

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Pearson BTEC Level 3  
Nationals Extended  
Certificate\*, Foundation  
Diploma, Diploma\*,  
Extended Diploma

Centre Number

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Learner Registration Number

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**Monday 13 January 2020**

Afternoon (Time: 1 hour 30 minutes)

Paper Reference **20066K**

**Agriculture; Countryside  
Management; Forestry and  
Arboriculture, Horticulture**

**Unit 2: Plant and Soil Science**

***\*Not relevant in Forestry or Arboriculture***

**You do not need any other materials.**

Total Marks

### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and learner registration number.
- Answer **all** questions.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*

### Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*

### Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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Answer ALL questions. Write your answers in the spaces provided.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 Figure 1 shows a cross-section of a dicotyledon stem.

(a) Label structures A and B in Figure 1.

(2)

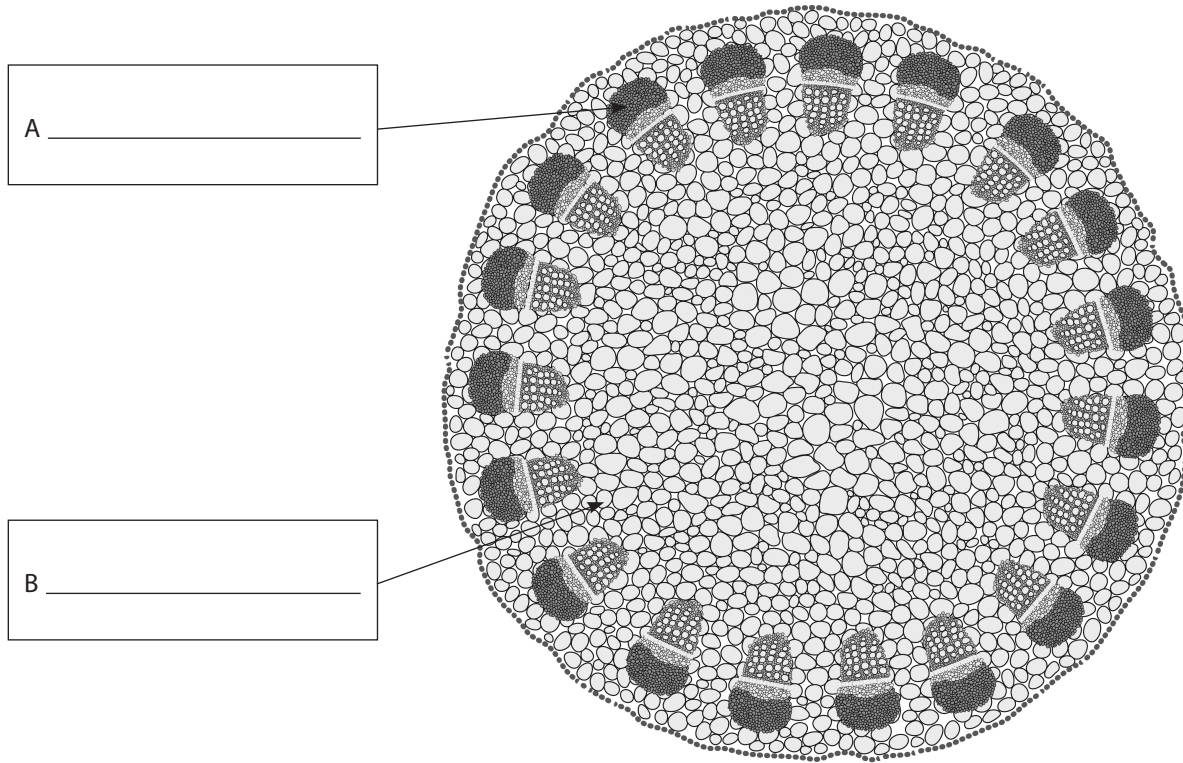


Figure 1

(b) Give **two** functions of xylem in a plant.

(2)

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(c) State how a monocotyledon flower is different in structure to a dicotyledon flower.

(2)

1 .....

2 .....

(d) Explain **two** ways plant structures are adapted to store food.

(4)

1 .....

2 .....



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(e) Analyse how plant storage structures are used in asexual reproduction.

(6)

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**(Total for Question 1 = 16 marks)**

