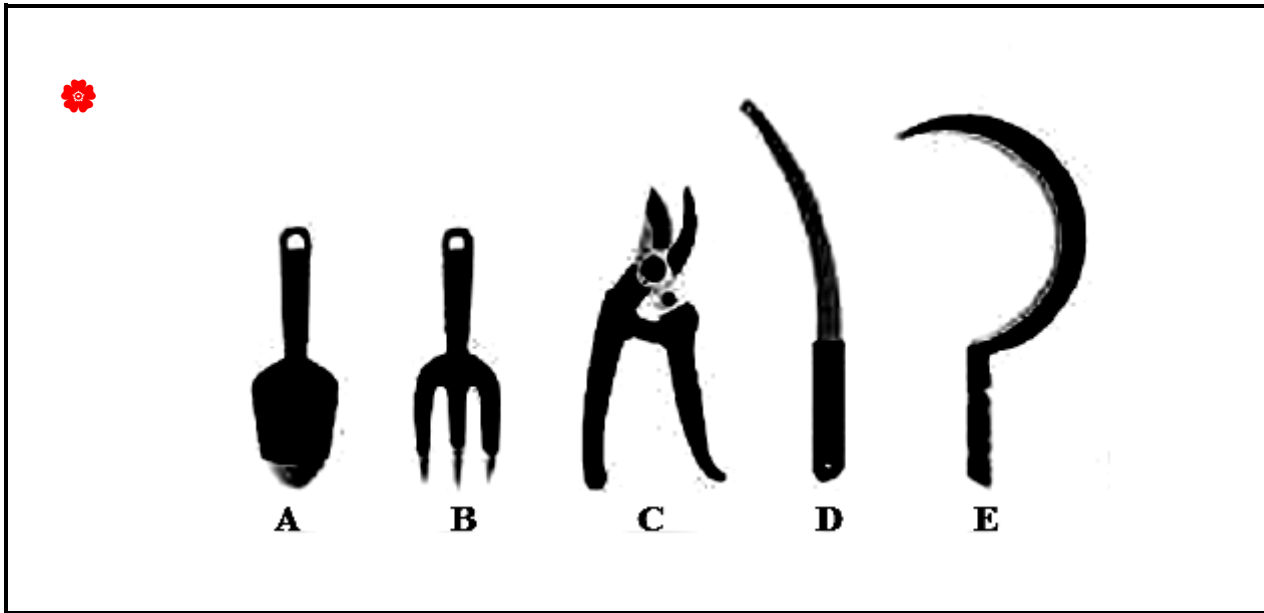


**QUESTION 4**



- 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.  
Discuss the economic importance of flower production in South Africa. (5)

**[30]**

**TOTAL: 150**