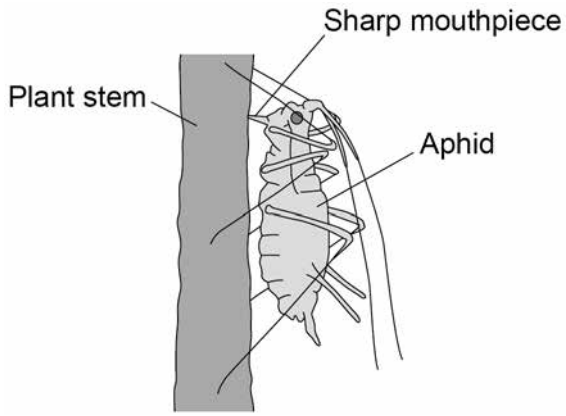
Do not write outside the box

0 5 Aphids are small insects that carry pathogens.

Figure 7 shows an aphid feeding from a plant stem.

Figure 7



0 5 . 1 An aphid feeds by inserting its sharp mouthpiece into the stem of a plant.

After feeding, the mouthpiece of an aphid contains a high concentration of dissolved sugars.

Which part of the plant was the aphid feeding from?

[1 mark]

Tick **one** box.

Palisade layer ☐

Phloem ☐

Stomata ☐

Xylem ☐

Do not write outside the box

0 5 . 2 What is the process that transports dissolved sugars around a plant?

[1 mark]

Tick **one** box.

Filtration ☐

Respiration ☐

Translocation ☐

Transpiration ☐

0 5 . 3 Plants infected with aphids have stunted growth.

Explain **one** way the removal of dissolved sugars from the stem of the plant causes stunted growth.

[2 marks]

0 5 . 4 Most aphids do not have wings when they hatch. After several generations, some aphids hatch which have wings and can fly.

Explain the advantage to the aphid of being able to fly.

[2 marks]

Do not write outside the box

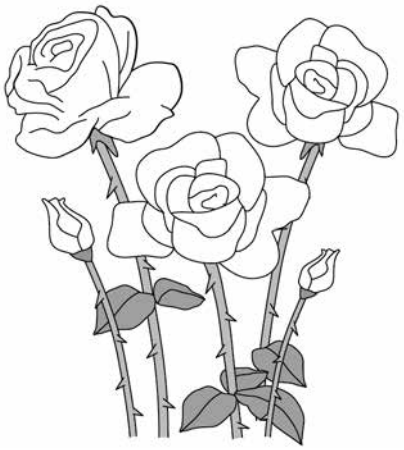
0 5 . 5 The leaves of some plants release oils onto their surface.

Suggest how the production of oil on the surface of a leaf may protect the plant from aphids.

[1 mark]

Figure 8 shows part of a rose plant.

Figure 8



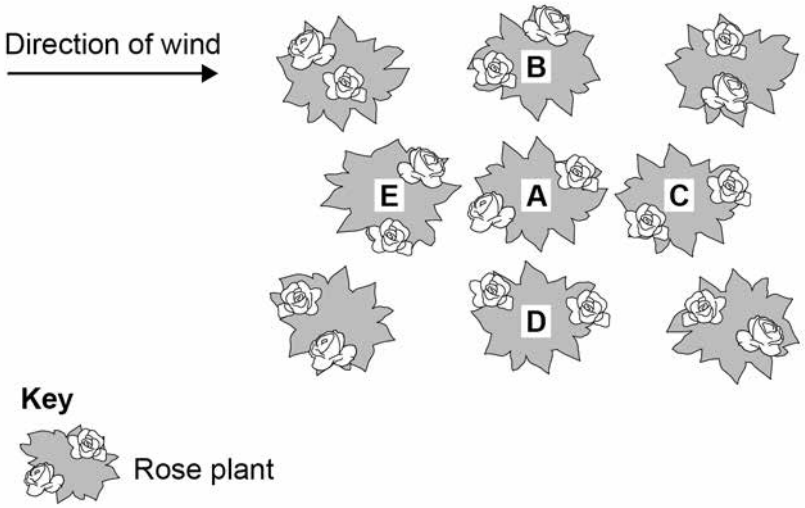
0 5 . 6 Give **one** adaptation shown in **Figure 8** that helps the rose plant defend itself.

[1 mark]

Do not write outside the box

Figure 9 shows a plan of a garden containing rose plants.

Figure 9



0 5 . 7 Plant **A** has the fungal disease rose black spot.

Which plant in **Figure 9** is the fungus likely to spread to first?

Give a reason for your answer.

[2 marks]

Plant _____

Reason _____

0 5 . 8 Suggest **one** way the gardener could reduce the spread of rose black spot to the other plants in the garden.

[1 mark]

11

Turn over ►

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.1	phloem		1	AO2 4.2.3.2
05.2	translocation		1	AO1 4.2.3.2
05.3	either: less (sugars for) respiration (so) less energy released **or** less amino acids made (1) (so) less protein produced **or** less protein synthesis (1) **or** less cellulose made (1) (so) weaker cell walls (1)		 1 1	AO2 4.4.1.3 4.4.2.1
05.4	(aphids) can fly to another plant **or** part of the plant to get (more) food	ignore to fly unqualified allow to find a mate allow idea of less competition for food allow to escape predators do **not** accept escape prey	1 1	AO2 4.3.3.1
05.5	(oil) prevents aphids from attaching to leaf **or** causes aphids to slide off leaf **or** idea that oil may harm / kill the aphid	ignore 'the leaf is slippery' allow oil may be unpleasant to the aphid	1	AO2 4.3.3.2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.6	(plant / stem has) thorns	allow spines / spikes / prickles ignore stings do **not** accept thorns protect (the plant) from predators	1	AO1 4.3.3.2
05.7	C	if any other letter given then no marks for the question	1	AO3 4.3.1.4 4.3.3.1
	(fungi / spores) blown by / in direction of the wind **or** it's the closest plant (to A)	allow black spot / disease is blown by / in direction of the wind do **not** accept reference to bacteria / viruses / pollen being blown	1	AO2 4.3.1.4 4.3.3.1
05.8	any **one** from: • spread rose bushes out more • remove any infected parts of the plant • use a fungicide	allow isolate the infected plant allow idea of barrier around infected plant ignore separate unless qualified allow remove infected plant / A ignore pesticide do **not** accept insecticides / herbicide	1	AO2 4.3.1.4 4.3.3.1
Total			**11**	