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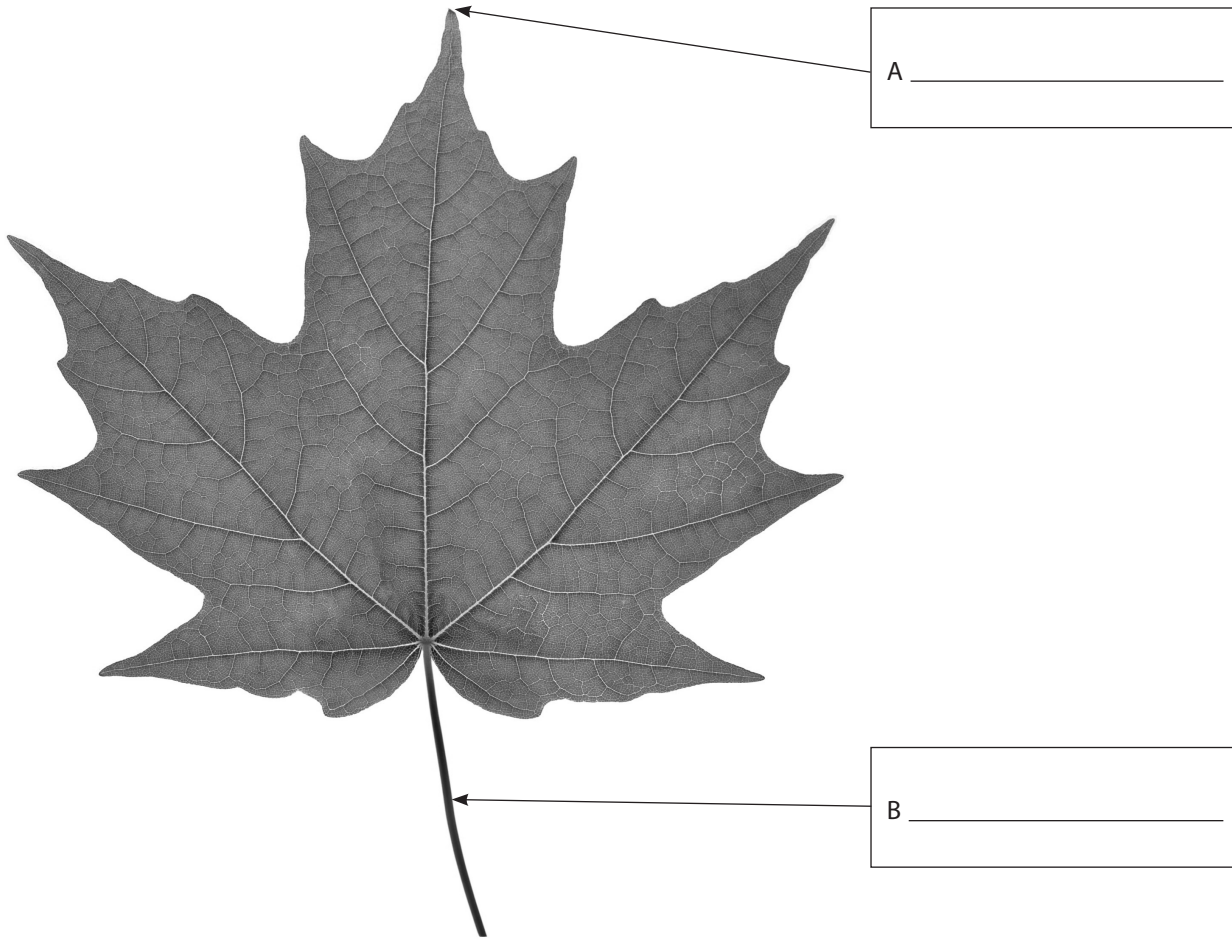
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**Question 2 is on the next page**



2 (a) Figure 2 shows the structure of a leaf.  
Label areas A and B on this leaf.

(2)



**Figure 2**

(b) Describe the characteristics of an *Ilex* leaf.

(4)

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(c) Explain **two** factors affecting mineral absorption by plant roots.

(4)

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2 .....

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(d) The weather during the spring has been cold, with a period of snow and frost.

Discuss the impact this weather will have on the establishment and success of a spring sown crop in a field.

(6)

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(Total for Question 2 = 16 marks)



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**Question 4 is on the next page**



4 The table below shows the characteristics of two types of plant reproductive system.

(a) Complete the table by writing the missing information in the correct boxes.

(2)

|                  | Plant A                | Plant B                  |
|------------------|------------------------|--------------------------|
| Pollination type | Entomophilous/insect   |                          |
| Petals           | Large and/or colourful | Insignificant            |
| Pollen type      |                        | Lightweight and separate |
| Pollen amount    | Small amount           | Large amount             |

Table 1

(b) State **two** features of a cross-pollinating plant.

(2)

1 .....

2 .....

(c) Explain **one** advantage of self-pollination.

(2)

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5 Organic matter provides plant nutrients to the soil.

(a) Give **one** other benefit to the soil when using organic matter.

(1)

The table below shows the nutrient analysis of three fertilisers.

| Fertiliser | % N | % P  | % K |
|------------|-----|------|-----|
| A          | 0.7 | 0.3  | 0.6 |
| B          | 4.0 | 2.5  | 2.3 |
| C          | 3.5 | 18.0 | 0   |

**Table 2**

(b) Give **one** reason why fertiliser C is most suitable when planting new trees.

(1)

(c) Describe the effects of the overapplication of a fertiliser on a plant.

(2)

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(d) The table below shows two methods of irrigation for plants.

Complete the table by writing the missing information in the correct boxes.

(2)

| Method of irrigation | Description of technique                           | Disadvantage   |
|----------------------|--|--|
|                      | Watering each plant separately through micro tubes | Tubes are easily blocked                             |
| Ebb and flow         |  | Diseases spread through the irrigation to all plants |

**Table 3**

(e) Describe **two** factors affecting the rate of transpiration.

(4)

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(f) Analyse the impact of light availability on plant growth.

(6)

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