DENTAL SEC B PHYSIOLOGY, 2ND SEMESTER

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Attempt all questions. Every question carry 10 marks.

Q1. Write the functions and composition of blood?

Q2. What is erythrocyte, erythropoiesis, erythrocytosis and erythropenia?

Q3. What is platelets and write about clotting mechanism and its all steps?

Q4. Write a note on ABO system?

Q5.(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 came to know he is covid positive, what precautionary measures will you take?

Q1. Write the functions and composition of blood?

Ans Blood Explanation

Specialised connective tissue that consists of liquid (plasma) and formed Element RBC WBC Platelets Etc.

Composition of Blood

Blood composed parts

1) plasma 2) RBC 3) WBC 4) platelets Etc

plasma

Part of extracellular fluid that contain more protain

It converts 55% of blood volume

Remaining 45 % covered by formad elements

Composition

Water contant solids particles

Organic

Na Ka + Ca +

Inorganic

Proteins fats enzymes

Function of plasma

Help in transporting materials

Help in clotting of blood

Maintain Ph level

Defence mechanism

RBC

Red blood cell shape is like bicancave disk like structure

Non nucleated

Thickest part 1.9 mm

Thinnest part 1 micrometer

Volume 83 cubic micrometer

Life spam 120 days

Numbers in human body

Male 5.2 million

Male 4.7 million

WBC

Mobile unit of protein system of the body

Leukocytes also called WBC

Coloularless

Irregular shape

Large in shape then Rbc

We have two types of WBC

Function of Blood

Below are important facts about blood.

Blood Is Fluid Connective Tissue. ...

Blood Provides the Body's Cells with Oxygen and Removes Carbon Dioxide. ...

Blood Transports Nutrients and Hormones. ...

Blood Regulates Body Temperature. ...

Platelets Clot Blood at Sites of Injury. ...

Blood Brings Waste Products to the Kidneys and Liver.

Nutritive function

Respiratary function

Help in clotting

Excretary function

Q2. What is erythrocyte, erythropoiesis, erythrocytosis and erythropenia.?

 What is erythrocyte

The erythrocyte, commonly known as a red blood cell (or RBC), is by far the most common formed element: A single drop of blood contains millions of erythrocytes and just thousands of leukocytes. Specifically, males have about 5.4 million erythrocytes per microliter of blood, and females have approximately 4.8 million per In fact, erythrocytes are estimated to make up about 25 percent of the total cells in the body

Structure of erythrocyte

Erythrocytes are biconcave disks; that is, they are plump at their periphery and very thin in the center

Function of erythrocyte

The main job of red blood cells, or erythrocytes, is to carry oxygen from the lungs to the body tissues and carbon dioxide as a waste product, away from the tissues and back to the lungs.

 What is erythropoiesis

Erythropoiesis from Greek erythro meaning red and poiesis meaning to make is the process which produces red blood cells erythrocytes which is the development from erythropoietic stem cell to mature red blood cell

 process of erythropoiesis

Erythropoiesis is the process by which human erythrocytes are produced. It is triggered by erythropoietin, a kidney hormone produced during hypoxia. Erythropoiesis takes place in the bone marrow, where hemopoietic stem cells differentiate and eventually shed their nuclei to become reticulocytes.

 What is erythrocytosis

Erythrocytosis is a condition in which your body makes too many red blood cells (RBCs), or erythrocytes. RBCs carry oxygen to your organs and tissues. Having too many of these cells can make your blood thicker than normal and lead to blood clots and other complications

There are two types of erythrocytosis

Primary erythrocytosis. This type is caused by a problem with cells in the bone marrow, where RBCs are produced. Primary erythrocytosis is sometimes inherited.

Secondary erythrocytosis. A disease or the use of certain drugs can cause this type.

What is erythropenia

the presence of decreased numbers of erythrocytes in the blood, as occurs in some forms of anaemiaAlso called: erythrocytopenia

Q3. What is platelets and write about clotting mechanism and its all steps?

