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(Q1) Write the function of blood? and Composition

(Ans) Blood is a specialized body fluid. It has four main components, plasma, red blood cells, white blood cells. Blood has many different functions:

Main function

- (i) transporting oxygen and nutrients to lungs and tissues
- (ii) forming blood clots to prevent excess blood loss.
- (iii) Carrying cells and antibodies that fight infections.
- (iv) bringing waste product to the kidneys and liver which filter and clean the blood
- (v) regulating body temperature

Component of Blood

:- plasma
Red blood Cell. white blood cell - and platelets.

Plasma

Plasma :- The liquid component of blood is called plasma a mixture of water, sugar, fat, protein and salt. The main job of plasma is to transport blood cells throughout your body along with nutrients.

Red Blood Cell

Red Blood Cell it is also called **erythrocytes** or RBCs. It is known for their bright red colour, red cells are most abundant cells in the body.

White Blood Cell

White Blood Cell also called **leukocytes**. White blood cells protect the body from infection. They are much fewer in number than red blood cells, accounting for 1 percent of our body.

Composition of blood

Percentage by body ~~with~~ weight
~~the~~

92% other fluid and
tissue and 8% blood

percentage by volume

plasma 55%

formed elements 45%

White blood cells.

(i) Neutrophils 60% - 70%

(ii) Lymphocytes 20% - 25%

(iii) Monocytes 3 - 8%

Eosinophils 2 - 4%

Basophils 0.5 - 1%

plasma

plasma ∴ Liquid part of blood
pale yellow made up of

* 92% water

* Minerals Ions

* Glucose and nutrients

* Hormones

* CO_2

* protein.

plasma proteins

- * Albumin - regulating of PH
- * Globulin - defense
- * Fibrinogen - blood clotting.

RBC OR Erythrocytes

- * Biconcave in shape
- Diameter = 7.8 micrometers
- Thickness = 2.5 micrometers
- 52,00,000 / Cubic millimeter of blood in males.
- 47,10,000 in females.

WBC

∴ 7000 per microliter of blood

6 types of WBC

- * polymorphonuclear

platelets

∴ 3,00,000 per microliter of blood.

(Q2) What is erythrocytes; erythropoiesis and erythropenia.

(Ans) Erythrocyte.

∴ A cell that contains hemoglobin and can carry oxygen to the body. It is also called ~~red~~ red blood cells. The reddish colour due to hemoglobin.

Erythrocytes are biconcave in shape which increases the cell's surface area and facilitates the diffusion of oxygen and carbon dioxide.

* Erythropoiesis

∴ It is the process which produces red blood cells which is the ~~de~~ development from erythropoietic stem cell to mature red blood cell. It is stimulated by decrease O_2 in circulation which is detected by the kidney which then secretes the hormone erythropoietin.

* Erythrocytosis

∴ Erythrocytosis is defined as an increase in the red blood cells mass usually absolute and is also associated with an increased ~~hem~~ hematocrit (HCT) and hemoglobin concentration. Although some use of term polycythemia interchangeably with erythrocytosis.

* Erythropenia

∴ A decrease in the number erythrocytes associated with anemia.

Q3 what is plateletes and write about Clotting Mechanism and its all Steps. ?

Ans Platlets.

plateletes are tiny blood cells that help our body from Clots to Stop bleeding.

if one of our blood vessel gets damages it send out signals to the platelets the platelets then rush to the site of damages. They form a plug to fix the damage.

Clotting Mechanism

Coagulation

also know as Clotting is the process by which blood changes from liquid to a gel forming a blood clott. It is potentially result in hemostasis. The Cessation of blood loss from damage vessel.

followed by repairs. The mechanism of coagulation involves activation, adhesion and aggregation of platelet as well as deposition and maturation of fibrin.

Activation

∴ Coagulation begins almost instantly after an injury to the blood vessel has damaged the ~~entire~~ endothelium lining the blood vessel. Exposure of blood to the subendothelial ~~tissue~~ ~~factors~~ space initiates two processes: change in platelets and the exposure of subendothelial tissue factor to plasma factor VII which ultimately cross link fibrin formation.

