



QUESTION WORKBOOK

Three other answers: tracheae, gills and stomata

Exchange surfaces and gas exchange · Unit B07

AQA 3.3.2 · OCR A 3.1.1, 3.1.3 · CAIE 7.2

6 questions · 20 marks

NAVY SCREEN EDITION

SECTION A · Short, 1 to 2 marks

- A1** State two features of a gill lamella, other than the direction in which water flows over it, that increase the rate at which oxygen enters the blood. [2]

SECTION B · Standard, 3 to 5 marks

- B1** A bony fish removes about 80 per cent of the dissolved oxygen from the water passing over its gills, while parallel flow could not exceed 50 per cent. Explain this difference. [4]

- B2** Describe what happens to the fluid at the ends of an insect's tracheoles during a period of sustained activity, and describe the effect this has on the delivery of oxygen. [4]

B3 A leaf has no ventilation and no transport system for gases, yet it supplies every mesophyll cell with carbon dioxide. Explain how it manages this, and explain why the same arrangement costs the plant water. [4]

B4 A fish stranded on a riverbank dies of oxygen shortage in air containing about thirty times more oxygen than the water it came from. Suggest why. [3]

B5 Compare the way an insect delivers oxygen to its flight muscles with the way a bony fish delivers oxygen to its swimming muscles. [3]
