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PAPER PHYSIOLOGY.

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1) Write the function and composition of blood.

Blood Definition.

Blood is a specialized body fluid. It has four main components: plasma, red blood cell, white blood cell, and platelets. Blood has many different functions including transporting oxygen and nutrients to the lungs and tissue.

Explanation.

Blood fluid that transports oxygen and nutrients to the cell and carries away carbon dioxide and other waste products. It is a tissue.

because it is a collection of similar specialized cells that serve particular function. these cells are suspended in a liquid matrix (plasma) which make the blood a fluid.

Composition of blood

- Plasma (55%) yellow liquid that is 90% water which dissolved protein, salt and nutrient
 - Formed element (45%) cell and cell frequency
 - Erythrocytes (Red blood cell) 99% formed element transport oxygen and carbon dioxide.
- IT

Thrombocytes (Platelets)
2-1% cells, Fragment
involved in blood
clotting.

⑨ Leukocytes (white blood
cell) 2-1% function as
part of the immune
system.

Function of Blood.

1) Transportation

Blood transport oxygen
and nutrients to
cell CO_2 and waste
away from cell,
hormones to target
Tissue.

2) Regulation.

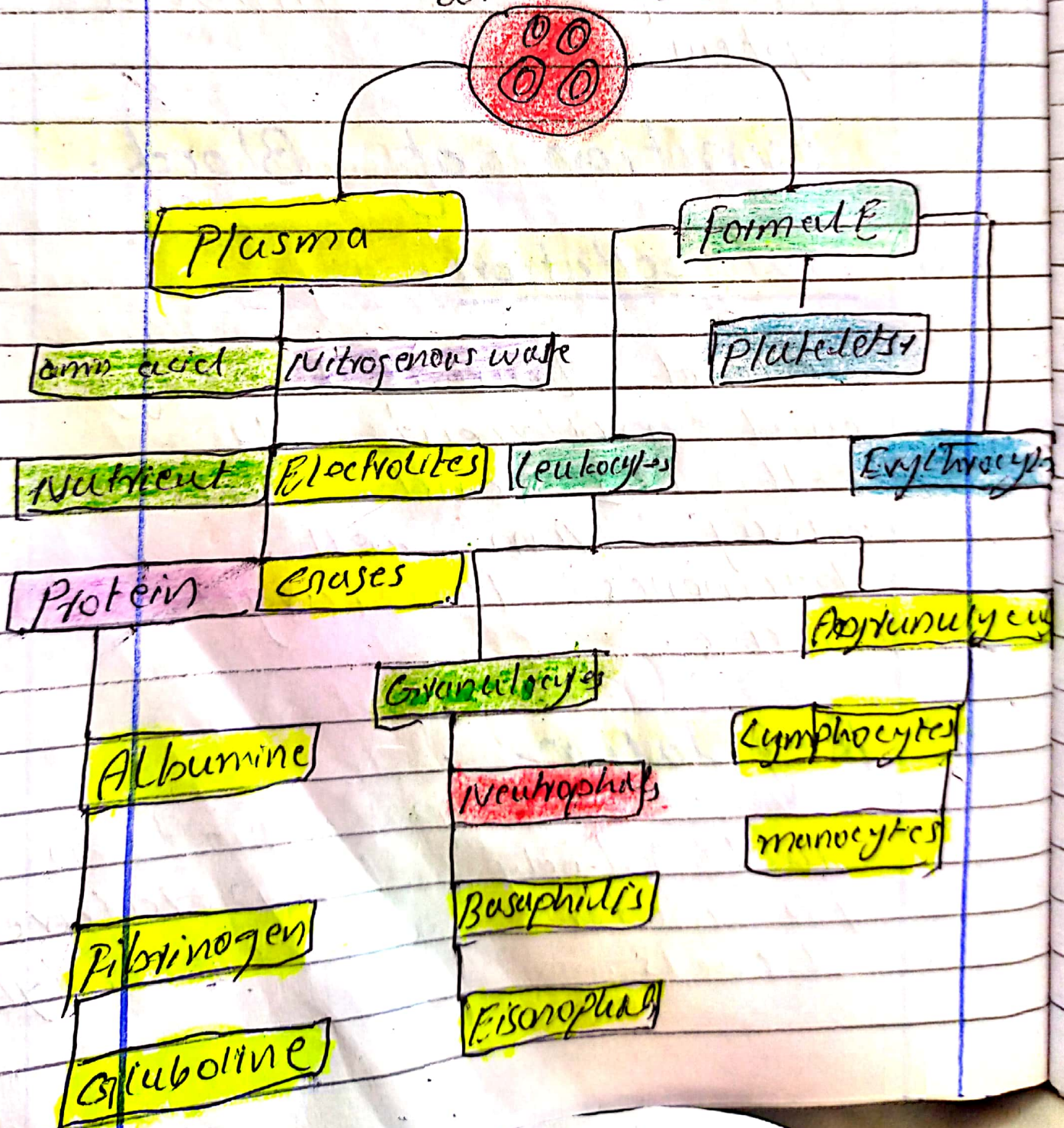
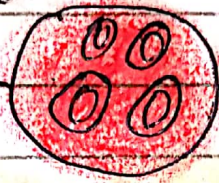
Help maintain
stable body temperature,
pH water and electrolyte
Levels.

