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DEPARTMENT: MLT 2nd

SECTION: B
SUBJECT: HEMATOLOGY
INSTRUCTER: ADNAN AHMAD

Section A

Q1: Fil in the blank :

1: (E) **NON of them.**

2:**(E) Non of them.**

3: (E) All of the above .

4: (C) 6.7 to 6.1 million cells.

5: (A) thrombocytopenia.

6: (A) Red Bone marrow.

7: (D) myeloid tissue.

8: (B) polycythemia.

9: (C) Both A and B.

10: (D) Non of them.

Section B

Q1:Enlist characteristic of blood :

Ans: 1; Bright red (oxygenated).

2: Dark red ,purplish (deoxygenated).

3; PH range from 7.35 to (slightly alkaline).

4: slightly warmer than body temperature 100.4F.

5: typically volume in adult Male 5-6 liters .

7: typically 8% of body weight.

8: blood contain red blood cell (RBCS) , White blood cell (WBCS), platelets, and other cell.

Q2; Briefly explain hematopoiesis .

Ans: The production of all types of blood cells including formation development and differentiation of blood cells , prenatally, hematopoiesis occur in the bone marrow , in the normal situation , hematopoiesis in adults occurs in the bone marrow and lymphatic tissues , all types of blood cells are derived from primitive cells (stem cell) that are pluripotent (they have the potential to develop into all types of blood cell) factors governing hematopoiesis , grannlopoiesis, different stages and factors affecting on granulopoiesis , development of hematopoietic system, by birth , medullary, cavities of almost every bone contributes to provide mature functional hematopoiesis cells . Is a cell that can divide through mitosis and differentiate into specialized cell types and that can self renew to produce more stem cell.

Q3: Write down a comprehensive note on bone marrow .

Ans: there are two types of bone marrow red bone marrow and yellow bone marrow, yellow marrow has a much higher amount of fat cells than red marrow both types of marrow contain blood vessels .

Red blood marrow

All red blood cell and platelets in human adults are form in red bon marrow produces around 60- 70% of lymphocytes (the rest begin life in the red bone marrow and become fully form in lymphatic tissue , including thymus spleen, and lymph nodes). Red bones marrow also plays role in obliteration of old red blood cells , along with the liver and spleen .

Yellow bone marrow

Yellow bone marrows main purpose is to act as a store for fats helping to provide sustenance and maintain correct environment for bone function. However, under or fever the yellow marrow may convert to red marrow, yellow bone marrow tends to be located in central cavities of long bones, generally surrounding by layer of red marrow with long trabeculae (bean like structure) with a sponge like reticular framework, bone marrow tissue not directly involved in hematopoiesis , it consists mainly of yellow bone marrow and to a lesser extent , stromal cells found in red bone marrow , stroma is indirectly involved in hematopoiesis by providing a microenvironment conducive for this process, for example, stroma produce colony stimulating factors necessary for hematopoiesis, the bone marrow work like a factory that produces all of the cell that are found in the bone marrow and in the peripheral blood stream this factory is dependent on the function of the pluripotent stem cells.

Q4: Describe different sites of Hematopoiesis in fetus , infants and adults.

Ans: (Fetus) 0- 2 month (yolk sac =During normal childhood and adult life the marrow is the only source of new blood cells.

=0- 7 month (liver spleen) = in certain diseases the liver and spleen can resume their fetal heamopoitic role.

=5- 9 month (bone marrow) = the development cells are situated outside the bone marrow sinuses.

(infants) **= bone marrow (practically all bones) =Mature cell are released into the sinus spaces , the marrow micro circulation.**

(adults) **= vertebrae , ribs , sternum , skull , sacrum and pelvis, proximal end of femur. = and so into the general circulation.**

The End