

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 hormones and abnormalities?

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

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

Q4. Write a detail note on ABO system?

Q5.(i) A person fell 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?

QUESTION # 1 ANSWER

- **PITUITARY GLANDS #**

- **LOCATION #**

pituitary gland is located in the brain under the hypothalamus .

- **COLOUR #** it is red grey colour about the size of pea, pituitary gland weight is (0.5 g) . It is

attached to hypothalamus by a stalk called infundibulum.

- hypothalamus plays a crucial role in many important functions, including: releasing hormones regulating body temperature.

- **HORMONS SECRETED BY PITUITARY GLAND #**

- **ANTERIOR PITUITARY #**

- Growth Hormone
- prolactin
- Adrenocorticotropic Hormone
- Thyrotropin hormone
- Luteinizing Hormone
- Follicle stimulating Hormone

● POSTERIOR PITUITARY

- Oxytocin
- Antidiuretic Hormone.

● GROWTH HORMONS

- somatotrin.
- increases secretions at low glucose level.
- Growth hormones promote growth of almost all the body tissues
- Its promotes increase in size of cells, increased mitosis and differentiation of certain certain type of such as bone growth cells, muscle cells.

ABNORMALITIES OF GROWTH HORMONS

- it may be congenital or occur slowly at time during

life due to any tumor that destroys the pituitary gland.

- Dwarfism is due to deficiency of anterior pituitary hormone during childhood.
- All the physical parts of the body develop in an inappropriate proportion to one another.
- Gigantism when large quantities of growth hormones are produced tissues grow rapidly including the bone.
- Height increase so that a person may become 8 feet tall.

- **ACROMEGALY #**

The person cannot grow taller but the bones can become thicker and the soft tissues continue to grow. Bones of hands and feet, membranous bones, portions of the vertebrae have marked changes as their growth does not cease at adolescence. Kyphosis or hunched back, tongue, liver, and many soft tissue organs become enlarged.

- **PROLACTIN #**

- Milk production.

- **ADRENOCORTICOTROPIN HARMONS #**

- Acts in adrenal glands and secretes adrenocortical harmons.
- Mainly cortisol helps in stress condition .

- **THYROID STIMULATING HARMONS #**

- Acts on thyroid gland release thyroxin
- Thyroid function the thyroid harmones act on nearly every cell in the body. they acts to increases the basal metabolic rate, affect protein synthesis , help regulate long bone growth.

- **LUTEINIZING AND FOLLICLE STIMULATING HARMONS#**

- These harmones are cosidered a gonadotrophic

hormones because of its role in controlling the function of ovaries in females and testes in male which are known as the gonads.

- **POSTERIO PITUITARY**

- **OXITOXIN #**

Uterin contraction and milk production.

- **ANTIDIURETIC HARMONS #**

Water reabsorption from kidney tubules .when bp increase more water absorption occur

- **DIABETES INSIPIDUS #** is a condition characterized by large amount of dilute urin and increased thirst.

QUESTION # 2 ANSWER

- **ERYTHROCYTES #**

- Red blood cells, or erythrocytes, are the most abundant type of blood cell.

- Approximately 2.4 million new erythrocytes are produced per second.
- Approximately a quarter of the cells in the human body are red blood cells.
- **STRUCTURE OF ERYTHROCYTES #**
- In humans, mature red blood cells are oval biconcave disks and they are flexible
- Atypical human erythrocytes have a disk diameter of approximately 6.2, 8.2...
- They lack a cell nucleus and most organelles, in order to accommodate maximum space for haemoglobin.

● ERYTHROPOIESIS

- Erythropoiesis is the process by which red blood cells are produced.
- It is stimulated by decreased O₂ in circulation which is detected by the kidneys, which then secrete the hormone erythropoietin.
- The whole process lasts about 7 days. Through this process erythrocytes are continuously produced in the red bone marrow of large bones, at a rate of about 2 million per second in a healthy adult.

● ERYTHROCYTOSIS

- Erythrocytosis is an increase in RBCs relative to the volume of blood. Polycythemia is an increase in

both RBC concentrations and hemoglobin, the protein in red blood cells that carries oxygen to the body's tissues .

● ERYTHROENIA

- The deficiency of red blood cells are called erythropenia
- physiological #
- Absolute#

Deficiency of production

- Relative #
pregnancy
(RBCs dissolves in fluid)
- pathological #
- primary# Bone marrow disorder.
- secondary # due to any kidney diseases .

