King Saud University
College of Science
Department of Biochemistry
Final Exam Hematology 275

Name _____ Date: 1430/1431

QI- *Multiple choice*

1. The condition of having less than the normal number of red blood cells and abnormal morphology of hemoglobin in the blood is called?
A. Thrombocytopenia
B. Granulocytosis
C. Polycytemia Vera
D. Sickle cell anemia

2. The intrinsic pathway of coagulation starts with formation of the following except.
a. Tissue factor III
b. ADP
c. prekallikrein
d. collagen

3. Factor VII is converted to active form VIIa by this in the presence of Ca^{2+}.
a. prothrombin
b. factor III
c. factor X
d. none of the above

4. Sickle cell anemia does not have of the following characteristic.
a. Less number of amino acid in Hb
b. Valine substance glutamic acid
c. Less O_2
d. It has crescent shape

5. Nutritional anemia is cause by the following:
a. abnormal Hemoglobin structure
b. inactive Hemoglobin
c. deficiency in food iron
d. cooperative Hemoglobin
e. all of the above

6. In Extrinsic pathway

a. fibrinogen is one of the first factor
b. prothrombin is converted to thrombin
c. activation of the plasma protein factor VII
d. all of the above

7. MCH is the measurement of _____.
a. packed cell volume
b. average weight of hemoglobin per cell
c. average weight of 1L of blood
d. average concentration of hemoglobin
e. none of the above

8. Plasminogen is considered to be:
a. is a clotting factor
b. are final clot
c. is the lysis factor
d. it is release from the spleen

9. Clotting problem does not occur in blood flow because of:
a. The strength of collagen in the vein structures
b. The different charge on the wall of veins
c. Platelet does not cause adherence to the injury
d. Viscosity of the blood vein

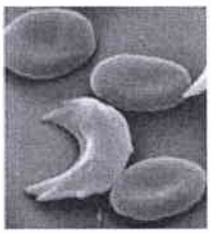
10. EDTA is considered to be:
a. an anticoagulant
b. accelerate the intrinsic factors
c. to modulate O_2 affinity
d. clotting factors

11. Which is <u>not</u> a characteristic of Thalassemias.
a. caused by genetic mutation
b. β thalassemia is more common
c. increase rate in globin synthesis
d. all of the above

12. Which of the following tests is to monitor red cell production?
a. Schilling test
b. Packed cell volume
c. reticulocyte
d. granulocytes
e. all of the above

QII -*Identification*

13. Please identify what type of anemia.



Sickle cell anemia

QIII- Fill in the blanks

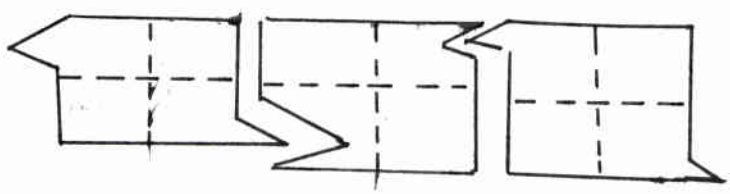
14. Alpha thalassemia has two types ____α^+____ and ____α^0____ and are characterized by a defect in the _____ of amino acid.

15. Beta thalassemia is caused by the abnormal __tRNA/mRNA/rRNA__ and has 3 types ____Major____, __Intermediate__, and __Minor__.

16. Oxyhemoglobin in sickle cell has __7.09__ pI and __Less__ soluble than the HbA.

QIV- Define the following

1. Sticky patches



2. Sickle cell trait

HbS < 50% HbA > 50%

3. Major β thalassemia

Absence of one of β

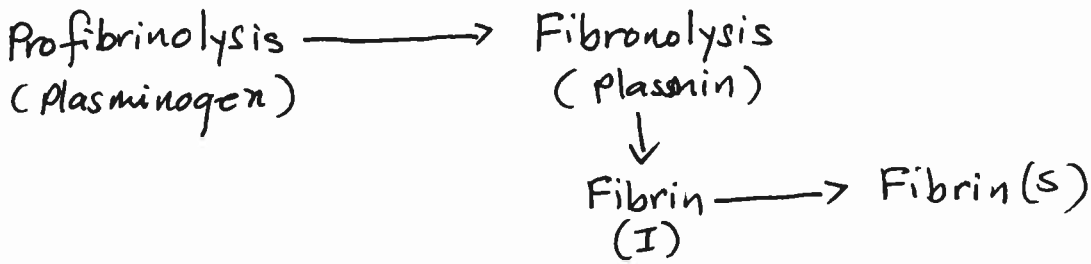
4. Heparin in the blood

Anticoagulant that prevents the conversion of prothrombin to thrombin.

QV Write the following equations:

1. The formation of the final clot

2. The lysis of the final clot



3. Role of Vit B_{12} in synthesis of Hb

a) Homocystein $\xrightarrow{\text{Methyl } B_{12}}$ **Methionine**

b) Propionyl CoA $\xrightarrow{\text{ado } B_{12}}$ **Succinyl CoA**

4. Equation of calculating of MCH and MCV

MCH= Hb (g/dl) x 10 ÷ RBC (10^{12}/l) or $MCH = \frac{Hb\ (g/dl)}{RBC} \times 10$

MCV= PCV (l/l) x 1000 ÷ RBC (10^{12}/l) or $MCV = \frac{PCV\ (Hematocrit)}{RBC\ (1 \times 10^{12})}$

كلية العلوم تتمنى لكم التوفيق والسداد وتؤكد على أن الدراسة ستبدأ من الأسبوع الأول للعام القادم إن شاء الله, وسيكون هناك درجات إضافية للحضور خلال الأسبوع الأول من الدراسة