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?

Answer: COMPOSTION OF BLOOD blood are classified as a connective tissue and consists of two main components.

plasma which is a clear extracullar fluid formed element which made of the blood cell and platelets .

the formed elements are so named b/c they are enclosed in a plasma member and how a definite structure and shape. all formed elements are cell expects for the platelets which are tiny fragments of bone marrow cell

FORMED ELEMENTS ARE

1: Erthyrocytes are also known as a red blood cell (RBCs).

2: leukocytes also known as white blood cell (lWBCS).

3: platelets.

PROTECTION Blood has serveal roles in formation .

1: leukocytes or white blood cell destory invading microorganisms and cancer cell.

2: antibodies and other proteins destory pathogemic substance .

3: platelets factors initiate blood dothing and help minimise blood loss.

REGULATION Blood help regulate .

1: PH by interacting with acids bases .

2: water balance by transferring water to and from tissue.

FUNCTION OF BLOOD blood has three main function transport protection and regulation .

TRANSPORT blood transport the following substance .

1: gases namely oxygen (o2 ) and carbon dioxide (Co2) between the lung anf rest of the body.

2: nutrients frim the digestive tract and storage site to the rest and of the body .

3: waste product to be detoxified or removed by the liver and kidneys.

4: hormones from the gland in which they are produced to their target cell.

5: heat to skin so as to help regulate body temperature.

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

Answer: ERYTHROCYT Erythrocytes are red blood cells that travel in the blood. Their characteristics of being red, round, and like rubber give them the ability to complete their specific functions. They carry oxygen from the lungs to the body, and bring carbon dioxide back to the lungs to be expelled.

ERYTHROPOIRSIS 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 Polycythemia. ... Polycythemia is sometimes called erythrocytosis, but the terms are not synonymous, because polycythemia refers to any increase in red blood cells, whereas erythrocytosis only refers to a documented increase of red cell mass.

ERYTHROPENIA What causes this? Primary erythrocytosis can be passed down through families. It's caused by a mutation in genes that control how many RBCs your bone marrow makes. When one of these genes is mutated, your bone marrow will produce extra RBCs, even when your body doesn't need them.

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

Answer: PLATELTS Platelets, or thrombocytes, 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 MECHANISMS Introduction

Blood is a necessary component of the human body, and the loss of this fluid may be life-threatening. Blood is generated via hematopoiesis and ultimately becomes the delivery method for oxygen to the tissues and cells. The human body protects against loss of blood through the clotting mechanism. Vascular mechanisms, platelets, coagulation factors, prostaglandins, enzymes, and proteins are the contributors to the clotting mechanism which act together to form clots and stop a loss of blood. Through vasoconstriction, adhesion, activation, and aggregation, the contributors form a transient plug to act as the cork to the leaking blood flow. Soon after, fibrin, the functioning form of fibrinogen, stabilizes this weak platelet plug. The scope of this article will highlight the physiological aspects of the clotting mechanism.

Cellular

The cellular components of the clotting mechanism include platelets, endothelial cells, and a series of proteins, enzymes, and ions.

Organ Systems involed The clotting mechanism involves the circulatory system which includes the lineage of blood cells and blood vessels.

Mechanism

The clotting mechanism is broken into 2 stages.

Primary hemostasis: Formation of a weak platelet plug

Secondary hemostasis: Stabilizing the weak platelet plug into a clot by the fibrin network

Primary Hemostasis

Primary hemostasis is the formation of a weak platelet plug which is achieved in four phases: vasoconstriction, platelet adhesion, platelet activation, and platelet aggregation.

Vasoconstriction is the initial response whenever there is vessel injury. Vasospasm of the blood vessels occurs first in response to injury of the vasculature. This vasospasm, in turn, stimulates vasoconstriction. Vasoconstriction is primarily mediated by endothelin-1, a potent vasoconstrictor, which is synthesized by the damaged endothelium. Damaged endothelium exposes sub-endothelial collagen, von Willebrand factor (vWF), releases ATP,

Q4. Write a note on ABO system?

Answer: 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. The A, B, and O blood groups were first identified by Austrian immunologist Karl Landsteiner in 1901. See blood group.

The ABO antigens are developed well before birth and remain throughout life. Children acquire ABO antibodies passively from their mother before birth, but by three months of age infants are making their own; it is believed that the stimulus for such antibody formation is from contact with ABO-like antigenic substances in nature. ABO incompatibility, in which the antigens of a mother and her fetus are different enough to cause an immune reaction, occurs in a small number of pregnancies. Rarely, ABO incompatibility may give rise to erythroblastosis fetalis (hemolytic disease of the newborn), a type of anemia in which the red blood cells of the fetus are destroyed by the maternal immune system. This situation occurs most often when a mother is type O and her fetus is either type A or type B.

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

Answer: They are breathing. Look closely how they have fallen and carefully put them into the recovery position to keep their airway clear. They are not breathing: start CPR immediately and act according to your organisation's emergency policy. Request a defibrillator immediately if there is one available.

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

Answer: Avoid visitors while you have symptoms.

• Household members should stay in a different room or if that is not possible, maintain a distance of at least 1 meter.

• Hand must be cleaned before and after preparing food, before eating, after using the toilet, and whenever hands look dirty.