Stage 5 Agricultural Technology: Plant nursery production

Plant propagation topic test (30 marks)

Section 1 (14 marks)

5.3.1 A student investigates and implements responsible production systems for plant and animal enterprises

1. Why do we artificially propagate plants such as apples rather than growing them from seeds? (2 marks)

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2. Sketch the steps in preparing a hardwood cutting of a mulberry. (2 marks)

3. At what time of the year are hardwood cuttings prepared? (1 mark)

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4. The illustrations below show the steps in one type of plant propagation.
   a) What is the name of this type of plant propagation? (1 mark)

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   b) Why is this type of plant propagation performed? (1 mark)

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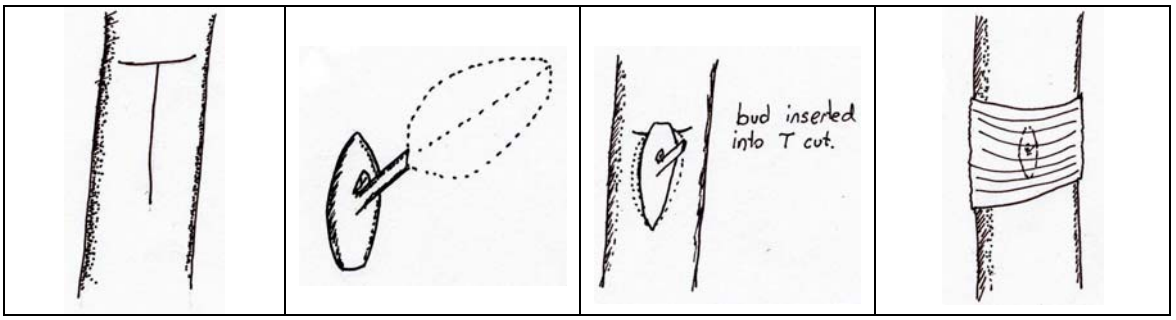

5. In class we prepared several types of cuttings. One of them was a softwood cutting. What is meant by the term *softwood*? (1 mark)

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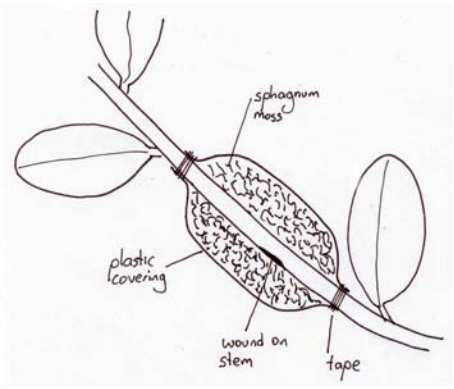
6. The diagram below shows a method of plant propagation.



   a) What is it called? (1 mark)

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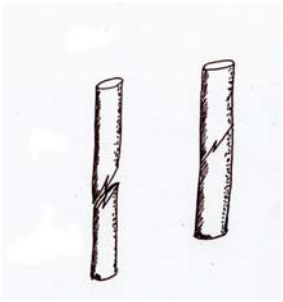
   b) Which type of plant did we perform this procedure on? (1 mark)

   _____

7. This graft is called a *whip and tongue* graft.



a) What is the term given to the material in the graft that has the roots on it? (1 mark)

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b) What is the term for the top section which is grafted on? (1 mark)

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c) Why are plants such as apples propagated using this method? (2 marks)

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Section 2 (8 marks)

5.5.1 A student designs, undertakes, analyses and evaluates experiments and investigates problems in agricultural contexts

8. A nursery propagates magnolias by hardwood cuttings. The manager needs to work out the best length of cuttings to ensure rapid growth. This rapid growth is necessary to get the new plants ready for sale the next winter.

   Your task is to work out an answer to this problem by setting up a trial (experiment) to obtain an answer.

   a) What is the *normal* length for a hardwood cutting? (1 mark)

   _____

   b) What length of cutting will be the control for this experiment? (1 mark)

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   c) How many different lengths of cuttings will you use in the experiment? What lengths will you use, and why did you choose these? (2 marks)

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   d) How can you ensure the results you get will be accurate? (2 marks)

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9. A class at another high school set up an experiment to find out the best potting mix in which to grow azaleas. They chose five potting mixes, a summary of their experiment is shown below.

Mix number	Sand %	Peat %	Perlite %	Number of pots used
1	100	0	0	2
2	50	50	0	2
3	50	0	50	2
4	0	50	50	5
5	0	100	0	6

Identify two problems with the design shown above. (2 marks)

i)

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ii)

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Section 3 (3 marks)

5.5.2 A student collects and analyses agricultural data and communicates results using a range of technologies

10. Andy wanted to know if plant hormone gel was better than powder when making cuttings of lavender plants. He set up an experiment and these are his results.

Pot number	Hormone used	Number of cuttings that developed roots and grew, from the 10 put in the pot.
1	Powder	10
2	Gel	9
3	Powder	9
4	Powder	8
5	Gel	9
6	Powder	7
7	Gel	6
8	Gel	9
9	Powder	5
10	Gel	8

a) Work out an average for each hormone type. (2 marks)

Gel = _____

Powder = _____

b) Is it better to use powder or gel hormone for the propagation of lavender plants? (1 mark)

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Section 4 (5 marks)

6.6.2 A student performs plant and animal management practices safely and in cooperation with others

11. When making and using potting mixes you were required to wear a dust mask. Identify the hazards in these procedures that make it necessary to wear a dust mask. (2 marks)

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12. List three procedures we used when grafting, which were followed to ensure safety from cuts. (3 marks)

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