

Full Higher Separate content. ★ = Higher Tier. ◆ = Separate Science only.

Q1. Compare arteries, veins and capillaries in terms of structure and function.

[4 marks]

Q2. Explain why capillaries are described as the most important blood vessels for exchange of substances.

[2 marks]

Total: 6 marks

Q1 (4 marks)

Compare arteries, veins and capillaries in terms of structure and function.

- Arteries: thick elastic/muscular walls, small lumen — withstand and smooth high pressure blood from heart [1]
- Veins: valves — prevent backflow; large lumen — less resistance for low-pressure blood [1]
- Capillaries: one cell thick walls — short diffusion distance for exchange of O₂, CO₂, glucose [1]
- Capillaries: extensive network — every cell close to a capillary [1]

Q2 (2 marks)

Explain why capillaries are described as the most important blood vessels for exchange of ...

- Walls are only one cell thick — minimises diffusion distance [1]
- Present in every tissue — bring exchange surface close to all cells [1]