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?

Ans1:Functuins of blood?

1.Transcriptions. The blood transports oxygen from the lungs to cells of the body, where it is needed for metabolism. ....

2. Regulation. The blood helps to keep certain values of the body in balance. ....

3. Protection

4. The individual parts of blood. ....

5. Creation of blood cells. ...

6. Sources.

2. Composition of the blood

When a sample of blood is spun in a centrifuge, the cells and cekk fragments are separated from the liquid intracellular matrix. because the formed elements are heavier than the liquid matrix, they are packed in the bottom of the the tube by the centrifugal force. The light yellow coloured liquid on the top is the plasma, which accounts for about 55 percent of the blood volume and red blood cells is called the Hematocrit,or packed cell volume (PCV). The white blood cells and platelets form a thin white layer, called the "buffy coat'' between plasma and red blood cells.

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

Ans2. Role of erythrocyte: The main job of red blood cells , or Erythrocyte, is to carry oxygen from the lungs to the body tissues and carbon dioxide as a waste product, away from the tissues and bact to the lungs, Haemoglobin (Hgb) is an important protein in the red blood cells that carries from the lungs to all parts of our body.

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

Functions of erythropoiesis: Erythropoiesis is the process whereby a fraction of primitive multi potent HSCs becomes committed to the red-cells lineages. Erythropoiesis involves highly specialized functional differentiation and gene expression. The main role of RBCs is to carry 02 in the blood by the haemoglobin molecule.

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

Ans3: Platelets, also called thtomobocytes are a component of blood whose function is to react to bleeding from blood vessel injury by clumping, thereby initiating a blood clot.

Structure:

1. Platelets have no cell nucleus, they are fragments of cytoplasm that are derived from

the megakaryotic of the bone marrow, which then enter the circulation.

2. Circulating unactived platelets are biconvex discoid (lens-shaped) structure 2-3 Um in diameter.

3. Activated platelets have cell membrane projections covering their surface. Platelets are found only in mammals in other vertebrates (e.g. birds, amphibians) thrombocytes are there.

Life span: 10 days

Functions:

1. Stop bleeding

2. Maintain homeostasis

3. Clotting mechanisms

What is clotting mechanism:

1. Coagulation/clotting means-blood changes from liquid to gel

When is clotting mechanism initiated

. instantly after an injury to the blood vessel which has damaged the endothelium lining the vessel.

Clotting mechanism-stop bleeding from

Damaged vessels-maintained homeostasis

Mechanism involves,

. Adhesion

. Activation

. and aggregation of platelets

. Deposition and maturation of fibrin

Steps of mechanism (Adhesion)

1. Injury to the blood vessels

2. Endothelium lining the vessel damaged

3. Blood comes into space under endothelium

4. Underlying collagen exposed to circulating platelets

5. Platelets binds with surface receptors of collagen and adhere tightly

6. This is Adhesion

Activition:

1. platelets change shape

2. Turn on receptors and secrete chemical messengers to actived and invite additional platelets

3. Activated platelets adhere tightly at injury site.

Aggregation:

. Platelets connect to each other through receptors bridges

. Platelets plug formed at injury site unless the interruption is physically too large

Fibrin deposition

. Formation of platelet plug will ensure primary homeostasis.

. Now fibrin deposition start and thus started secondary homeostasis.

. Thus fibrin clot formed.

. Now clot retraction and platelet inhibition.

Stage 1: Platelets attach to the endothelium (blood vessel wall)

Stage 2: platelets start to release fibrin and begin to seal the endothelium

Stage 3: The fibrin nebrock traps the RBC, and completely seal the endothelium

Q4. Write a note on ABO system?

Ans4. 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 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.

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

Ans1.Head injury is of two types, one is a closed injury which means you recieved a hard blow on head and bleeding is there but nut fractured the skull , and the second one is open head injury which means when a object is penetrated into the skull or skull fracture is there. Head injury from trauma or history of fall may have some serious conditions depending on trauma m saviriety,if the person is fallen from a tree or roof don't move the head of the victim and stabilized the neck, apply pressure on bleeding site with a sterile gauze as taken from first aid kit and if pain is severe, analgesics may needed available in your first aid kit, if the victim is unconscious,check for vital signs as food pressure rate, heart beating and breathing, perform a CPR(cardiopulmonary rescisatation) and given oxygen into victim by respiration (mouth to mouth etc). call an emergency helpline or an ambulance to get victim to the hospital for further diagnosis like CTscans or MRIs of brain and head and its treatment.

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

Ans2 . As corona pandemic is spreading all over the world,safety steps should be followed to protect from corona disease and also to prevent further spreading. If your friend is corona positive, he should kept separated and should follow protective measures, if you have to meet your friend with corona disease positive, first of all unnecessary visiting to this patient is not recommended and ones should keep away from him for both benefits. but if visiting is necessary, you should have weared a mask, gloves , sanitizer or dettol on hands applied and proper social distance of 3 to 6 feet's is necessary , so you can protect yourself from the disease and other people's too. one should take effective steps to protect himself from this pandemic disease. The person who has Corona disease should follow the full safety steps like use of mask, gloves, sanitizer and get quarantined unless he is recovered.