**Mid-Term Assignment**

**Course Title: hematology**

 **Instructor: Adnan Ahmad**

**Section A**

1. the most commonly ordered blood tests

 D . None of them

1. When a person has been diagnosed with a disease known to affect blood cells, a \_\_\_ will often be ordered on a regular basis to monitor their condition.

D . None of them.

1. The cells that are part of the body's defense system against infections and cancer and also play a role in allergies and inflammation

D . All of the above

1. Normal RBC range in:Male:
2. 4.7 to 6.1 million cells .
3. Low platelet concentration is
4. Thrombocytopenia

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 SECTION;- " B " .

1. Also known as myeloid tissue
2. Red BM
3. All red blood cells and platelets in humans adults are formed in\_\_\_\_\_\_\_\_\_\_\_\_

 D . Myeloid tissue

1. Increase in red blood cells

 B. Polycythemia

1. Thrombopoietin is a glycoprotein hormone produced mainly by\_\_\_

C. Both a and b

1. life span of RBCs is\_\_\_\_\_

D. None of them

 **Section B**

**Q:1** Enlist characteristics of blood.

Ans:- CHARACTERISTICS OF BLOOD.:-

 Blood is a fluid tissue ( connective tissue)

1 :- Formed elements. I.e Blood cells .

- Erythrosytes.

- Leukocytes.

- platelet..

 2. Plasma. - non living fluid matrix

- water.

 - Dissolved material.

 E.g. gases , nutrient , protein hormone.

 -More dence than water.

- 5 minute more viscous than water .

- Slightly alkaline.

- Normal blood PH is 7. 35 - 7 . 45.

- Temperature 100.4 degree F.

-8 % of the body weight.

- volume is about 5-6 L in males and 4-5 L in females

-At any one time 25%of the blood is being filtered in the kidneys .

PLAsma:.

55%af total blood volume mostly water (90%) contains dissolved solutes are proteins .........most produced by the liver.

-Albumin

Globulins..

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**Q:2** Briefly Explain hematopoiesis.

Ans:- blood formation in the body (

in tra-

Uterine and extra-

uterine )

2.factors governing hematopoiesis.

3.Erythropoiesis.different stages and factor effecting on erythropoiesis.

4.Granulopoiesis different stages

and factor effecting on granulopoiesis.

HEMATOPOIESIS :-

 OBJECTIVE:-

- Embryonal , new born and adult hematopoiesis.

- Seed and soil .

- steem cell.

- Bone marrow microenviroment.

 DEVELOPMENT OF HEMATOPOIETIC SYSTEMS:-

- Cluster of mesenchyme , mesoderm cell proliferate and expand ( week)

 - Vascular channel development and primitive embryonic circulatory system is formed.

 - Proliferation of early hematopoietic cells.

 - Differentiation of hematopoietic precusors.

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**Q:3** write down a comprehensive note on bone merrow.

Ans:- BONE MARROW:-

 Nutrient rich- spongy tissue local mainly in hollow portions of long flat bone like the sternum and the bones of hips .

 TYPE OF BONE MARROW:-

 - Red marrow and yellow marrow.

- yellow bone marrow has a much higher amount of fat cells than red marrow . Both types of marrow contain blood vessels.

 RED BONE MARROW:-

 - All red blood cells and platelets in human adults are formed in red bone marrow.

- produce around 60-70% of lymphocytes (the rest begin life in the red bone marraw and become fully formed in lymphatic tissue, including thymus,spleen,and lymphnodes

- Red bone marrow also plays role in obliteration of old red blood cells, along with the liver and spleen .

 YELLOW BONE MARROW:-

- yellow bone marrow's main purpose is to act as a store for fats helping to provide sustenance and maintain correct environment for bone to function .

- However under particular conditions,such severe blood loss or fever the yellow marrow may convert to red marrow .

- yellow marrow tends to be located in central cavities of long bones generally surrounded by a layer of red marrow with long trabeculae(beam -like structure) with in a spong-like reticular framework.

 DID YOU KNOW:-

- At birth all bone marrow is red .

- with of passages time , more and more of marrow converts to yellow bone marrow.

- In adults about half of the bone marrow is red and half is yellow.

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**Q:4** Describe different sites of hematopoiesis in fetus, infants and adults.

Ans:-SITE OF HAEMOPOIESIS:-

 FETUS:- - 0- 2 Months ( yolk sac)

2- 7 months ( liver , spleen).

 - 5- 9 months ( bone marrow).

 INFANTS:-

 - Bone marrow ( practically all bones)

 ADULTS:-

- vertebrae , ribs, sternum, skull sacrum and pe2, proximal ends of femur.

- During normal childhood and adult life the marrow is the source of new blood cells.

- In certain diseases the liver and spleen can resume their fetal haemopoietic role ( extramedullary haemopoiesis).

 - The developing cells are situated

outside the bone marrow sinuses.

- Mature cells are released into the sinus space, the marrow microcirculation.

- And so Into the general circulation.

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 THE END.