



QUESTION WORKBOOK

Chloroplasts: catching light and turning it into ATP

Photosynthesis and primary productivity · Unit B13

AQA 3.5.1 · OCR A 5.2.1 · Edexcel A Topic 5.4 · CAIE 13.1

6 questions · 20 marks

NAVY SCREEN EDITION

SECTION A · Short, 1 to 2 marks

A1 State what an absorption spectrum measures, and state what an action spectrum measures. [2]

SECTION B · Standard, 3 to 5 marks

B1 Describe the light-dependent reactions of photosynthesis, in the order in which they happen, from the absorption of a photon to the formation of reduced NADP. [5]

B2 Compare non-cyclic photophosphorylation with cyclic photophosphorylation. [4]

B3 Explain why a leaf appears green, referring to the absorption spectrum of chlorophyll.

[3]

B4 On a chromatogram of leaf pigments the solvent front has run 84 mm from the pencil origin line, and the centre of the carotene spot lies 79 mm from that line. Calculate the R_f value of carotene.

[3]

B5 A plant is watered with water in which the oxygen is the heavy isotope oxygen-18, while the carbon dioxide it is given contains only ordinary oxygen. Suggest where the oxygen-18 will first be detected, and justify your answer.

[3]
