



IQRA NATIONAL UNIVERSITY PESHAWAR

SUBJECT:- PHYSIOLOGY II

CLASS /SECTION:- BSDT/B.

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Q1. Write the functions and composition of blood?

Ans)

Functions of blood

Blood has three main functions: transport, protection and regulation.

Transport

Blood transports the following substances:

Gases, namely oxygen (O₂) and carbon dioxide (CO₂), between the lungs and rest of the body Nutrients from the digestive tract and storage sites to the rest of the body Waste products to be detoxified or removed by the liver and kidneys Hormones from the glands in which they are produced to their target cells Heat to the skin so as to help regulate body temperature

Protection

Blood has several roles in inflammation: Leukocytes, or white blood cells, destroy invading microorganisms and cancer cells Antibodies and other proteins destroy pathogenic substances Platelet factors initiate blood clotting and help minimise blood loss

Regulation

Blood helps regulate :pH by interacting with acids and bases Water balance by transferring water to and from tissues

Composition of blood

Blood is classified as a connective tissue and consists of two main components :Plasma, which is a clear extracellular fluid Formed elements, which are made up of the blood cells and platelets The formed elements are so named because they are enclosed in a plasma membrane and have a definite structure and shape. All formed elements are cells except for the platelets, which are tiny fragments of bone marrow cells.

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

Ans)

Erythrocyte

A red blood cell, which is typically a biconcave disc without a nucleus. Erythrocytes contain the pigment haemoglobin, which imparts the red colour to blood, and transport oxygen and carbon dioxide to and from the tissues.

Erythropoiesis:

Erythropoiesis is the process which produces red blood cells, which is the development from erythropoietic stem cell to mature red blood cell. It is stimulated by decreased O₂ in circulation, which is detected by the kidneys, which then secrete the hormone erythropoietin

Erythrocytosis:

Erythrocytosis is increased the production of red blood cells in body is known as erythrocytosis.

Erythropenia:

Erythropenia is the deficiency of red blood cells in body is known as erythropenia.

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

Ans)

Platelets:

Platelets are small, colorless 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 bones. Bone marrow contains stem cells that develop into red blood cells, white blood cells, and platelets.

Clotting mechanism of platelets:

the clotting mechanism is broken into two stages.

1) Primary hemostasis :

Hemostasis occurs when platelets attach to a damaged or disrupted area of the endothelium. This adhesion allows the platelets to undergo a shape change and then aggregate together. Once adhered to each other a temporary platelet plug is created.

2) Secondary Hemostasis:

Hemostasis refers to the cascade of enzymatic reactions that ultimately results in the conversion of fibrinogen to fibrin monomers. Fibrin monomers are then cross-linked into insoluble strands that serve to stabilize the loose platelet clot formed in primary hemostasis

Q4. Write a note on ABO system?

Ans)

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.

The ABO blood group 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 systems 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.

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?

i) Ans)

Provide care.

If you can do so safely, remain with the sick or injured person until professional help arrives. Cover them with a warm blanket, comfort them, and try to keep them calm. If you have basic first aid skills, try to treat any potentially life-threatening injuries they have.

ii) Ans)

If you came to know your friend has covid positive then the following precautionary you have to take.

- *Clean your hands often. Use soap and water, or an alcohol-based hand rub.*
- *Maintain a safe distance from anyone who is coughing or sneezing.*
- *Don't touch your eyes, nose or mouth.*
- *Cover your nose and mouth with your bent elbow or a tissue when you cough or sneeze.*
- *Stay home if you feel unwell.*
- *If you have a fever, cough and difficulty breathing, seek medical attention. Call in advance.*
- *Follow the directions of your local health authority.*
- *Avoiding unneeded visits to medical facilities allows healthcare systems to operate more effectively, therefore protecting you and others*