3) Protection:

Prevent clotting
Prevent Fluid Loss
white blood cell
body against disease.

Composition of Blood.

whole blood



important of Blood.

Blood brings oxygen and nutrient to all the part of the body so then keep working blood carries carbon dioxide and other waste material to the lungs kidney and digestive system to be removed from the body. blood also fight in infection and carries hormones around the body.

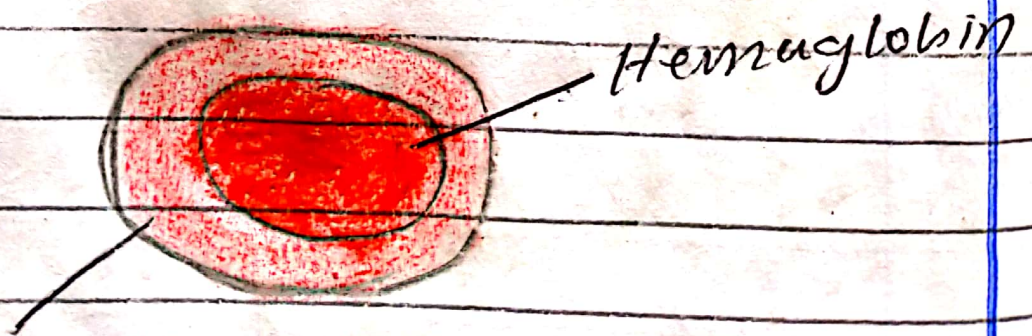
2) What is erythrocytes, erythropoiesis, erythrocytosis and erythropenia.

Ans: **erythrocytes:**

The erythrocytes commonly known as a red blood cell (or RBC) is by far the most common formed element.

A single drop of blood contains million of erythrocytes.

In fact, erythrocytes are estimated to make up about 25 percent of the total cell in the body.



Explanation

erythrocytes
A types of blood cell that is made in the bone marrow and found in the blood.

Erythrocytes contain a protein called hemoglobin which carries oxygen from the lungs and all parts to the body. checking the number of erythrocytes in the blood usually part of a complete blood cell (CBC) test.

It may be used to look for conditions such as anemia, dehydration, malnutrition and leukemia. also called red blood cell (RBC)

2) Erythropoiesis

Erythropoiesis (From greek "erythro" meaning "red" and "poiesis" meaning "to make" is the process which produces red blood cell.

Erythropoiesis is the process which produces red blood cell. It is stimulated by a decreased and to mature red blood cell and stimulated by decreased O_2 in circulation. which is detected by a kidney which then secretes the hormones erythropoietin.

Explanation.

Erythropoiesis is the formation of red blood cell and blood forming tissue in the early development of a fetus. erythropoiesis takes place

erythropoiesis take place
in the yolk sac
spleen and liver
After birth all
erythropoiesis occur
in the bone marrow

Scheme.

- 1) theories of erythropoiesis
- 2) sites of erythropoiesis
- 3) stage of erythropoiesis.
- 4) Reticulocytes
- 5) Mature Red cell,
- 6) Factors affecting Erythropoiesis
- 7) Erythropoiesis
- 8) vitamin B¹²
- 9) Iron.

3) Erythrocytosis

is defined as an increase in red blood cell (RBC) mass usually absolute and is also associated with an increased hematocrit (Hct) and hemoglobin concentration although some use all the term polycythemia interchangeably with erythrocytosis the two are not synonymous.

1) Primary Erythrocytosis

congenital
Truncation of the erythropoietin receptor
Acquired.

