

0 7 . 1

In photosynthesis, which chemicals are needed for the light-dependent reaction?
Tick (✓) **one** box.

[1 mark]

Reduced NADP, ADP, Pi, water and oxygen.

NADP, ATP and water.

Reduced NADP, ATP, water and carbon dioxide.

NADP, ADP, Pi and water.

0 7 . 2

Describe what happens during photoionisation in the light-dependent reaction.

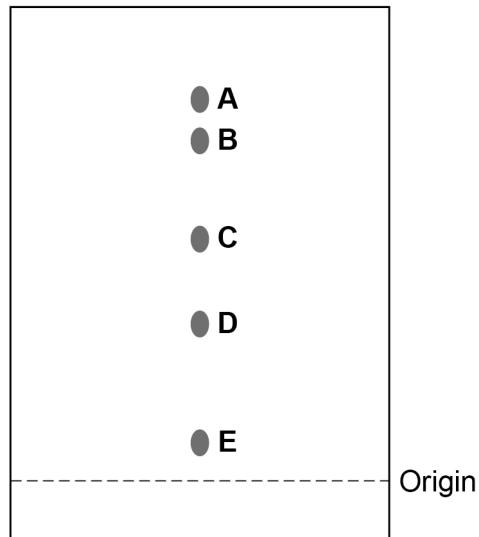
[2 marks]

Question 7 continues on the next page**Turn over ►**

A student obtained a solution of pigments from the leaves of a plant. Then the student used paper chromatography to separate the pigments.

Figure 5 shows the chromatogram produced.

Figure 5



0 7 . 3 Explain why the student marked the origin using a pencil rather than using ink.

[1 mark]

0 7 . 4 Describe the method the student used to separate the pigments after the solution of pigments had been applied to the origin.

[2 marks]



07.5

Calculating the R_f values of the pigments can help to identify each pigment. An R_f value compares the distance the pigment has moved from the origin with the distance the solvent front has moved from the origin.

$$R_f = \frac{\text{distance pigment has moved from the origin}}{\text{distance solvent front has moved from the origin}}$$

The distance each pigment has moved is measured from the middle of each spot.

Pigment **A** has an R_f value of 0.95

Use **Figure 5** to calculate the R_f value of pigment **C**.

[1 mark]

R_f value of pigment **C** = _____

07.6

The pigments in leaves are different colours. Suggest and explain the advantage of having different coloured pigments in leaves.

[1 mark]

8

Turn over for the next question

Turn over ►