Adhesion

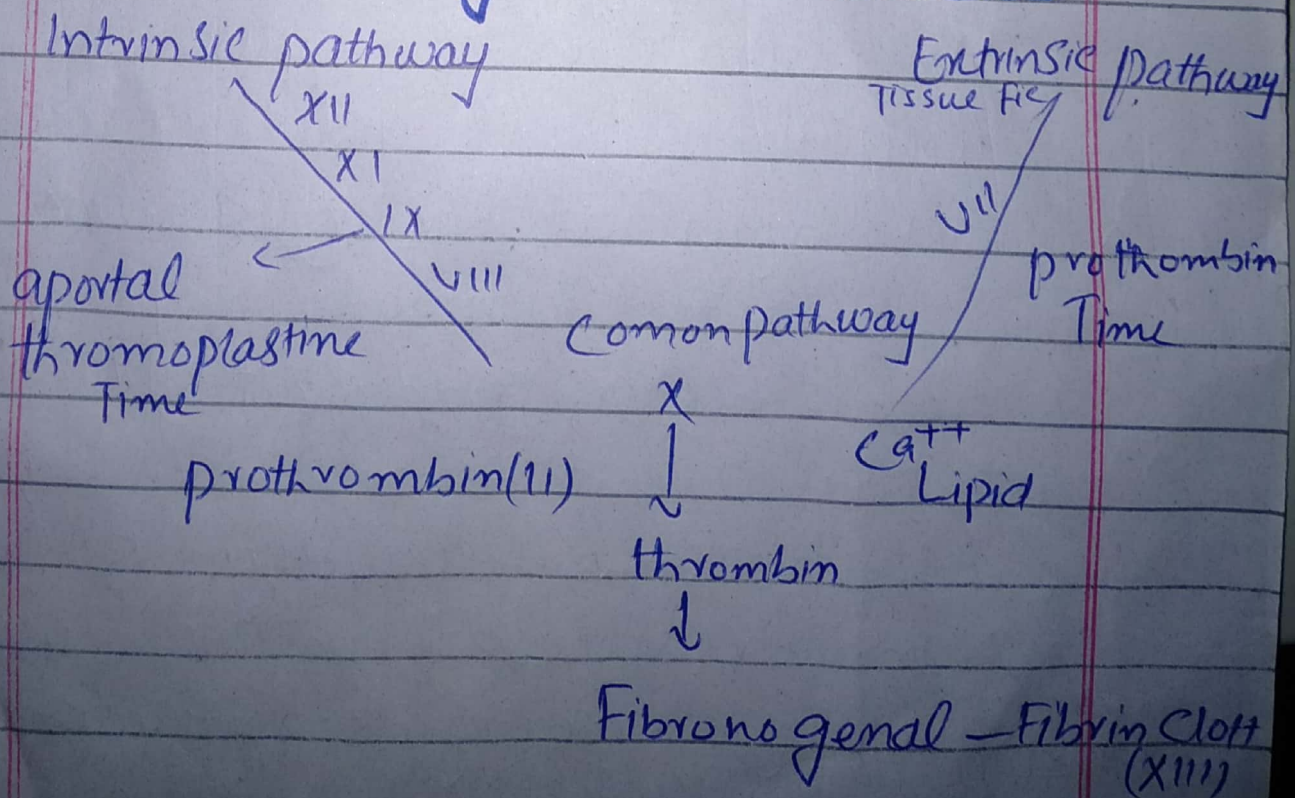
∴ Platelets immediately form a plug at the site of injury. This is called primary hemostasis.

Secondary hemostasis occurs simultaneously, additional Coagulation Clotting factor beyond factor VIII respond in a Cascade to form fibrin Strand which strengthen the plateletes plug.

Aggregation

∴ Disorder of Coagulation are ~~diseased~~ disease state which can result in hemorrhage, bruising or or thrombosis.

Coagulation Cascade.

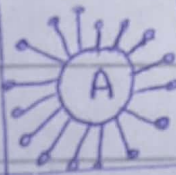
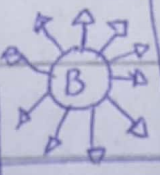



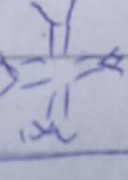



Q4 write a detail note on ABO System?

Ans The ABO system is used to denote the presence of one, both, or neither of the A and B antigens on erythrocytes. In human blood transfusions it is the most important of the 36 different blood type (or group) classification system currently recognized. A mismatch (very rare in modern medicine) in this, or any other serotype, can cause a potentially fatal adverse reaction after a transfusion, or an unwanted immune response to an organ transplant. The associated anti-A and anti-B antibodies are usually IgM antibodies, produced in the first years of life by sensitization to environmental substances such as food, bacteria and viruses.

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The ABO blood types were discovered by Karl Landsteiner in 1901; he received the Nobel Prize in physiology or medicine in 1930 for this discovery. ABO blood types are also present in other primates such as apes and old world monkeys.

	Group A	Group B	Group AB	Group O
Red Blood Cell Type				
Anti bodies in plasma			None	
Antigens in red blood cell	A Antigen	B Antigen	A & B antigen	None

Q5 (i) A person fell down from a tree and become unconscious, with bleeding from head, what will you do as a first aid?

Ans Keep the injured person ~~to~~ lying down and quiet, with head and shoulders slightly elevated. ~~Don't~~ Don't move the person unless necessary, and avoid moving the person's head. Apply firm pressure to the wound with sterile gauze or a clean cloth. But don't apply direct pressure to the wound if you suspect a skull fracture. Maintain ABC of the patient: Airway, breathing, circulation. Then take the person to hospital.

ii) You have to meet with your friend and you come to know he is covid positive. What precautionary

Measure will you have take?

Ans When I came to know that the friend I am meeting with is a covid positive. Firstly ~~don't~~ it is ~~not~~ ^{not} ~~not~~ important to meet that friend but if this is necessary then i will take the ~~of~~ following precautions.

- i) Wear ~~Face~~ Face Mask and Gloves and ~~the~~ It will also necessary for that friend to wear face mask and Gloves.
- ii) keep distance of at least 2 meter.
- iii) And When came back to home ~~a~~ change the cloth i wear and also waste the gloves and Mask and wash the clothes and hand or take a bath with dettol if possible.