

Question 11 (Answer: C)

- Water first evaporates from the wet cell walls of the mesophyll into the air spaces.
- It then diffuses out through the stomata.
- Osmosis moves water *between cells*; the step into the air space is evaporation.

Question 12 (Answer: A)

- Greasing a surface blocks the stomata there, so water cannot escape through it.
- Most stomata are on the *lower* surface of a leaf.
- So greasing the lower surface cuts water loss much more than greasing the upper surface.

Question 13 (Answer: B)

- Transpiration is fastest when water evaporates from the leaf most quickly.
- Wind removes the humid air from around the stomata, keeping the gradient steep.
- *Low* humidity and a *high* temperature also speed it up, so high humidity and low temperature both slow it.

5(a)(i)	transpiration / diffusion ;
5(a)(ii)	<i>any five from:</i> <i>comparison</i> 1 both lose mass ; 2 higher humidity, less water vapour is lost ; 3 ref. to steeper rate / greater water lost, initially (for both groups) ; 4 comparative data quote with units ; <i>explanation for high humidity</i> 5 (higher humidity) greater amount of water vapour in the atmosphere ; 6 reduced water potential, gradient ; 7 less water vapour lost, through stomata / between guard cells ;
5(a)(iii)	line drawn on the graph above the low humidity line ;
5(b)(i)	<i>any three from:</i> glands in the skin produce sweat ; sweat on (the surface of) the skin evaporates ; using / AW, heat / energy (from the body) ; (internal) body temperature, decreases / returns, to a set point ; ref. to homeostasis / negative feedback ;
5(b)(ii)	expiration / AW ;

Question 13 (Answer: **B**)

- Transpiration depends on the concentration gradient of water vapour out of the leaf.
- As humidity rises, that gradient gets shallower, so transpiration slows.
- At 100% humidity there is no gradient at all, so the rate falls towards zero.

Question 15 (Answer: **D**)

- To test humidity, the humidity must be the only thing that differs between the two sets.
- Everything else – plant species, size, temperature, light and air movement – must be kept the same.
- The oil layer stops water evaporating from the surface of the water rather than through the plant.

Question 15 (Answer: **B**)

- Transpiration is fastest when evaporation from the leaf is fastest.
- High temperature gives the water molecules more energy and wind removes the humid air.
- *Low* humidity keeps the concentration gradient steep – high humidity would slow it down.