

- contains Haemoglobin  $\Rightarrow$  Iron-containing complex protein
- Red-coloured, hence the name of the cell. (RBC) ★ (A.R)
- 12-16 gm<sup>+</sup> Hb / 100 ml blood

life span of RBC  $\rightarrow$

120 days

Destroyed in "Spleen" called "graveyard of RBC" (PYQ)

function  $\Rightarrow$  Transport of respiratory gases. ( $O_2, CO_2$ )  
(Role of Hb)  $\rightarrow$  (jabhi Role RBC ka bhi)

Folic acid and Vit. B<sub>12</sub> (cyanocobalamine)  $\Rightarrow$  Required for RBC Maturation

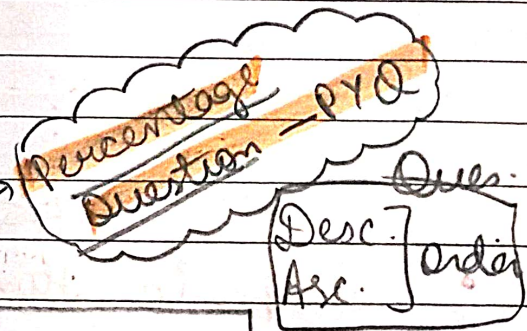
Out of NCERT  
(Aim)

## WBC's

colourless due to lack of Hb. (AR)

- Short-lived generally
- Nucleated
- 6000 - 8000 / cumm blood
- Soldiers of the body

WBC  $\rightarrow$  2 types



## Granulocytes

Neutrophil  $\approx$  60-65% (max)<sup>+</sup> ★

phagocytic  $\Rightarrow$  (destroy foreign particles entering)

## Agranulocytes

Monocytes

- 6-8%
- Phagocytic



## Formed elements (45% of Blood)

Red Blood cells (RBC)  
'Erythrocyte'

White Blood cells (WBC)  
'leucocyte'

Platelets  
Thrombocyte

### 1. Number

5 - 5.5  
million per  
cu mm of blood

• 6000 - 8000 per  
cu mm of blood

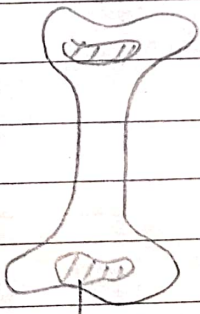
• 1.5 - 3.5  
lac per cu mm  
of blood

\* RBC > Platelets > WBC

• Most abundant  
cells in blood

### \* RBC

• Formation of RBC  $\Rightarrow$  Erythropoiesis



Red BM  $\rightarrow$  Stem cells  $\rightarrow$  Blood cells

• early embryonic life: Yolk-sac  
• late —————: Liver & spleen  
• After birth / Adult: Red-bone Marrow

(NCERT)

• Shape in human  $\Rightarrow$  circular (Round) & Biconcave

• Devoid of Nucleus in Most Mammals except: camel & Llama

NOTE  $\Rightarrow$  Frog: 'Nucleated RBC'



PYA

# Immunoglobulins (Ig) Antibodies (Ab)

Date: .....

## Blood

### Plasma

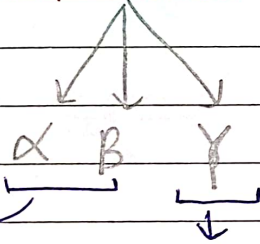
- ✓ 55%
- ✓ fluid matrix
- ✓ straw coloured (pale yellow)
- ✓ Viscous (झीठा)
- Water : 90-92%
- Proteins : 6-8%

Formed elements  
= (Blood cells)  
corpuscles

### Albumin

osmotic  
balance

### Globulin



### Prothrombin

### Fibrinogen

Role in  
Blood coagulation

Role in  
Immunity  
defense of body

- ✓ Gases
- ✓ Hormones
- ✓ Excretory waste
- ✓ Minerals like  $\text{Na}^+$ ,  $\text{Cl}^-$ ,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{HCO}_3^-$  etc.
- ✓ glucose, amino acids, lipids (always in transit state)
- ✓ clotting factors in inactive form

**SERUM = PLASMA - clotting factors**

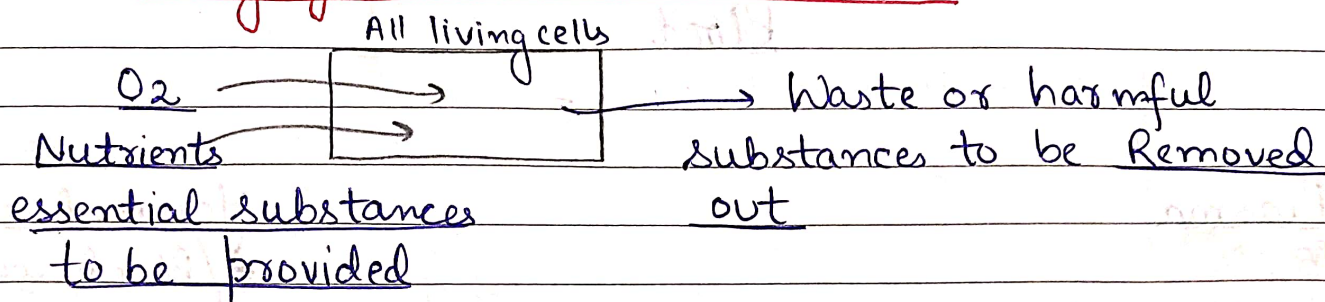
do not clot

PYA

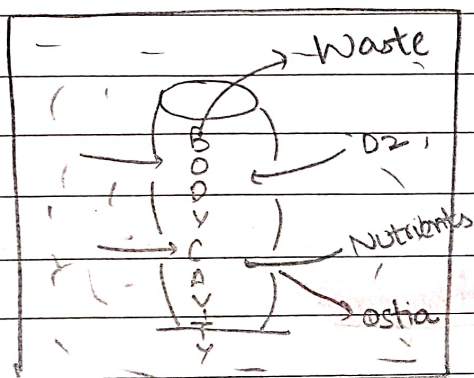
Heparin: Anti-coagulant  
(keep blood in liquid state)



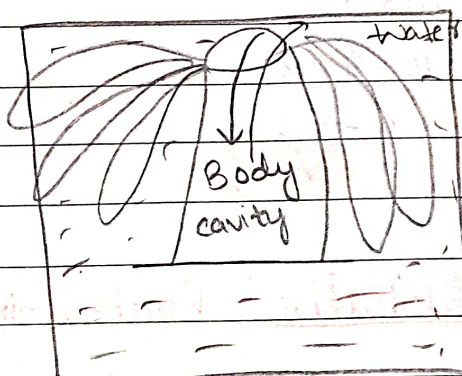
# Body fluids & circulation



## # Simple organisms like Sponges and Coelenterata (Porifera) eg: - Hydra



SPONGES



Coelenterates

## # Sponges and coelenterates (Porifera) ↓

circulate H<sub>2</sub>O from surroundings through body cavity to facilitate cells for exchange of these substances

## # complex organisms use special body fluids

- BLOOD and Lymph
- Most commonly used body fluid by most of higher vertebrates including humans.