DPT SEC B PHYSIOLOGY, 2ND SEMESTER

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Attempt all questions. Every question carry 10 marks.

Q1. Write a note on pituitary gland, its harmones and abnormalities?

Ans: Pituitary gland:  The main endocrine gland. It is a small structure in the head. It is called the master gland because it produces hormones that control other glands and many body functions including growth. The pituitary consists of the anterior and posterior pituitary.

The anterior pituitary is the front portion of the pituitary. Hormones secreted by it influence growth, sexual development, skin pigmentation, thyroid function, and adrenocortical function. These influences are exerted through the effects of pituitary hormones on other endocrine glands except for growth hormone which acts directly on cells.

The effects of underfunction of the anterior pituitary include growth retardation (dwarfism) in childhood and a decrease in all other endocrine gland functions normally under the control of the anterior pituitary (except the parathyroid glands). The results of overfunction of the anterior pituitary include overgrowth (gigantism) in children and a condition called acromegaly in adults.

The posterior pituitary is the back portion of the pituitary. It secretes the hormone oxytocin which increases uterine contractions and antidiuretic hormone (ADH) which increases reabsorption of water by the tubules of the kidney. Underproduction of ADH results in a disorder called diabetes insipidus characterized by inability to concentrate the urine and, consequently, excess urination leading potentially to dehydration. The urine is "insipid" (overly dilute).

Harmones secreted by pituitary gland:

1. Anterior pituitary:

i. Growth hormone

ii. Prolactin

iii. Adrenocorticotropin hormone

iv. Thyrotropin hormone

v. Luteinizing hormone

vi. Follicle stimulating hormone

Posterior pituitary:

i. Oxytocin

ii. Antidiuretic hormone

Abnormalities of pituitary gland:

* Headaches
* Vision problems
* Unexplained tiredness
* Mood changes
* Irritability
* Changes in menstrual cycles in women
* Erectile dysfunction, which is the inability to achieve or maintain an erection in men and is caused by hormone changes
* Infertility, which is the inability to have children
* Inappropriate breast growth or production of breast milk

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

Ans: Erythrocyte: a red blood cell, which (in humans) 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: The formation of red blood cells in blood-forming tissue. In the early development of a fetus, erythropoiesis takes place in the yolk sac, spleen, and liver. After birth, all erythropoiesis occurs in the bone marrow.

 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.

 Erythropenia:

 A decrease in the number of erythrocytes, associated with anemia.

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

Ans: Platelets: It is also called thrombocytes are a component of blood whose function is to react to bleeding from blood vessels injury by clumping, thereby initiating a blood clot.

These cells are called WBCs. Which is necessary for the human body which defends any bacteria against he body... And if there is any cut on the body it provide covering to that.

The life span of platelets is 10 days.

Clotting mechanism: Clotting means bloods change from liquid to gel.

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

Clotting mechanism stop bleeding from damage vessels maintained Homeostasis.

Steps of mechanism: The following steps are involved in clotting mechanism.

1. Adhesion:
* Injury to the blood vessel.
* Endothelium lining the vessel damage.
* Blood comes into space under endothelium
* Under lying collagen exposed to circulating platelets.
* Platelets binds with surface receptor of collagen and adhere tightly.
1. Activation:
* Platelets change shape.
* Turn on receptor and secret chemical messenger to activate and invite additional platelets.
* Activated platelets adhere tightly at injury site.
1. Aggregation:
* Platelets connect to each other through receptor Bridges.
* Platelets plug formed at injury site unless the interruption is physically too large.
1. Fibrin deposition:
* Formation of platelets plug will ensure primary hemostasis.
* Now fibrin deposition start and thus started secondry hemostasis.
* Thus fibrin clot formed.
* Now clot retraction and platelets inhibition.

Q4. Write a detail note on ABO system?

Ans: Blood: the red liquid that circulates in the arteries and veins of humans and other vertebrate animals, carrying oxygen to and carbon dioxide from the tissues of the body.

ABO System:

* ABO system is discovered by Karl Landsteiner in 1900.
* Inherited from parents.
* Based on A and B antigens-agglutenogins
* May have;
	+ Neither of them
	+ One of them
	+ Both of them.

Blood group:

• A blood type (also called a blood group) is a classification of blood based on the presence or absence of inherited antigenic substances(proteins) on the surface of red blood cells (RBCs)

• Blood types are [inherited](http://en.wikipedia.org/wiki/Biological_inheritance) and represent contributions from both parents.

ABO blood group system is A system used to group human blood into different types based on the presence or absence of certain markers on the surface of red blood cells The four main blood types are A, B, O, and AB.

For a blood transfusion the ABO blood group system is used to match the blood type of the donor and the person receiving the transfusion People with blood type O can donate blood to anyone and are called universal donors People with blood type AB can accept blood from all donors and are called universal recipients People with type A or B can receive matching blood or type O blood.

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

Ans: Gently tilt their head back to keep the airway open. If breathing or pulse stops at any time remove everything which is near to the victim first of all do this process stop bleeding If severe head trauma occurs

Don't move the person unless necessary, and avoid moving the person's neck. If the person is wearing don't remove it. Stop any bleeding. Apply firm pressure to the wound with sterile gauze or a clean cloth.

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

Ans: Coronaviruses are a family of viruses that typically cause mild respiratory infections like the common cold but also more severe infections They are zoonotic diseases meaning they are transmitted from animals to people Coronaviruses are named after the Latin word corona, meaning “crown” or" halo "because they have “crown-like spikes on their surface first of all use mask glove and washing hands 20sec and take baths after you meet your friend and take healthy foods and don't meet again this type of patient