

Hematology

1. HEMATOLOGY Multiple Choice Questions and Answers pdf

1. Causes spurious decrease in MCV

- A. Cryofibrinogen
- B. hyperglycemia
- C. autoagglutination
- D. high WBC ct
- E. reduced red cell deformability

Ans: A

2. When the entire CBC is suppressed due to either anemia, infection, or hemorrhage is called?

- A. Erythroplasia
- B. Thrombocytopenia
- C. Pancytopenia
- D. Leukopenia

Ans: C

3. Total RBC count for Women is?

- A. 4.4 6
- B. 4.25
- C. 4.05.0
- D. 4.25.2

Ans: C

4. Total RBC for men?

- A. 4.0 5.0
- B. 4.66.0
- C. 4.26.5
- D. 4.06.0

Ans: B

5. What is the major metabolically available storage form of iron in the body?

- A. Hemosiderin
- B. Ferritin
- C. Transferrin
- D. Hemoglobin

Ans: B

6. The best source of active bone marrow from a 20year old would be:

- A. Iliac Crest (hip)
- B. Femur (thigh)
- C. Distal radius (forearm)
- D. Tibia (shin)

Ans: A

7. Laboratory Studies: Red Cell Indices: Determination of relative size of RBC. 8298 fl

- A. MCH
- B. MCV
- C. MCHC

Ans: B

8. Laboratory Studies: Red Cell Indices:

- A. MCH
- B. MCV
- C. MCHC

Ans: B

9. Laboratory Studies: Red Cell Indices: Evaluation of RBC saturation with Hb. 3236%

- A. MCV
- B. MCH
- C. MCHC

Ans: C

10. There are 3 classifications of Anemia. What are they?

- A. Inadequate production of Hb
- B. Decreased RBC production
- C. Increased Erythrocyte destruction
- D. Blood loss

Ans: A

11. Vitamin B12 and folic acid have the similar adverse effects, but what separates one from the other?

- A. Glossitis
- B. No neurological symptoms in folic acid
- C. muscle wasting
- D. Dizziness

Ans: B

12. Folic acid therapy can cause sickle cell anemia

- A. True
- B. False

Ans: B

13. Both vitamin B12 AND iron have drug interactions with which of the following drugs?

- A. PPI, H2 blockers
- B. Methyl dopa
- C. Metformin A

Ans: A

14. Hydroxyurea increases hemoglobin production and decreases reticulocyte cells.

- A. True
- B. False

Ans: A

15. Hydroxyurea:

- A. decreases nitric oxide
- B. increases neutrophil and monocytes
- C. inhibits DNA synthesis by acting as a ribonucleotide reductase inhibitor

Ans: C

16. Hydroxyurea increases the serum uric acid levels.

- A. True
- B. False

Ans: A

17. Decitabine increases the fetal hemoglobin production by inducing methylation of DNA and thus prevents the switch from gamma to beta globin production.

- A. True
- B. False

Ans: B

18. Hypocupremia is seen in

- A. osteoporosis, nephrotic disease
- B. sprue, celiac disease
- C. cardiovascular disease, colon cancer
- D. A and B
- E. B and C
- F. All of the above

Ans: F

19. Wilson's disease can cause liver problems

- A. True
- B. False

Ans: A

20. What are the treatment options for Wilson's disease?

- A. Penicillamine
- B. Riboflavin
- C. Trientine
- D. Potassium disulfide
- E. Zinc
- F. A, B and C
- G. A, C, and D
- H. A, C, D, and E

Ans: H

21. Aplasia can occur because of riboflavin deficiency?

- A. True
- B. False

Ans: A

22. Angular stomatitis/cheilosis is a symptom of vitamin B12 deficiency?

- A. True
- B. False

Ans: B

23. Antimalarial drugs and high dose birth control will increase riboflavin.

- A. True
- B. False

Ans: B

24. Which test can be used to detect hemolytic anemia?

- A. Coombs test
- B. Genetic testing
- C. Peripheral blood smear (PBS)
- D. Schilling test

Ans: A

25. Which anemia is classified as not being able to use iron properly to synthesize hemoglobin because of an inherited cause.