2) Secondary Erythrocytosis

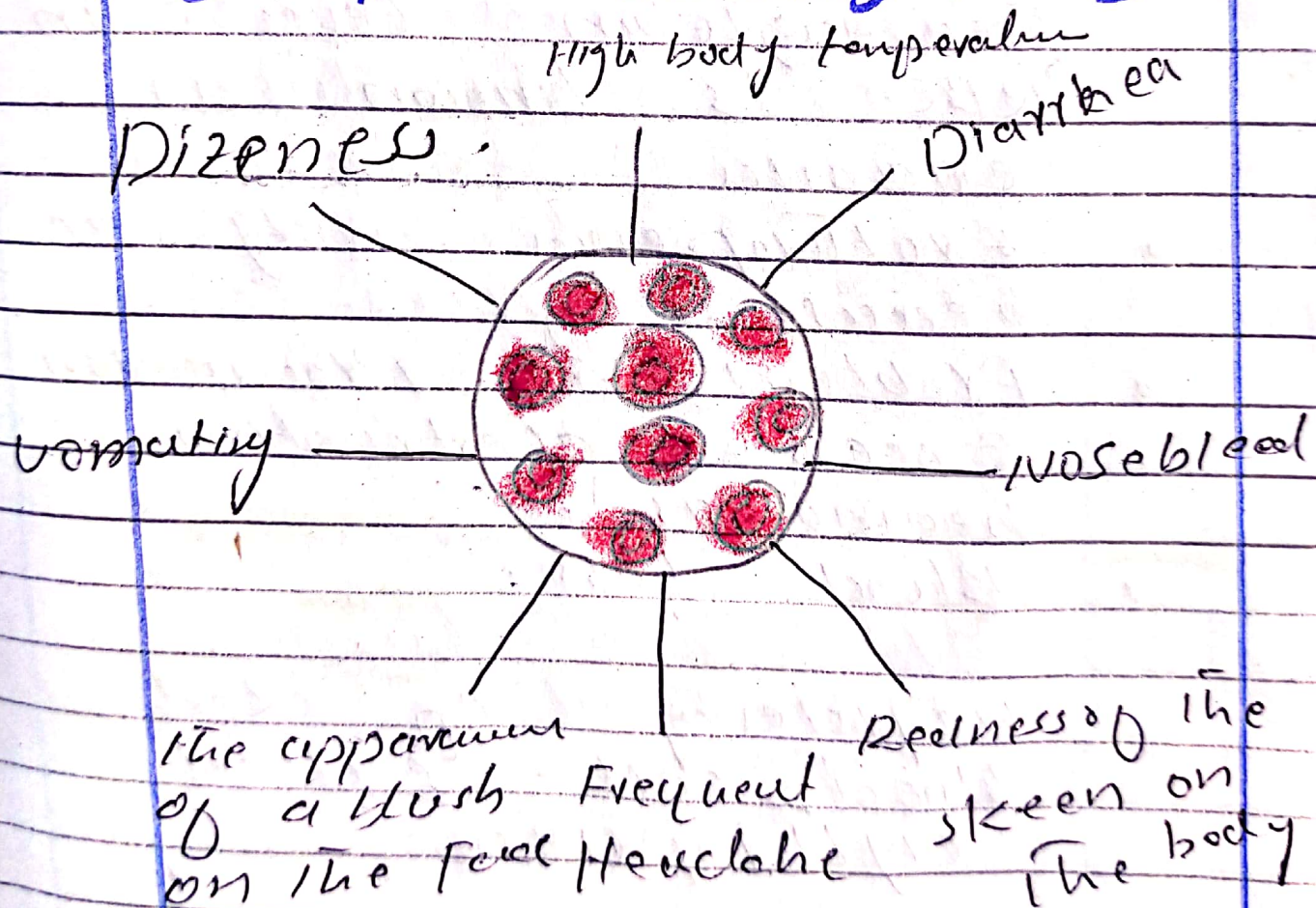
congenital
High oxygen affinity. Hb autonomous

High erythropoietin production Acquired.
Hydroaemia renal disease.

3) Idiopathic erythrocytosis

The classification of the absolute erythrocytosis

Symptom Erythrocytosis



4) Erythropenia

- If the erythropenia count is less than normal such as state is called erythropenia.
- A deficiency in number of RBC or reduced hemoglobin level in RBC is known as anemia.
- Erythropenia may be because of
 - Problem in production
 - Excessive destruction (hemolysis)
 - Blood loss.
- Deficiency of Red Blood cell called erythropenia.

Explanation of

Erythropoiesis

Physiological

Pathological

Absolute

Primary

Deficiency
of Production

Bone marrow
disorder.

Relative

Secondary

Pregnancy
(RBC) dissolves
in Fluid

due to
any kidney
disease.

(3) what is platelets and write about clotting mechanism and its all step.

Platelets:

or thrombocytes are small colourless cell fragments in our blood that form clots and stop or prevent bleeding. Platelets are made in our bone marrow, the sponge like tissue inside our bone. Bone marrow contain stem cell that develop into red blood cell, white blood cell and platelets.

Explanation:

Platelets are blood cell that help control bleeding.

