

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

**Q1. Describe THREE adaptations of red blood cells for carrying oxygen.**

**[3 marks]**

---

---

---

---

---

---

**Q2. Describe the roles of the four components of blood.**

**[4 marks]**

---

---

---

---

---

---

---

---

---

---

---

**Total: 7 marks**

**Q1 (3 marks)**

*Describe THREE adaptations of red blood cells for carrying oxygen.*

- Biconcave disc shape — large surface area for  $O_2$  diffusion [1]
- No nucleus — more space for haemoglobin/more  $O_2$  carried per cell [1]
- Contain haemoglobin — binds  $O_2$  reversibly in lungs, releases in respiring tissues [1]

**Q2 (4 marks)**

*Describe the roles of the four components of blood.*

- Red blood cells: carry  $O_2$  as oxyhaemoglobin [1]
- White blood cells: phagocytes engulf pathogens (phagocytosis); lymphocytes produce antibodies [1]
- Plasma: liquid that transports dissolved substances — glucose,  $CO_2$ , hormones, urea, amino acids [1]
- Platelets: cell fragments involved in clotting at wound sites [1]