# INTRODUCTION TO BLOOD & PLASMA PROTEINS

**Blood :-**

→ Specialized connective tissue. Composed of Cellular & matrix comp.
→ 7-8% of body weight.
→ 5L in adult.

**functions of blood:-**

→ Transport oxygen and nutrient to the tissue.
→ It removes waste like $CO_2$, Lactic acid and urea, ammonia
→ Maintains pH of the body.
→ Maintains thermal equilibrium as well as immunity.
→ Transport hormones.
→ It has intrinsic property to commence clotting.

**Serum:** plasma without coagulative factors.

**Composition:-**

(a) Plasma (55% of blood volume)
(b) RBC
(c) WBC
(d) Platelates.

**Plasma:-**

→ Major type protein such as albumin, globulin, and fibrinogen are present.
→ Albumin :- Provide colloid osmotic Pressure in Plasma.
Globulin :- Performs enzymetic functions. They also provide immunity.
Fibrinogen :- Polymerises into long fibrin threads during blood clot.

**Some extra Proteins:-**

Immunoglobulins :- Humoral immunity
Transferrin :- Iron transport

Ceruloplasmin :- [illegible] transport.

C-reactive protein :- Acute phase reactant inflamation.

Coagulation factor :- Blood coagulation

Haptoglobin :- Hemoglobin transport (outside the RBC)

Hemopexin :- Heme binding and Transport

Transthyretin :- Binding and transport of thyroid hormone and retin

## formation of Plasma Proteins :-

→ Essentially all the albumins and fibrinogen of the plasma proteins as well as 50-80% of the globulins are formed in Liver.

→ Rest globulins are formed in lymphoid tissue.

→ Rate of Plasma protein formation by the liver can be extremely high as much as 30g/day.

## functions of Plasma proteins :-

→ osmotic pressure of blood is also known as colloid osmotic Pressure / oncotic pressure

* Normal value of colloid osmotic pressure = 28 mm Hg.
* 19 mm Hg by dissolved proteins
* 9 mm Hg by ions held in plasma.

(1) Albumin = 21.8 mm Hg
(2) Globulin = 6.0 mm Hg
(3) fibrinogen = 0.2 mm Hg

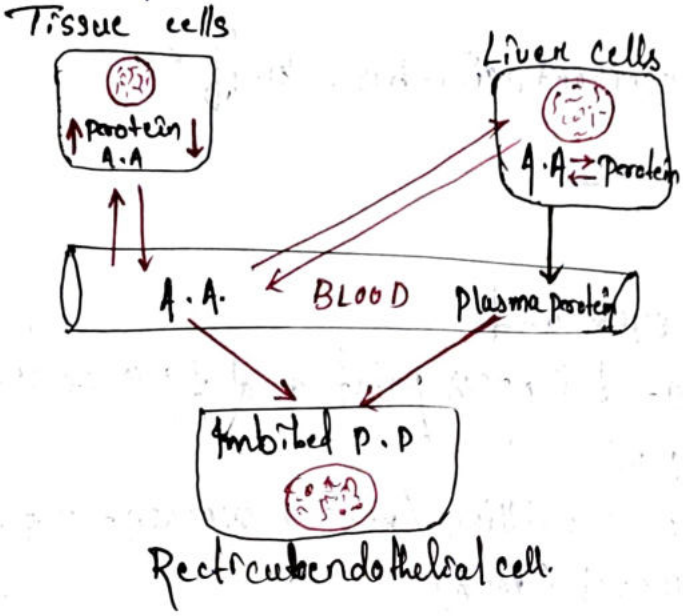
28 mm Hg

→ Plasma protein act as Carriers for water-insoluble (lipophilic) Substances. As albumin act as a Carrier of Steroid hormones, fatty acids & thyroid hormones.

tissues become depleted of proteins. When the proteins the plasma proteins act as rapid replacement.



→ There is a reversible equilibrium b/w the plasma proteins & the tissue proteins.




* Plasmapheresis :- It is a process in which plasma can be removed from blood with out removing RBC.