Mid-Term Assignment

Course Title: Hematology

Instructor: Adnan Ahmad

Name: Muhammad Shayan Khan

ID# 15959

Section A

1 > The most commonly ordered blood tests.

Answer: (D) Hmglb

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

Answer: (D) Hmglb

3 > The cells that are part of the body’s defense system against infections and cancer and also play a role in allergies and inflammations.

Answer: (A) Neutrophils

4 > Normal RBC range in: male.

Answer: (A) 4.7 to 6.1 million cells p(cells/mcL)

5 > Low platelet concentration is

Answer: (A) Thrombocytopenia

6 > Also known as myeloid tissue

Answer: (A) Red BM

7 > All red blood cells and platelets in humans adults are formed in\_\_\_\_\_\_\_\_.

Answer: (D) Myeloid tissue

8 > Increase in blood cells

Answer: (B) Polycythemia

9 > Thrombopoietin is a glycoprotein hormone produced mainly by\_\_\_\_

Answer: (C) Both a and b

10 > Life span of RBCs is \_\_\_\_\_\_

Answer: (D) None of them

Section B

Question # 1

Enlist Characteristics of blood.

Answer:

Following are the characteristics of blood

* Blood is fluid connective tissue.
* Blood provides the body’s cells with oxygen and removes carbon dioxide.
* Blood transport nutrients and hormones
* Blood regulates body temperature
* Platelets clot blood at sites of injury
* Blood brings waste products to the kidneys and liver
* Red blood cells are the most numerous cells in blood
* White blood cells protects the body from pathogens

Question # 2

Briefly explain hematopoiesis.

Answer:

Hematopoiesis:- . It is the process by which immature precursor cells ,develop into mature blood, cells. The currently accepted, theory on how this process works is called the monophyletic theory, which simply means that a single type of stem cell gives rise to all the mature blood cells in the body.

Prenatally, hematopoiesis occurs in the yolk sack, then in the liver, and, lastly in the bone marrow. In the. normal situation, hematopoiesis in adults occurs in the bone marrow and, lymphatic tissues.

Question # 3

Write down a comprehensive note on bone marrow.

Answer:

The bone marrow is a soft tissue which fills up the medullary cavity of long bones and the spaces between the trabeculae of the spongy part of all bones. It presents in two forms-rai marrow and yellow marrow. The composition of bone marrow differs in different bones, at different ages, and shows sex variations.

In new-born, the entire skeleton is occupied by the red marrow. By the 7th year, the yellow marrow begins to appear in the middle of the shafts of long bones replacing haemopoietic tissue of red marrow. The yellow marrow ex­tends along the shafts in both directions until it reaches the ends. The replacement starts ear­lier in more distal bones.

By the age of 20, red marrow is found only in the diploe of skull bones, in the ribs, sternum, vertebrae, in the cancellous part of some of the short bones and at the ends of long bones. It is important to recognize that, in the adult, yellow marrow may be replaced by red marrow under exceptional circumstances, such as in certain types of anemia.

In structure, red marrow consists of an in­terlacing network of reticular fibers into which reticular cells are attached. The latter have phagocytic properties and present amoeboid movements. The stroma is permeated with si­nusoidal vessels which are lined by reticulo­endothelial cells.

Question # 4

Describe different sites of hematopoiesis in fetus, infants and adults

Answer:

Following are the different sites of hematopoiesis.

In Fetus:-

After birth, and during early childhood, hematopoiesis occurs in the red marrow of the bone. With age, hematopoiesis becomes restricted to the skull, sternum, ribs, vertebrae, and pelvis.

In Infants:-

During fetal development, hematopoiesis occurs mainly in the fetal liver followed by localization to the bone marrow. Hematopoiesis also takes place in many other tissues or organs such as the yolk sac, the aorta-gonad mesonephros (AGM) region, the spleen, and lymph nodes.

In Adults:-

In adults especially in the pelvis,femur, and sternum. They are also found in umbilical cord blood and, in small numbers, in peripheral blood.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_