When a blood vessel is damaged platelets collect at the site of injury and temporarily repair the fur. They then activate substance in plasma which form a clot and allow the wound to heal.

Structure.

Platelets have no nucleus. They are fragments of cytoplasm that are cleaved from the megakaryocytes of the bone marrow which then enter the circulation.

Life span.

10 day

Function of Platelet

Play a role in haemostasis - Platelets Plug formation. This is important for closing minute, vascular whole formation during everyday life.

Adhesion

Platelets adhere to the exposed collagen on the injured endothelium and to von Willebrand Factor.

Activation

They undergo a shape change and become activated and release the content of the granules.

Aggregation

the release ADP PAF and Thromboxan

act to produce
even more aggregation
of platelets leading
to PAV formation &
a platelets plug.

• stop
stop Bleeding
Maintain hemostasis
Clotting Mechanism.

What is clotting
mechanism.

Coagulation / clotting
means - blood change
from liquid to gel.

When clotting
Mechanism Initiated.

Instantly after an
injury to the blood
vessels which has

which has blood vessels
clamage
the endothelium
lining the vessels

clotting mechanism
stop bleeding -
from clamage vessel
wounded from estosis.

Mechanism involves.

- 1) Adhesion
- 2) Activation
- 3) and aggregation of platelets
- 4) deposition and muteration of fibrin.

4)

write a detail
note of ABO System

ABO

- 1) The ABO Blood group system is the most important of blood group systems in human blood transfusion.
- 2) Found on platelets epithelium and cell other they erythrocytes ABO antigen can also cause an adverse immune response to organ transplantation. The associated Anti "A" and Anti "B" Antibody are usually IgM antibodies.
- ① Blood groups and their role in blood transfusion.
- ② Complications of Blood Transfusion with reference to ABO and Rh incompatibility.

Blood Groups.

A blood types (also called blood groups) is a classification of blood based on the presence or absence of inherited antigenic substance (Protein) on the surface of Red blood cell.

Blood types are inherited and represent contribution from both parents.

The most important ones are ABO and the RH antigens system. They determine some one's blood system.

A, B, AB and O with + - or null denoting RHD status.

ABO System.

O	47%
A	41%
B	9%
AB	3%

ABO system.

- by Dr - Karl Landsteiner - 1900
- inherited From Parents
- Based on A and B antigens - Agglutinogens
- May have:
 - neither of them
 - one of them
 - Both of them

Agglutinogens & agglutinins

- Agglutinogens on surface of RBC
- Agglutinins in Blood plasma.
- can cause blood transfusion reaction.

Role of blood group in blood transfusion

- if mismatched then hemolysis.
- Blood typing in transfusion

(2) complication of blood transfusion with reference to ABO incompatibility mismatched have binding sites. Agglutins attaches to RBC antigens. Agglutination — hemolysis

- Acute hemolysis
- Jaundice
- Kidney shutdown.

QNO5 (i) A Person Fell down From a tree and become unconscious, with Bleeding From head, what will you do as a First Aid?

ii) You have to meet with your friend and you come to know he is covid +ive, what precautionary measure will you take?

ANSWER If they are unconscious and also with bleeding from head/ could have injured in head. Do not allow them to move. Try and keep them as still as possible.

How to Treat:-

If they have injury in head. First of all apply ice to the area which become injured for the purpose to reduce pain, swelling and bleeding. Don't apply ice to directly on injured area. Instead wrap ice in a damp cloth or towel to protect the injured area from ice burns and apply ice for 20 minutes every two hours duration.

Some Action:-

→ Stop any bleeding. Apply pressure to the wound with a sterile pad/bandage, a clean cloth / clean piece of clothing.

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Immobilize the injured Area
Apply ice packs to limits
swelling and help relieve
Pain.
Treat for shock.

NOTE:-

These action taking
immediately while waiting
for medical help.

ANSWER

CORONA VIRUS

A virus having (RNA) Genetical material.

TRANSMISSION ROUTES:-

Some transmission routes of corona virus are following:

- 1) Shaking hand with covid +ve person
- 2) Hugging with covid +ve person.
- 3) Live with covid +ve person
- 4) used luggage of covid +ve person.
- 5) Not take serious care. mean closely contact.

If person become covid +ve then what precautionary should be done by us.

If person have covid positive patient. then some precautionary should be done by us.

- 1) Not meet up with affected person.
- 2) Not live with affected person.
- 3) Not shaking hand & hugging with affected person.

4) wash hand properly with Dettol
and Sanitiser.

5) Avoid visitors while affected person

6) Hand must be cleaned before
and after preparing food before
eating after using toilet and
whenever hands look dirty.

