

Course Title: PHYSIOLOGY | |

Department: BS RADIOLOGY SEC B 2ND SEMESTER

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QUESTION NO 1: Write the functions and composition of blood?

ANSWER: FUNCTIONS OF BLOOD:

RESPIRATORY FUNCTION: Blood transports oxygen from lungs to tissues and Carbon dioxide from tissue to lungs.

Nutritive function: it transport food a, absorbed from GIT and b, mobilized From storage depots to tissue.

Excretory function: it excrete metabolite and products from tissue to organ Of excretion , kidneys, lungs, intestine, skin etc.

Carrier function: it carries hormones enzymes and antibodies, vitamins, Inorganic and organic salts and other essential chemicals to their places Of activity.

Defense functions: a) neutipils and macrophages phagocytize bacteria.
B) antibodies combat disease-causing organism.

Hemostatic functions: it contains clotting factor, so , it prevents hemorrhage by coagulation.

Regulatory function: blood regulates :

Water balance, acid base balance or blood pH, ion balance, body temperature,
Blood pressure, blood volume, blood viscosity, osmotic pressure.

=>COMPOSITION OF BLOOD:

Formed elements: cellular part RBC, WBC, and platelets=45%

Plasma: fluid part=55%. Water=91%. Solids= 9%

Inorganic NA, K, MG, P, FE, CU.

ORGANIC I) protein serum albumin=4.5g%

-serum globulin=2.5%

-fibrinogen =0.3%

-prothrombin,etc

ii) non protein. Nitrogenous substances, eg urea, uric acid, creatinine, NH₃, amino acid etc.

iii) fats, eg neutral fat, cholesterol etc.

iv) carbohydrates, eg internal secretions etc.

v) other substances, eg antibodies, enzymes etc.

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QUESTION NO 2: WHAT IS ERYTHROCYTES, ERYTHROPOIESIS, ERYTHROCYTOSIS, ERYTHROPENIA?

ANSWER: ERYTHROCYTES: A red blood cell in human, 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 oxygen O₂ in circulation, which is detected by the kidneys, which then secrete the hormone erythropoietin.

ERYTHROCYTOSIS: is defined as an increase in red blood cell mass, and is also associated with an increased hematocrit and hemoglobin concentration. Although some use the term polycythemia interchangeably with erythrocytosis, the two are not synonymous.

ERYTHROPENIA: erythropenia uncountable A decrease in the number of erythrocytes,

associated with anemia.

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QUESTION NO 3:What is platelets and write about clotting mechanism and its all steps?

ANSWER: **Platelets:** are tiny blood cells that help your body form clots to stop bleeding. If one of your blood vessels gets damaged, it sends out signals to the platelets. The platelets then rush to the site of damage. they form a plug or clot to fix the damage.

Steps of clotting mechanism of platelets: Hemostasis involves three basic steps

=> vascular spasm,

= the formation of a platelet plug,

=> and coagulation, in which clotting factors promote the formation of a fibrin clot. Fibrinolysis is the process in which a clot is degraded in a healing vessels.

=>Vascular spasm: A vascular spasm is a sudden and brief tightening or constricting of a blood vessel. It may also be called variant angina. The tightening reduces the amount of blood that can move through the vessel, sometimes even closing it completely and blocking blood from moving through.

=>Formation of platelets plug: The platelet plug, also known as the hemostatic plug or platelet thrombus, is an aggregation of platelets formed during the earlier stage of hemostasis in response to blood vessel wall injury.

=>coagulation: Coagulation, also known as clotting, is the process by which blood changes from a liquid to a gel, forming a blood clot. It potentially results in hemostasis, the cessation of blood loss from a damaged vessel, followed by repair.

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Question no 4: Write a detail note on ABO system?

ANSWER: ABO SYSTEM: The A, B, and O blood groups were first identified by Austrian immunologist Karl Landsteiner in 1901.

=>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.

=>ABO blood Group system

The basis of ABO grouping is of two antigens- Antigen A and Antigen B. The ABO grouping system is classified into four types based on the presence or absence of antigens on red blood cells surface and plasma antibodies.

Group A – contains antigen A and antibody B.

Group B –contains antigen B and antibody A.

Group AB –contains both A and B antigen and no antibodies neither A nor B.

Group O – contains neither A nor B antigen and both antibodies A and B.

The ABO group system is important during blood donation or blood transfusion as mismatching of blood group can lead to clumping of red blood cells with various disorders. It is important for the blood cells to match while transfusing i.e. donor-recipient compatibility is necessary. For example, a person of blood group A can receive blood either from group A or O as there are no antibodies for A and O in blood group A.

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QUESTION NO 5 : a) A person fell down from a tree and become unconscious, with bleeding from head, what will you do as a first aid?

b) you have to meet , with your friend and you came to know he is covid positive , what

Precautionary measures will you take?

ANSWER a=> if a person fell down from tree and become unconscious and bleeding from head first of all put him on recovery position to clear airways then call to emergency ambulance.

They are unconscious thus they will can't give any response to us so all responsibility is on care taker .

. put a piece of clear clothe on bleeding place to stop bleeding to reject blood loss.

.clear his airways for inhale oxygen.

.check patient closely and nearly to see for more injuries.

Patient should erect position but his head a little bit up from whole body.

If the person is not breathing and you know about CPR regarding emergency policy so give him CPR start breathing.

Call ambulance as soon as possible.

b). I meet with my friend and I come to know that he is covid positive the following precautions will I take..

First we don't want to meet like covid patient .

*:when I meet him I keep 6feet of distance between me and my friend

*I will wear surgical or n95 mask.

*surgical gloves should be wear.

*I can not hug covid patient I will not hug my friend.

*I can't shake hand with him.

*after meet with him I can't meet with family or other person.

Covid-19 care is better then lying on ventilator ...

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THE END