- A. Iron deficiency anemia
- B. hypochromic anemia
- C. aplastic anemia

Ans: B

26. Aplastic anemia can be induced by drugs such as Lithium, acetazolamide and aspirin

- A. True
- B. False

Ans: A

27. This fatal disorder results from clot/thrombus formation in the blood circulation

- A. thromboembolism
- B. DVT
- C. PAD
- D. Pulmonary embolism
- E. All of the above

Ans: E

28. Homan's sign is classified as pain behind the knee

A. True B. False Ans: A

29. Patients that are sensitive to aspirin can take:

A. Sulfinpyrazone B. Clopidogrel C. Ticlopidine D. 1 and 2 E. 2 and 3 Ans: E

30. What is the life span of RBC

A. 120

B. 100

C. 200

D. 80

Ans: A

31. This drug can potentiate the effect of prostacyclins to antagonize platelet stickiness and therefore decreases platelet adhesion to thrombogenic surfaces.

A. Sulfinpyrazone

B. Dipyridamole

C. ticlopidine

Ans: B

32. Which drug can be given as a prophylaxis for cardiovascular effects?

1. Ticlopidine

2. Clopidogrel

3. dipyridamol

A. all B. 1 and 2

C. 1 and 3

D. 2 and 3

Ans: D

33. Which drug can increase intracellular levels of cAMP by inhibiting cyclic nucleotide phosphodiesterase? 1. Sildenafil 2. Ticlopidine 3. Clopidogrel 4. dipyridamol.

A. 1, 3, 4 B. 1, 2, 3 C. 1, 4 Ans: C

34. Warfarin should be used with caution in the following:

A. Alcoholic liver disease

B. Gastrointestinal bleeding

C. recent neurosurgery

D. Liver impairment

Ans: D

35. Isozymes of 2C can greatly effect warfarin

A. True B. False Ans: A

36. absolute lymphocytosis ($>5000/\text{mm}^3$) without adenopathy, hepatosplenomegaly, anemia, thrombocytopenia is what stage in CLL prognosis Scoring Rai Staging System?

A. Stage 0

B. Stage I

C. Stage II

D. Stage III

E. Stage IV

Ans: A

37. Conventional treatment is _____ for Rai stage II

- A. Antibiotics
- B. chemotherapy
- C. Antivirals
- D. rest Ans: B

38. In patients with low numbers of neoplastic cells, sometimes due to treatment, PCR to amplify DNA can improve sensitivity, and detect signs of relapse.

- A. True B. False Ans: A

39. Chronic lymphocytic leukemia is most common leukemia in what kind of people? Slide 4

- A. young adults
- B. older adults Ans: B

40. absolute lymphocytosis and thrombocytopenia($< 100,000/\text{mm}^3$) with or without lymphadenopathy, hepatomegaly, splenomegaly, or anemia is what stage in CLL prognosis Scoring-Rai Staging System?

- A. Stage 0
- B. Stage I
- C. Stage II
- D. Stage III
- E. Stage IV

Ans: E.

41. Chronic Lymphocytic Leukemia is characterized by peripheral blood and bone marrow _____.

- A. lymphocytopenia
- B. lymphocytosis

Ans: B

42. Chronic Lymphocytic Leukemia is characterized by gradual accumulation of small mature _____ cells.

- A. T B. B C. NK Ans: B

43. Which of the following is the most mature normoblast?

- A. Orthochromic Normoblast
- B. Basophilic Normoblast
- C. Pronormoblast
- D. Polychromatic Normoblast

Ans: A

44. absolute lymphocytosis with either hepatomegaly or splenomegaly with or without lymphadenopathy is what stage in CLL prognosis ScoringRai Staging System?

