

D.pharm 1st year

PHARMACY
INDIA

LIVE

HUMAN ANATOMY & PHYSIOLOGY

HAEMOPOIETIC SYSTEM BLOOD

PART-

1

2026-27

Blood

- It is a **fluid connective tissue** composed of **plasma (fluid part)** and **formed elements (cells)**.
- यह एक तरल संयोजी ऊतक है जो प्लाज्मा (द्रव भाग) और निर्मित तत्वों (कोशिकाओं) से बना होता है।
- Blood makes up about **7–8% of total body weight** ($\approx$ 5–6 liters in an adult).
- रक्त कुल शरीर के वजन का लगभग 7-8% होता है (एक वयस्क में लगभग 5-6 लीटर)।

- It is slightly **alkaline** in nature, with a **pH of 7.35–7.45**.
- यह प्रकृति में थोड़ा क्षारीय है, जिसका pH मान 7.35-7.45 है।
- **Color:** Bright red in arteries (oxygen-rich), dark red in veins (oxygen-poor).
- रंग: धमनियों में चमकीला लाल (ऑक्सीजन युक्त), शिराओं में गहरा लाल (ऑक्सीजन रहित)।

- **Functions of Blood**

- **Transport:**

- Oxygen from lungs → tissues
- Carbon dioxide from tissues → lungs
- Nutrients, hormones, enzymes, and waste products

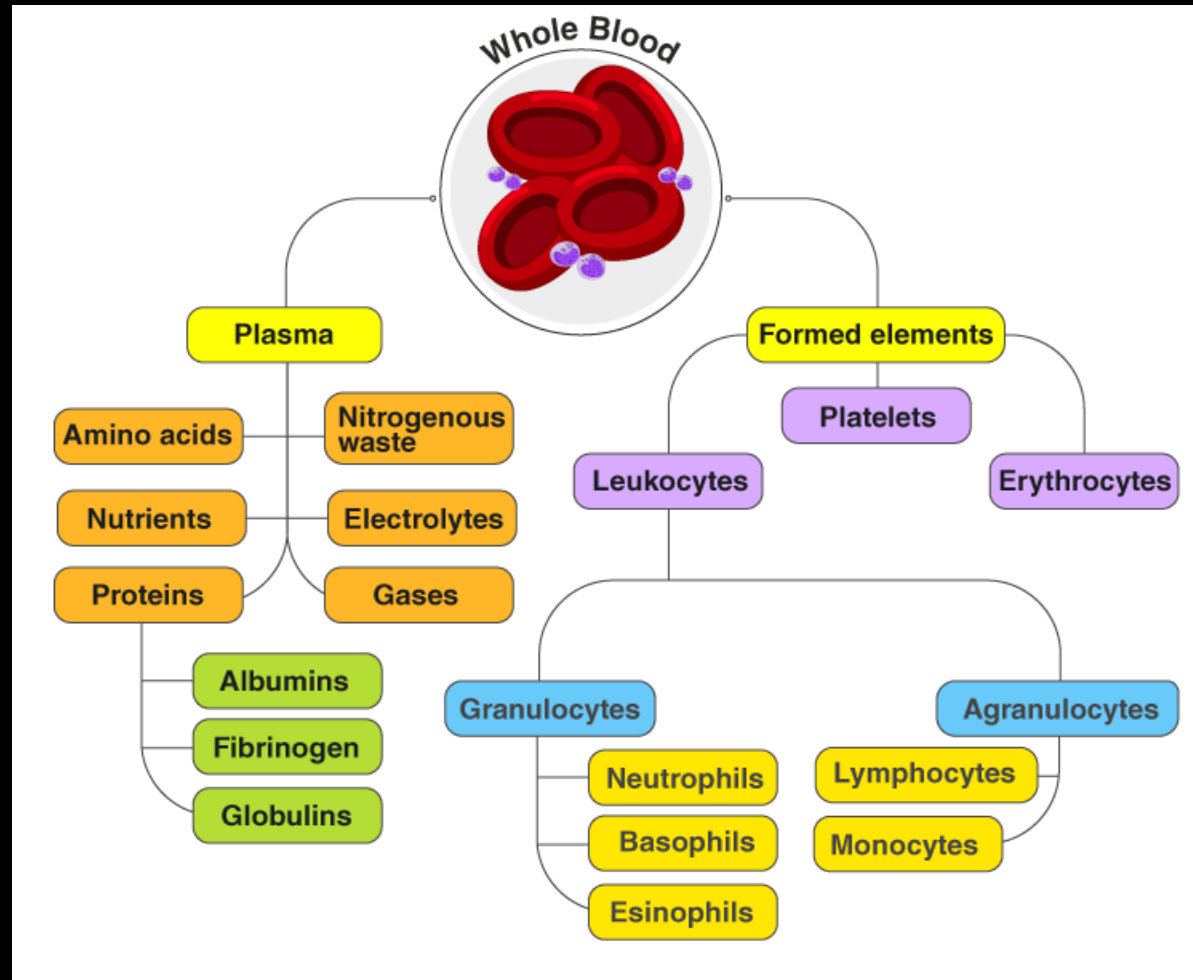
- **Regulation:**

- Maintains body temperature, pH, and water balance

- **Protection:**

- White blood cells fight infection
- Platelets help in clotting (prevent blood loss)

Components of blood



RBC/ Erythrocytes

- RBCs are the most abundant blood cells, specialized for carrying oxygen from the lungs to tissues and transporting carbon dioxide back to the lungs.
- आरबीसी सबसे प्रचुर मात्रा में पाई जाने वाली रक्त कोशिकाएं हैं, जो फेफड़ों से ऊतकों तक ऑक्सीजन ले जाने और कार्बन डाइऑक्साइड को वापस फेफड़ों में पहुंचाने के लिए विशिष्ट होती हैं।

Key Features of RBCs

- **Shape:** Biconcave disc (increases surface area for gas exchange)
- **Size:** $\sim 7.5 \mu\text{m}$ diameter, $2 \mu\text{m}$ thickness
- **Number:** $\sim 5\text{--}6$ million per mm^3 of blood (slightly higher in males)
- **Lifespan:** About **120 days**, destroyed mainly in the spleen (“graveyard of RBCs”)
- **Nucleus:** Absent in mature RBCs (in humans) – allows more hemoglobin storage
- **Pigment:** Rich in **hemoglobin**, which gives red color

THANK

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