QUESTION # 3 ANSWER

● PLATELETS

platelets is also called thrombocytes are component of blood whose function is to react to bleeding from vessel injury by clumping, thereby initiating clot.

LIFE SPAN OF PLATELETS# is 10 days

● FUNCTION

- Stop bleeding
- Maintain Hemostasis
- Clotting

● CLOTTING MECHANISM

- Coagulation / clotting mean , blood changes from liquid to gel.
- when 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 Hemostasis .

- **MECHANISM INVOLVES #**
 - **Adhesion**
 - **Activation**
 - **Aggregation and Platelets**
 - **deposition and maturation of fibrin.**
-
- **STEPS OF MECHANISM #**
 - **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 receptors of collagen and adhere tightly
- This is adhesion

● ACTIVATION

- Platelets change shape
- Turns on receptor and secrete chemical messenger to activate and invite additional platelets.
- Activated platelets adhere tightly at injury site.

● FIBRIN DEPOSITION

- Formation of platelet plug will ensure primary Hemostasis
- Now fibrin deposition start and thus started secondary hemostasis
- Thus fibrin clot formed
- Now clot retraction and platelets inhibition

● AGGREGATION

- platelets connect to each other through receptor bridges
- Platelet plug formed at injury site unless the interruption is physically too large.

QUESTION # 4 ANSWER

● ABO SYSTEM

ABO blood group system, the classification of human blood based on the inherited properties of red blood cells as determined by the presence or carried on the surface of the red cell. person may thus have type A, Type B, Type O, or the Type AB blood.


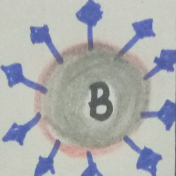
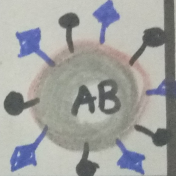
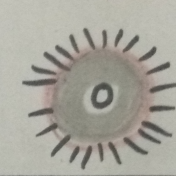
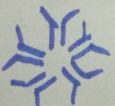
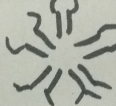
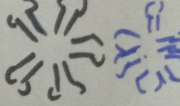


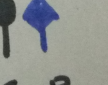
BY Dr . KARL LANDSTEINER 1900.

- Inherited from parent
- Based on A and B antigens _ Agglutinogens
- May have,

- Neither of them
- One of them
- Both of them

• AGGLUTINOGENS AND AGGLUTININS

- Agglutinogens on surface of RBC
- Agglutinins in blood plasma
- Can cause blood transfusion reactions

	GROUP "A"	GROUP "B"	GROUP "AB"	GROUP "O"
Red blood cell Type				
Antibodies in plasma	 Anti - B	 Anti - A	NONE	 Anti A & Anti B
Antigens in Red blood	 A Antigen	 B Antigen	 A & B Antigen	NONE

• ROLE OF BLOOD GROUP IN BLOOD TRANSFUSION#

- If mismatched then hemolysis
- Blood typing is mandatory

BLOOD TRANSFUSIONS

BLOOD TYPES

BLOOD TYPE	Antigen on RBC	Antigens in plasma	Can Recieve blood from	Can donate blood to
A	A	anti-B	O & A	A & AB
B	B	anti-A	O & B	B & AB
AB	A & B	neither	O, A, B & AB	AB only
O	neither	anti A & anti B	"O" only	O, A, B & AB

TECNO SPARK
AI TRIPLE CAMERA

QUESTION # 5 ANSWER

PART # A

● FIRST AID FOR FALL , WITH BLEEDING FROM HEAD

- First check the breathing of person. look closely how they are 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 emergency police.
- Call the rescue 1122 .
- stop.the the head bleeding carefully .Apply cotton / clothe piece to stop the bleeding.
- There fore major concern is to avoid secondary injuries , such as would arise from careless movement s of the neck in a unconscious person .

QUESTION # 5 PART B ANSWER

- **PRECAUTIONARY MEASURES WILL YOU TAKE TO MEET YOUR FRIEND HE IS COVID POSITIVE #**

- first you will not meet your friend in the covid covid19 current situation. now you meet urgently so you protect your self against corona virus use this thing to prevent the spread of covid19 . these are.
 - First you cover your face use a mask
 - second you cover your hand put gloves in over hand.
 - Third You do not touch your friend, like no shake hand.
 - maintain at least 1 meter (3 feet) distance your self and friend.

STAY HOME SAVE A LIFE.

THE END.