- A. Stage 0
- B. Stage I
- C. Stage II
- D. Stage III
- E. Stage IV

Ans: C

45. absolute lymphocytosis without lymphadenopathy without hepatosplenomegaly, anemia, or thrombocytopenia is what stage in CLL prognosis Scoring Rai Staging System?

- A. Stage 0
- B. Stage I
- C. Stage II
- D. Stage III
- E. Stage IV

Ans: B

46. IN Chronic Lymphocytic Leukemia the Lymphocyte appearance: small or slightly larger than normal, hypercondensed(almost _____ appearing. nuclear chromatin patten, bare nuclei called “smudge cells” are common.

- A. soccerball B. basketball C. football D. tennisball

Ans: A

47. Which of the following forms of Hb molecule has the lowest affinity for oxygen?

- A. Tense B. Relaxed C. Arterial D. Venous

Ans: A

48. What is the recommended cleaner for removing all oil from objective lens?

- A. 70 % alcohol or lens cleaner
- B. Xylene
- C. Water
- D. Benzene

Ans: A

49. Intravascular hemolysis is the result of trauma to RBCs while in the circulation

- A. True B. False

Ans: A

50. A 1:20 dilution was made in a unopette, with glacial acetic acid as the diluent. The four corner squares on BOTH sides of the hemacytometer are counted for a total of 100 cells. What is the total WBC ($\times 10^9/L$.)?

- A. 0.25 B. 2.5 C. 5 D. 10

Ans: B

51. The shape of a cell is maintained by which of the following?

- A. Microtubules
- B. Spindle Fibers
- C. Ribosomes
- D. Centrioles

Ans: A

52. At which month of fetal development does the bone marrow become the primary site of hematopoiesis??

- A. 2nd
- B. 5th
- C. End of 6th month
- D. End of 7th month

Ans: C

53. Which types of cells develop from yolk sacs (Mesoblastic phase)?

- A. Hb F, Hg A2, and Hg A
- B. Gower 1 and Gower 2 Hgb

C. Portland Hgb
D. Only Erythroblasts
Ans: D

54. Normal Adult Hb A contains the following polypeptide chains: A. alpha and beta B. alpha and epsilon C. alpha and delta D. alpha and brotherton Ans: A

55. Allergic reactions are frequently associated with an increase in the presence of :

A. Lymphocytes
B. Neutrophils
C. Monocytes
D. Eosinophils
Ans: D

56. Lipid exchange between the RBC membrane and the plasma occurs:

A. To replace lost lipids in the membrane
B. To provide a mechanism for excretion of lipidsoluble RBC waste products
C. To ensure symmetry between the composition of the interior and exterior lipid layers
D. To provide lipidsoluble nutrients to the RBC
Ans: A

57. After the microscope has been adjusted for Kohler illumination, light intensity should never be regulated by using the...

A. Rheostat
B. Neutral density filter
C. Kohler magnifier
D. Condenser
Ans: D

58. Which of the following types of microscopy is valuable in the identification of crystals that are able to rotate light?

A. Compound brightfield
B. Darkfield
C. Polarizing
D. Phasecontrast
Ans: C

59. During the Medullary Phase of hematopoietic development, which bone is the first to show hematopoietic activity?

A. Femur
B. Iliac Crest
C. Skull
D. Clavicle
Ans: D

60. Given the following values, calculate the RPI Observed reticulocyte count – 6% Hct 30%

A. 2 B. 3 C. 4 D. 5 Ans: A

61. The lipids of the RBC membrane are arranged:

A. In chains beneath a protein exoskeleton
B. So that the hydrophobic portions are facing the plasma

- C. In a hexagonal lattice
- D. In two layers that are not symmetric in composition

Ans: D

62. The hexose monophosphate pathway activity increases the RBC source of

- A. Glucose and lactic acid
- B. 2,3BPG and methemoglobin
- C. NADPH and reduced glutathione
- D. ATP and other purine metabolites

Ans: C

63. Which single feature of normal RBC's is most responsible for limiting their life span?

- A. Loss of mitochondria
- B. Increased flexibility of the cell membrane
- C. Reduction of Hb iron
- D. Loss of nucleus