Platelets, also called thrombocytes, are membrane-bound cell fragments derived from the fragmentation of larger precursor cells called megakaryocytes, which are derived from stem cells in the bone marrow. Platelets are important for the blood clotting process, making them essential for wound healing

Platelet Structure and Distribution

Platelets are irregularly shaped, have no nucleus, and typically measure only 2–3 micrometers in diameter. Platelets are not true cells, but are instead classified as cell fragments produced by megakaryocytes

Mechanism

The mechanism by which coagulation allows for hemostasis is an intricate process that is done through a series of clotting factors. The intrinsic pathway consists of factors I, II, IX, X, XI, and XII. Respectively, each one is named, fibrinogen, prothrombin, Christmas factor, Stuart-Prower factor, Blood is considered to be precious because it is the basic necessity for health; our body needs a steady provision of oxygen, supplied via blood, to reach billions of tissues and cells. Hematopoiesis is the process that generates blood cells of all lineages. However, platelets are the smallest blood component produced from the very large bone marrow cells called megakaryocytes and they play a fundamental role in thrombosis and hemostasis. Platelets contribute their hemostatic capacity via adhesion, activation and aggregation, which are triggered upon tissue injury, and these actions stimulate the coagulation factors and other mediators to achieve hemostasis.

Clooting Mechanism Steps

1) injury to the blood vessels

2) Endothelium living the vessels damaged

3) Blood comes into space under endothelium

4) underlying collagen exposed to circulating platelets

5) platelets bind with surface receptors of collagen and adhere tightly

6) This is adhesion

Q4. Write a note on ABO system?

ABO blood group system, the classification of human blood based on the inherited properties of red blood cells (erythrocytes) as determined by the presence or absence of the antigens A and B, which are carried on the surface of the red cells. Persons may thus have type A, type B, type O, or type AB blood.

Indications for ABO grouping:

ABO grouping is required for all of the following individuals:

Blood Donors-since it can be life threatening to give the wrong ABO group to the patient.

Transfusion recipients-since we need to know the donor blood is ABO compatible.

Transplant Candidates and Donors-ABO antigens are found in other tissues as well. Therefore the transplant candidates and donors must be compatible.

Prenatal Patients-To determine whether the mothers may have babies who are suffering from ABO-HDN. It is also beneficial to know the ABO group should she start hemorrhaging.

Newborns (sometimes) If the baby is demonstrating symptoms of Hemolytic Disease of the Newborn, the ABO group needs to be determined along with Rh and others.

Paternity testing Since the inheritance of the ABO Blood Group System is very specific, this serves as one of the first methods to determine the likelihood that the accused father is the father or not.

Characteristics of ABO antigens:

ABO antigens are glycolipid in nature, meaning they are oligosaccharides attached directly to lipids on red cell membrane. These antigens stick out from red cell membrane and there are many antigen sites per red blood cell (approximately 800,000)

Besides their presence on red blood cells, soluble antigens can be present in plasma, saliva, and other secretions. These antigens are also expressed on tissues other than red cells. This last fact is important to consider in organ transplantation.

ABO antigens are only moderately well developed at birth. Therefore ABO-HDN not as severe as other kinds of Hemolytic Disease of the Newborn.

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

First Aid for Fell down from a tree patient

For the fell down from a tree patient

First we have to stop His / Her bleeding if bleeding are start

And second step we have to start immediately CPR pumping for to be in normal conditions and to start breathing

Third step we have to lay down His / Her in such kind of position in which His / Her feeling good

Four step for this of patient give His / Her a glass of water

Fiveth Step for this of patient call to 1122

To bring to hospital for more treatment

(ii) you have to meet with your friend and you came to know he is covid positive, what precautionary measures will you take?

IF we meet with Covid 19 positive friend we have to wash our hands for at least 30 seconds with sop

And max dettol in water and take shower with that water

And we have to do our covid test for checking

And if test covid positive so be confidence and don't worry about test positive

We have to quartina for 15 days in a room

Social distance is must for covid19 patients

We have to use mask

We have to use gloves

And avoid gathering avid mosque avoid all unnecessary gatherings

Quartina for 15 days is must

We have to take good health foods during our quartina days

Because virus directly attack our immunity system

And our immunity system become weak all kind of disease will be rapidly start

So before our immunity system becoming weak we have to take health foods and also lefily vegetables

For to our body and system ready against the virus

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