Hematology Exam 3

1. Which ONE of the following is NOT a significant component of bone marrow stroma?
a. Endothelial cells
b. Adipocytes
c. Fibroblasts
d. Epithelial cells

2. Which ONE of these is NOT a mechanism by which granulocyte colony-stimulating factor (G-CSF) can increase neutrophil production?
a. Increased differentiation from progenitor cells
b. Reduction in the self?renewal of haemopoietic stem cells
c. Increased rate of maturation of immature myeloid cells
d. Suppression of apoptosis of myeloid cells

3. Which ONE of these cytokines has an important role in normal early haemopoiesis?
a. IL?1
b. IL?2
c. IL?3
d. IL-4

4. Which ONE of these is NOT TRUE concerning the normal cell cycle?
a. DNA is replicated in G1 phase
b. The cycle is divided into the M phase and the interphase
c. Cyclin dependent protein kinases (Cdk) phophorylate protein targets
d. Cyclin proteins are synthesized and degraded during the cell cycle

5. The normal haemostatic response to vascular damage depends on three major factors. Which ONE of these is not included in that group?
a. The blood vessel wall
b. Stasis of the blood flow
c. Circulating platelets
d. Blood coagulation factors

6. Which ONE of these statements concerning platelets is NOT TRUE?
a. They extrude their nucleus as they pass through the spleen
b. The megakaryocyte matures by endomitotic synchronous replication so that the number of nuclear lobes increases within the cell
c. Thrombopoietin is the major regulator of platelet production and is produced by the liver and kidneys
d. The platelet lifespan is 7-10 days

7. Which ONE of these statements is TRUE concerning von Willebrand factor?
a. It cross?links platelets to each other
b. It carries factor IX
c. After release it forms large aggregates that are needed for its function

d. Plasma vWF is derived from endothelial cells

8. Which ONE of these statements concerning the initiation of blood coagulation is NOT TRUE?
a. Tissue factor is expressed on endothelial cells
b. Coagulation is initiated by the interaction of tissue factor with plasma factor VIIa
c. The factor VIIa-tissue factor complex activates both factor IX and factor X
d. One to two per cent of the total factor VII circulates in the activated form, but does not express proteolytic activity unless bound to tissue factor

9. Which ONE of these statements is NOT TRUE concerning stabilization of the platelet plug by fibrin?
a. Following vascular injury, the formation of extrinsic Xase (VIIa, TF, PL and Ca2+) initiates the coagulation cascade
b. The incorporation of plasminogen and tPA helps to stabilize the clot
c. Thrombin generated at the injury site converts soluble plasma fibrinogen into fibrin
d. Platelet aggregation and release reactions accelerate the coagulation process by providing abundant membrane phospholipid

10. Which ONE of these statements is TRUE concerning fibrinolysis?
a. Plasminogen is a key protein and is activated following conversion into tissue plasminogen activator (tPA)
b. tPA is released after stimuli such as trauma or exercise
c. Fibrinolysis is systemic and not localized to the clot
d. Fibrinolytic agents are too powerful to allow their therapeutic use

11. Pluripotential cells:
a. are reversibly differentiated cell types
b. are stem cells capable of self renewal
c. produce specific blood cell types
d. proliferate and form single cell lineage within the bone marrow.

12. Formed elements of blood are:
a. erythrocytes, plasma
b. plasma, granulocytes
c. agranulocytes, erythrocytes
d. plasma, agranulocytes

13. Megakaryocytes maturation is facilitated by:
a. growth factor
b. thrombopoietin
c. von Willebrand’s factor
d. fibroblast growth factor

14. Poikilocytes are:
a. irregularly shape erythrocytes
b. spike erythrocytes due to alteration in plasma environment
c. damaged fragments of RBC
d. large variation in size of cells

15. One of the common causes of macrocytic anaemia is:
a. A megaloblastic anaemia
b. sickle cell anaemia
c. acute blood loss
d. haemolytic anaemia

16. Which ONE of these is NOT TRUE concerning the haemopoietic stem cell?
a. It is believed to represent approximately 1% of bone marrow cells
b. It resembles a small to medium sized lymphocyte
c. It is effectively transferred during stem cell transplantation
d. It is thought to have a CD34+CD38- phenotype

18. Which of the following causes Neutrophilic Leukocytosis
a. Rickettsiosis,
b. Malaria
c. sterile inflammation
d. hay fever

19. Increased hematocrit values indicate
a. Polycythemia
b. Anemia
c. Leukemia
d. Thrombosis

20. The following are causes of thrombocytopenia EXCEPT
a. loss of bone marrow function as occurs in aplastic anemia
b. leukemia
c. Radiation therapy
d. anemia

Section B (Short Answer Questions)
1. Describe common Non neoplastic disorders of white blood cells (8 marks)

2. Describe the five most common causes of microcytic anemia (8 marks)
3. Explain the Bleeding associated with platelet disorders (8 marks)
4. Describe the general Mechanism of Clot Retraction (8 marks)
5. Explain eight functions of blood (8 marks)

Section C (Long Answer Questions)
1. Discuss the fate of hemoglobin products in intravascular destruction of Red blood cells (20 marks)
2. Describe hematopoietic developmental process in utero (20 marks)