

This is the **Foundation Separate** version. Higher Tier (★) questions have been removed. All remaining questions are Foundation-level.

## The Circulatory System (B2a)

*Specification reference: B2a*

**Q1. Explain why the left ventricle has a much thicker muscular wall than the right ventricle.**

[3 marks]

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**Q2. Describe the adaptations of capillaries that make them suited for exchange of substances with tissues.**

[3 marks]

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**Q3. Describe the four components of blood and the function of each.**

[4 marks]

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## Plant Transport (B2b)

*Specification reference: B2b*

**Q4. Describe the difference between transpiration and translocation.**

[3 marks]

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**Q5. Describe how THREE factors affect the rate of transpiration. Explain the mechanism in each case.**

[4 marks]

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**Total: 17 marks**

## The Circulatory System (B2a)

### Q1 (3 marks)

*Explain why the left ventricle has a much thicker muscular wall than the right v...*

- Left ventricle pumps oxygenated blood to the whole body (systemic circulation) [1]
- The body is a much greater distance than the lungs — requires much higher pressure [1]
- Thicker muscle wall contracts more forcefully, generating the required higher pressure [1]

### Q2 (3 marks)

*Describe the adaptations of capillaries that make them suited for exchange of su...*

- Walls are one cell thick — minimises diffusion distance [1]
- Large total surface area — maximises exchange rate [1]
- Located very close to all body cells — minimises distance substances must travel [1]

### Q3 (4 marks)

*Describe the four components of blood and the function of each.*

- Red blood cells: no nucleus, biconcave, contain haemoglobin — carry O<sub>2</sub> [1]
- White blood cells: phagocytes engulf pathogens; lymphocytes produce antibodies [1]
- Plasma: liquid that carries dissolved substances (glucose, hormones, CO<sub>2</sub>, urea) [1]
- Platelets: cell fragments that form blood clots at wound sites [1]

## Plant Transport (B2b)

### Q4 (3 marks)

*Describe the difference between transpiration and translocation.*

- Transpiration: evaporation of water from leaves through stomata; drives water movement up xylem [1]
- Translocation: transport of dissolved sugars (sucrose) in phloem from leaves to rest of plant [1]
- Transpiration is one-way upward; translocation can be in any direction [1]

### Q5 (4 marks)

*Describe how THREE factors affect the rate of transpiration. Explain the mechani...*

- Temperature: higher temp → more evaporation from cells → steeper concentration gradient for water vapour → faster rate [1]
- Light intensity: more light → stomata open wider → more water vapour can escape [1]
- Humidity: lower humidity → steeper concentration gradient between leaf and air → faster diffusion of water vapour [1]
- Wind speed: removes water vapour from near leaf surface → maintains steep gradient [1] — any three with explanation