GCSE Biology A (Gateway)

J247/01 B1-B3 and B7 Foundation (Foundation Tier)

Question Set 6

1 A student wants to compare the transpiration rates of two plants.

The plants have different sized leaves.

Fig. 1.1 shows how she sets up her experiment.

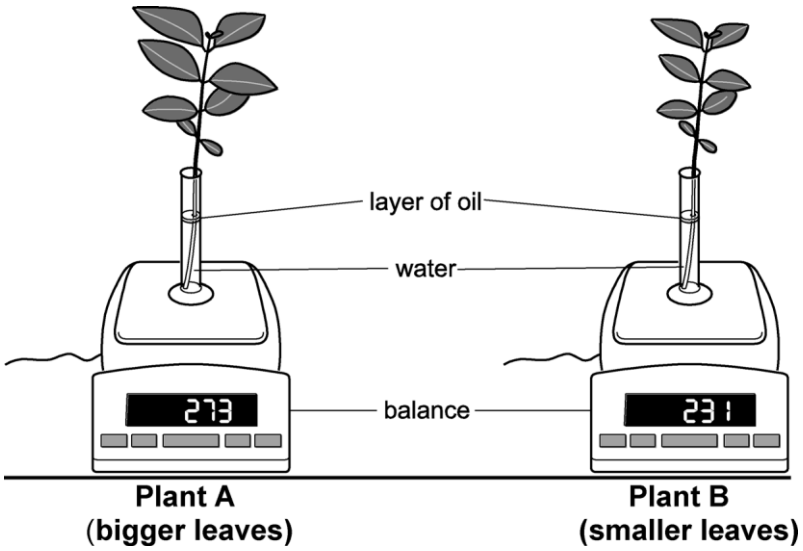

Fig. 1.1

(a) Suggest why the student put a layer of oil on top of the water.

This is to stop evaporation of water so that any loss in mass is from plant only. **[2]**

(b) The student makes sure that each plant has the same number of leaves.

Which other experimental conditions should she keep the same? **[3]**

Temperature, light intensity and windspeed.

(c)* The table shows the results of the experiment shown in **Fig. 1.1**.

	Plant A (bigger leaves)	Plant B (smaller leaves)
Mass at start (g)	261	273
Mass after 24 hours (g)	228	231
	-33	-42

Write a conclusion with an explanation about this experiment.

Use the results and calculations in your answer. **[6]**

Both plants lose mass due to water loss from transpiration of plants. However plant B lost more mass (42g) than plant A (33g). This is 5 grams more than A. A lost 12.6% of its mass in water and B lost 15.4%. So clearly B was losing more water than A over the same time period. This however is not normally expected as A has a larger surface area of leaves and so should be losing more water than B via transpiration. However in this experiment the reason why B loses more water may be because it had a higher number of stomata per cm^2. The experiment also has not been repeated so the results may be inconclusive.

Total Marks for Question Set 6: 11