

RED BLOOD CELL ABNORMALITIES

1. _____ is due to severe bleeding.
2. _____ occurs when chemicals and radiation damage myeloid tissue and RBC are not produced.
3. _____ occurs when there is a lack of iron in the body.
4. _____ occurs when a lack of intrinsic factor leads to decreased absorption of vitamin B₁₂.
5. _____ occurs when there is a problem producing the 4 globin chains.
6. _____ occurs when there is a change in the sequence of amino acids in hemoglobin.

WBC

7. Neutrophils, eosinophils and basophils are _____ (*granular or agranular*) leukocytes produced by _____ tissue. (*lymphoid or myeloid*)
8. Which are microphages? _____
9. Which release histamine and heparin? _____
What is the function of histamine? _____
What is the function of heparin? _____
10. Monocytes are _____ (*granular or agranular*) leukocytes produced by _____ tissue. (*lymphoid or myeloid*)
They are also called _____ because they are large cells that can engulf organisms.
They are also able to squeeze through tissues. This is called. _____
_____ macrophages are found in specific tissues, such as skin, liver and bone.
11. Lymphocytes are _____ (*granular or agranular*) leukocytes that are produced by _____ tissue. (*lymphoid or myeloid*)

STEM CELLS (*multipotent, omnipotent, pluripotent*)

12. Embryonic stem cells, that can differentiate into all cell types, are _____ stem cells.
Embryonic stem cells produce hemocytoblasts that are _____ stem cells.
Hemocytoblasts produce myeloid and lymphoid stem cells that are _____ stem cells that produce WBC, RBC and platelets.
13. List the 3 cells derived from lymphoid stem cells. _____
List the 6 cells derived from myeloid stem cells. _____

CHEMICALS THAT DIFFERENTIATE CELLS (*EPO, G-CSF, M-CSF, GM-CSF, multi-CSF*)

14. A myeloid stem cell exposed to _____ will form all progenitor cells.
15. A progenitor cell exposed to _____ will ultimately form RBC.
16. A progenitor cell exposed to _____ will produce granulocytes and monocytes.
17. A myeloblast exposed to _____ will produce granulocytes.
18. A monoblast exposed to _____ will produce monocytes.

HEMOSTASIS

19. _____ is the first step. It decreases the diameter of the blood vessel.
20. During the _____ stage, platelets stick together and release chemicals that begin the clotting process, and some that will ultimately stop the clotting process.
21. During the _____ phase, clotting factors are activated.
22. During _____, fibers draw the blood clot together (syneresis).
23. During _____, fibrinolysis occurs and the blood clot dissolves.
24. Name the chemicals released during the platelet phase. _____

25. What is the function of ADP? _____
26. Name the three pathways that are active during the coagulation phase.

27. Extrinsic means that chemicals for blood clotting are found _____
Intrinsic means that chemicals for blood clotting are found _____
28. Which pathway (*extrinsic or intrinsic*) is used when tissues are damaged? _____
Which pathway (*extrinsic or intrinsic*) is used when blood is damaged? _____
29. Associate the clotting factor name with the extrinsic or intrinsic pathway.
Tissue thromboplastin _____
Plasma thromboplastin _____
Platelet thromboplastin _____
30. _____ is a bleeding disorder due to a deficiency of certain clotting factors.
31. _____ is a coenzyme that gives rise to some clotting factors.
32. _____ is activated by both the extrinsic and intrinsic pathways, and begins the common pathway.
33. Factor X forms the enzyme prothrombinase that converts _____ into _____.
34. Thrombin converts _____, a soluble protein, into _____, insoluble fibrous strands that trap RBC.

35. The _____ pathway dissolves the blood clot.
36. _____ and _____ begin this process by activating plasminogen.
37. Plasminogen produces _____, an enzyme that dissolves the fibrin strands of the blood clot.

BLOOD CLOT TERMINOLOGY

38. A _____ is a blood clot that is attached to the inner wall of a blood vessel.
A _____ is the formation of the blood clot.
39. An _____ is a blood clot that detaches and travels through blood vessels.
An _____ occurs when a traveling blood clot blocks a blood vessel, stopping circulation at that point.

CARDIOVASCULAR PROBLEMS

40. In _____, fatty plaque deposits build up in the middle layer of the blood vessel and project into the lumen (hollow area where blood flows).
41. In _____, the walls of the arteries become hardened (thickened and tough) and are not able to expand easily.
42. A _____ or heart attack occurs as a result of a coronary thrombosis (formation of a blood clot in a coronary artery in the heart).

1. hemorrhagic anemia
2. aplastic anemia
3. iron deficiency anemia
4. pernicious anemia
5. thalassemia
6. sickle cell anemia
7. granular; myeloid
8. neutrophils and eosinophils
9. basophils; inflammation; no clotting of blood at site of infection
10. agranular; myeloid; macrophages; diapedesis; fixed
11. agranular; lymphoid
12. omnipotent; pluripotent; multipotent
13. lymphoid derived - B lymphocytes, T lymphocytes, natural killer (NK)
myeloid derived - RBC, WBC (neutrophils, basophils, eosinophils, monocytes),
megakaryocytes (pieces of cytoplasm become platelets)
14. multi-CSF (CSF = colony stimulating factors)
15. EPO (erythropoietin)
16. GM-CSF
17. G-CSF
18. M-CSF
19. vascular spasm
20. platelet plug
21. coagulation
22. clot retraction
23. clot destruction
24. ADP, thromboxane A₂, calcium, platelet factors
25. begins platelet aggregation and secretion
26. extrinsic pathway, intrinsic pathway, common pathway
27. extrinsic - outside blood; intrinsic - in blood
28. tissue damage - extrinsic; blood damaged - intrinsic
29. tissue - extrinsic; plasma and platelet - intrinsic
30. hemophilia
31. vitamin K
32. factor X
33. prothrombin; thrombin
34. fibrinogen; fibrin
35. fibrinolytic
36. thrombin; tissue plasminogen activator (TPA)
37. plasmin
38. thrombus; thrombosis (*definition from an online dictionary*)
39. embolus; embolism
40. atherosclerosis
41. arteriosclerosis (*see pg 713*)
42. myocardial infarction