

Question 21 (Answer: **B**)

- Auxin is produced in the shoot *tip*.
- Removing the tip removes the auxin source, so that shoot stops elongating.
- The shoot that keeps its tip continues to grow, which shows the tip is where the growth substance comes from.

Question 25 (Answer: **C**)

- In a horizontal stem, auxin collects on the lower side under gravity.
- In a shoot, auxin collects on the *shaded* side, away from the light.
- In a shoot more auxin means more elongation, so the shaded side grows faster and the shoot bends towards the light.

Question 25 (Answer: **B**)

- A tropism is a growth response towards or away from a stimulus.
- Phototropism is the response to light.
- A shoot growing towards light is the standard example; gravity gives gravitropism instead.

Question 26 (Answer: **A**)

- The shoot grows upwards, away from gravity – negative gravitropism.
- The root grows downwards, towards gravity – positive gravitropism.
- The seedling is underground, so there is no light and phototropism cannot be involved.

Question 26 (Answer: **C**)

- Auxin is made in the shoot tip and diffuses downwards.
- Light makes it move to the shaded side, so more auxin collects there.
- So the agar on the shaded side ends up with more auxin, and that side would grow faster.

6(a)(i)	tips ; diffusion ; gravity ; equal / AW ; elongation ;
6(a)(ii)	(root grows) downwards / towards gravity ;
6(a)(iii)	phototropism ;
6(b)	<i>any three from:</i> flaccid / no longer turgid ; <i>ref. to</i> plasmolysis ; lack of <u>turgor pressure</u> ; decreased volume of, cytoplasm / vacuole ; <i>ref. to</i> , decreased / low, water potential inside (plant) cells ; because of a, lack / loss, of water ;

Question 23 (Answer: **C**)

- A response to gravity is gravitropism, and it works in the dark.
- Shoots grow away from gravity and roots grow towards it.
- Phototropism needs light, so it cannot be involved in the dark.