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Section "A" (MCQ's)

1. the most commonly ordered blood tests.

A. Urine RE

B. T3

C. T4

D. Hmglb

E. None of them.

2. 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.

A. Urine RE

B. T3

C. T4

D. Hmglb

E. None of them.

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

A. Neutrophils

B. Lymphocytes

C. Eosinophils

D. Monocytes

E. All of the above..

4. Normal RBC range in:Male:

A.4.7 to 6.1 million cells p (cells/mcL).

B. 4.2 to 5.4 million cells/mcL

C. 6.7 to 6.1 million cells p (cells/mcL)

D.9.7 to 6.1 million cells p (cells/mcL)

5. Low platelet concentration is.

A.Thrombocytopenia .

B. Thrombocytosis

C. Thrombocytopathy

D.Leukopenia

6. Also known as myeloid tissue.

A.Red BM.

B. Yellow BM

C. White BM

D.Greenish fatty tissue

7. All red blood cells and platelets in humans adults are formed in_____ .

A. Yellow BM

B. White BM

C. Greenish fatty tissue

D.Myeloid tissue.

8. Increase in red blood cells.

A. Anemia

B. Polycythemia.

C. leukemia

D. Clotting defects

9. Thrombopoietin is a glycoprotein hormone produced mainly by____.

A. Liver

B. Kidney

C. Both a and b.

D. Brain

10. life span of RBCs is_____.

A. 2 months

B. 3 months

C. 6 months

D. None of them.

Section “B” (Questions)

Q:1 Enlist characteristics of blood .

Characteristics of blood:

- *Color-bright red oxigenated blood (systemic).*
- *Dark red / purple ->deoxygenated (venous).*
- *Normal Ph range (7.35 – 7.45).*
- *Temperature of 100.4 degree F.*
- *8% of total body weight.*

Blood volume:

- *5 to 6 litter average in Male.*
- *4 to 5 litter average in Female.*
- *Thicker (more viscous) than water and flows more slowly then water.*

Q:2 Briefly Explain hematopoiesis.

Hematopoiesis (Formation of blood cellular).

Is the production of all of the cellular components of blood and blood plasma. It occurs within the hematopoietic system, which includes organs and tissues such as the bone marow liver, and spleen. Simply, hematopoiesis is the process through which the body manufactures blood cells.Hematopoiesis is the production of all the types of

blood cells including Formation. Development and differentiated of blood cells. Prenatally Hematopoiesis occur in the yolk sack then in the liver and lastly in the bone marrow.

In healthy adult person, approximately 10^{11} - 10^{12} new blood cell are produced daily order to maintain steady state level in the peripheral circulation.

- I. Hematopoiesis stem cell form in the medula of the bone (bone marrow).*
- II. Hematopoiesis have the ability to differentiate into dk mature blood cell.*
- III. Hematopoiesis differentiate into two daughter cell Myloid & Lymphoid stem cell.*

Erythrocyte:

- Erythrocyte differentiate into red blood cell. Which carry oxygen.*

Lymphocyte:

- Lymphocyte cell producte other immune cell such as T-cell, B-cell and Natural killer cell.*

Megakaryocytopoiesis:

- Is the heamatopoiesis of magakaryocytopoiesis which produce pletlate.*

Q:3 write down a comprehensive note on bone marrow.

Bone Marrow;

Bone marrow is a semi-solid spongy portions of the bone. Hematopoise occur in bone marrow.

- *Bone marrow also have a adipose tissue and supportiue stormal cell.*
- *in adult human bone marrow is primerily located in the ribs, vertibra and sternum and bones of palvis*
- *Bone marrow compraises approximatly 5% of total body mass in healty adult human.*

It's Types :

There are two types of bone marrow given below.

- *Red bone marrow.*
- *Yellow bone marrow.*

I. RED BONE MARROW:

- *Red bone marrow also known as myeloid tissue.*
- *All red blood cell and platelets in human adults are formed in red bone marow.*
- *Produces around 60-70% of lymphocytes (the rest began life in the red bone marrow and become fully*

formed in lymphatic tissues including thymus, Spleen and lymph nodes).

- *Red bone marrow also play role in obliteration of old red blood cells. Along with the liver and spleen.*

II. YELLOW BONEMARROW :

- *Also known as faty tissue.*
- *Yellow bone marows main purpose is to act as a store for fats helping to provide sustenance and maintain correct environment for bone to functions.*
- *However under particular conditions such as serve blood loss or fever the yellow marow may convert to red marow.*

Function Of Bone Marrow:

I. Messenchymal Stem Cell:

- *Also known as stromal cell.*
- *These are multipotent stem cell.*
- *These differintiate into osteoblast, chondrocyte mycyte adipocyte & beta islet cells.*

II. Bone Marrow Barrier:

- *Vessel act as a barrier.*
- *Which pass mature cell only.*
- *Due to a special protion aquaporin & glycoporin.*

III. Lymphatic Role:

- *The red bone marrow is a key element of the lymphatic system, which generate lymphocyte.*

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

I. Fetus:

- *In fetus 0-2 month hematopoiesis occur in yolk sac.*
- *After 2-7 month hematopoiesis occur in liver and spleen.*
- *After 5-9 month hematopoiesis occur in bone marrow.*

II. Infants:

- *In infant hematopoiesis occur particularly in all bones of the body.*

III. Adult:

- *In adult hematopoiesis occur in vertebra, ribs, sternum, skull sacrum and pelvis.*
- *Also hematopoiesis occur in proximal end of femer.*
- *Adult have both red and yellow bone marrow both produce blood cells.*