Ans: D

64. In the Iron cycle, the transferrin receptor carries:

- A. Iron out of duodenal cells from the intestinal lumen
- B. Iron out of duodenal cells into the plasma
- C. transferrinbound iron in the plasma
- D. transferrinbound iron into erythrocytes

Ans: D

65. A multilineage cytokine among the ILs is:

- A. IL1 B. IL2 C. IL3 D. IL4

Ans: A

66. Which of the following cells may develop in sites other than the bone marrow?

- A. Monocyte B. Lymphocyte C. Megakaryocyte D. Neutrophil

Ans: B

67. The acceptable range for hemoglobin values on a control sample is 13 ± 0.4 g/dL. A hemoglobin determination is performed five times in succession on the same control sample. The results are (in g/dL. 12 12.3, 12, 12.2, and 12.1) These results are:

- A. Precise, but not accurate
- B. Both accurate and precise
- C. Accurate, but not precise
- D. Neither accurate nor precise

Ans: A

68. The layer of the erythrocyte membrane that is largely responsible for the shape, structure, and deformability of the cell is the:

- A. Integral protein
- B. Exterior lipid
- C. Peripheral protein
- D. Interior lipid

Ans: C

69. During midfetal life, the primary source of blood cells is the:

- A. Bone marrow B. Spleen C. Lymph Nodes D. Liver

Ans: D

70. In the bone marrow, RBC precursors are located:

- A. In the center of the hematopoietic cords
- B. Adjacent to megakaryocytes along the adventitial cell lining
- C. Surrounding fat cells in apoptotic islands
- D. Surrounding macrophages near the sinus membrane

Ans: D

71. Which of the following gathers, organizes, and directs light through the specimen?

- A. Ocular
- B. Objective lens
- C. Condenser
- D. Optical Tube

Ans: C

72. How are the globin chains genes arranged? Note: a means alpha, B means beta

- A. With a genes and B genes on the same chromosome including two a genes and two B genes
- B. With a genes and B genes on separate chromosomes, two a genes on one chromosome and one B gene on a different chromosome
- C. With a genes and B genes on the same chromosome – including four a genes and four B genes
- D. With a genes and B genes on separate chromosomes – four a genes on one chromosome and two B genes on a different chromosome

Ans: B

73. The maximum number of erythrocytes generated by one Multipotential Stem Cell is:

- A. 8
- B. 1
- C. 12
- D. 16

Ans: D

74. What is the distribution of normal Hb in adults?

- A. 80% Hb A, 10% Hb A₂, 10% Hb F
- B. >95% Hb A, <3.5 % Hb A₂, <12% Hb F

Ans: B

75. The most frequent cause of needle punctures is:

- A. Patient movement during venipuncture
- B. Improper disposal of phlebotomy equipment
- C. Inattention during removal of needle after venipuncture
- D. Failure to attach needle firmly to tube holder

Ans: B

76. Iron is incorporated into the heme molecule in which of the following forms:

- A. Ferro
- B. Ferrous
- C. Ferric
- D. Apoferritin

Ans: B

77. The most important practice in preventing the spread of disease is:

- A. Wearing masks during patient contact

- B. Proper handwashing
 - C. Wearing disposable lab coats
 - D. Identifying specimens from known or suspected HIV and HBV patients with a red label
- Ans: B

78. Which of the following would correlate with an elevated ESR value?

- A. Osteoarthritis
- B. Polycythemia
- C. Decreased globulins
- D. Inflammation

Ans: D

79. The enzyme deficiency in the EmbdenMeyerhof pathway that is responsible for most cases of nonspherocytic hemolytic anemia is:

- A. Hexokinase
- B. Phosphotriptokinase
- C. Pyruvate Kinase
- D. Glyceraldehyde 3Phosphate

Ans: C

80. The most common type of protein found in the cell membrane is:

- A. Lipoprotein
- B. Mucoprotein
- C. Glycoprotein
- D. Nucleopro

Ans: C