**Physiology paper**

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**DPT section B**

**2nd semester**

**Submitted to mam kausar**

**Question 1**

**Answer:**

**Pituatry gland:**

* The pituatry gland is small pea size gland.
* This gland is attached to the part of the brain the hypothalamus. Which controls its activitie.
* The pituitary gland is also called master gland of the body because it controls the activity of most other hormone secreating gland.

**Hormones secreted by pituitary gland :**

**Anterior pituitary gland:**

**1 ) Growth hormone:**

* It is also called somatotrpin.
* It regulates growth, Metabolism and body composition.

**Abnormalities og growth hormones:**

* When less amount of growth hormones are secreated than normal during childhood than dwarfism occurs.
* When large amount of growth hormones are produced than Gigantism occurs.
* **Acromegaly** a condition in which a person cannot grow taller but the bones become thicker And the soft tissues continues to grow.

**Prolactin :**

* It stimulates milk production.

**Abnormalities:**

**Hyperprolacitnemia;**

* Excess production of prolactin in non pregnant woman can result in irregular or absent period, lack of ovulation and sometimes head ache and visual symptoms.

**Adrenocorticotropin hormone :**

* Acts on adrenal gland and secrets adrinocortical hormone , mainly cortisol.

**Abnormalities:**

* Too much cortisol over a prolonged period of time can lead to a condition called cushning’s syndrome.
* Less production of cortisol results in adrenal insufficiency.

**Thyroid stimulating hormone:**

* It acts on thyroid gland and secrets thyroxin (T4) and Triiodothyronine (T3) which stimulates the metabolism of almost every tissue in the body.

**Abnormalities:**

* Goiter is formed due to underproduction of thyroid hormone.

**Lutenizing hormone and follicles stimulating hormone:**

* These are also called gonadotrophins because they act on ovaries or testes to stimulate sex hormone production and maturity of egg and sperm.

**Abnormalities:**

* Deficiency of LH cause sexual dysfunction and infertility .

**Posterior pituatry gland:**

**Oxytocin:**

* It stimulates uterine contraction during labour and milk secretion during breast feeding.

**Abnormalities**

* Low level of Oxytocin can lead to autism autistic spectrum disorder.

**Antidiuretic hormone (ADH)**

* It is also called vassopressin , which controls water balance and blood pressure.

**Abnormalities:**

* Very high level of ADH can cause fluid imbalance which lead to cerebral edema.
* Diabetes inspidus is caused by lack of ADH.

**Question 2**

**Answer:**

**Erythrocyte:**

* A red blood cell,which (in human ) is a biconcave disc without nucleus.
* Itt contain hemoglobin, and helps in transport of oxygen and carbondioxide to and from the tissues.

**Erythropoiesis:**

* It is process by which red blood cells are produced .
* The whole process last about 7 days .
* This process is stimulated by the decrease O2 in circulation which is detected by kidney,and then secrets a hormone erythropoitin.

**Erythrocytosis:**

* Increase in red blood cells mass than normal is called erythrocytosis .
* polyChythemia are sometimes called erythrocytosis but these two terms are not synonymous because polychythemia is ,any increase in Red blood cells.

**Erythropenia:**

* Decrease or Deficiency of erythrocytes is called erythropenia.
* It is also associated with anemia.
* **Pathological :** primary erythropenia caused by bone marrow dosorder.
* Secondary erythropenia is caused by kidney disorder.

**Question 3**

**Answer**

**Platelets:**

* It is also known as thrombocytes.
* Platelets are tiny blood cells that help your body to form clots to stop bleeding .
* Lifespan 10 days.

**Clotting :**

* Clotting is also known as coagulation, is the process by which blood changes from the liquid to gel, forming a blood clot .

**Initiation of mechanism:**

* Instantly after an injury to the blood vessels which has damaged the endothelium lining vessel.
* Clotting mechanism stops bleeding from damaged vessels and maintain hemostasis.

**Clotting mechanism:**

Clotting mechanism involves following steps;

**Adhesion:**

* Injury to the blood vessel.
* Endothelium lining damaged
* Blood comes into space under endothelium .
* Underlying collagen exposed to circulating platelets.
* Platelets binds with surface receptors of collagen and adhere tightly. This all process is called adhesion.

**Activation :**

* Platelets change shape.
* Turn on receptors and secrets chemical messengersto activate and invite additional platelets.
* Activated platelets adhere tightly at injury sites.

**Aggregation:**

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

**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 platelet inhibition.

**Question 4**

**Answer**

**ABO blood system:**

* It is the classification of human blood based on the inherited properties of red blood cells as determined by the absence or presence of the antigen A and B, which are carried on the surface of red cells.
* **Discovered by:**
* In 1900, karl Landsteiner, at the University of Vienna , discovered the ABO blood group system.

**Blood types:**

**1 ) A group**

**2 ) B group**

**3 ) AB group**

**5 ) O group**

**Role of blood group in blood transfusion:**

* The accurate grouping of blood is very important when it comes to having a blood transfusion . If blood is given to a patient that has a blood type that is incompatible with the blood type of the blood that the patient receive , it can cause clumping in the patient blood which can be fatal.
* The patient body can start producing antibodies that attack the antigens on the blood cells in the blood that was given to the patient causing reaction and rejection.
* **Example;**
* A patient having blood group A has Anti B antibodies in their blood plasma . If this patient recive blood group B than anti B antibodies in the plasma of the patient will cause the blood group B red cells to clump which is life threatening.

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**O blood group is universal donor**

**Ab blood group is universal recipent.**

**Question: 5 (a)**

**Answer :**

If a person fell from tree and become unconscious with bleeding from head ;

1. Keep the person still ,until medical health arrives,keep the injured person lying down and quiet with the head and shoulder slightly elevated.
2. Stop bleeding. Apply firm pressure to the wound with sterile gauze or a clean cloth.
3. Watch for changes In breathing and alertness.

**Question 5 (b)**

**Answer:**

* First we Should avoid meeting with our friend and talk on the phone or do a video call with her.
* But if its very important to meet her than keep 6 feet of distance between you and your friend.
* Wear a cloth face covering or face mask .
* Use of gloves
* And use of hand sanitizer
* And donot shake hand.