

Specific Examination Objectives

Question Topic	<i>Total</i>	<i>Average Difficulty</i>
Anemia	3	1.00
Hemoglobinopathies	20	2.10
Hemolytic Anemia	21	1.52
Leukemia	3	1.00
Maturation	7	1.29
Polycythemia	6	1.33
RBC Production	1	2.00
Special Stains	3	1.67
Thalassemia	1	2.00
WBC Disorders	3	1.33
WBC Morphology	4	1.00

<i>Exam ID</i>	<i>Total Questions</i>	<i>Average Difficulty</i>
CLS 322 Lecture #2/CLS 432 Practice #5 2008	72	1.58

On this examination, the student will be expected to:

1. [Level 1/Hematology/Anemia/87]
State the definition of a preleukemic state, and list several examples.
2. [Level 1/Hematology/Anemia/102]
Define and Describe the clinical symptoms of Paroxysmal Nocturnal Hemoglobinuria.
3. [Level 1/Hematology/Anemia/187]
Define 'ringed sideroblast' and state the disorders in which it is most frequently seen.
4. [Level 3/Hematology/Hemoglobinopathies/984]
Explain why a hemoglobin electrophoresis on a newborn whose mother carries a sickle trait should be deferred until the infant is at least 6 months of age.
5. [Level 1/Hematology/Hemoglobinopathies/985]
State the characteristics of Hgb H, and evaluate where it is often seen.
6. [Level 1/Hematology/Hemoglobinopathies/986]
State the morphologic aberration most frequently found in Hemoglobin C disease.
7. [Level 2/Hematology/Hemoglobinopathies/987]
State which of the abnormal hemoglobins found in certain adults seems to give some protection against certain Plasmodium species.
8. [Level 2/Hematology/Hemoglobinopathies/988]
Explain how the presence of Hemoglobin S in a patient may be confirmed.
9. [Level 1/Hematology/Hemoglobinopathies/989]
Explain how the diagnosis of Hgb E hemoglobinopathy is determined.
10. [Level 1/Hematology/Hemoglobinopathies/990]
State the principle of the Sickledex screening test for Hgb S.
11. [Level 2/Hematology/Hemoglobinopathies/991]
State the order of migration of hemoglobins on cellulose acetate at pH 8.6.

12. [Level 3/Hematology/Hemoglobinopathies/994]
Explain how the differentiation is made between iron deficiency anemia, and thalassemia minor.
13. [Level 2/Hematology/Hemoglobinopathies/996]
State the type of Red Blood Cell production alteration which causes the diseases known as thalassemias.
14. [Level 3/Hematology/Hemoglobinopathies/998]
Evaluate the peripheral blood smear changes often seen in a patient who has undergone an Hgb S autosplenectomy.
15. [Level 3/Hematology/Hemoglobinopathies/999]
Describe the peripheral blood characteristics of a patient having Hemoglobin SC disease.
16. [Level 3/Hematology/Hemoglobinopathies/1002]
Given appropriate laboratory data, evaluate the procedures that need to be done for a final diagnosis in a patient with hypochromia and microcytosis.
17. [Level 3/Hematology/Hemoglobinopathies/1005]
Explain the migration order of hemoglobins on electrophoresis, both on cellulose acetate at pH 8.6, and on citrate agar at a pH of 6.2.
18. [Level 3/Hematology/Hemoglobinopathies/1007]
Given appropriate laboratory data, differentiate between beta thalassemia minor and beta thalassemia major.
19. [Level 2/Hematology/Hemoglobinopathies/1010]
State a characteristic which is common to all hemoglobinopathies.
20. [Level 2/Hematology/Hemoglobinopathies/1011]
Evaluate the process by which iron deficiency anemia may be differentiated from thalassemia.
21. [Level 2/Hematology/Hemoglobinopathies/1012]
Evaluate the sources of error in performing a sickle cell anemia screening test on a newborn infant.
22. [Level 2/Hematology/Hemoglobinopathies/1015]
List several microcytic, hypochromic anemias which would demonstrate an increase in the Prussian Blue reaction.
23. [Level 1/Hematology/Hemoglobinopathies/1016]
Explain which of the hemoglobins is found in greatest concentration in a patient with Homozygous SS disease.
24. [Level 1/Hematology/Hemolytic Anemia/1017]
List the globin chains that comprise normal adult hemoglobin.
25. [Level 1/Hematology/Hemolytic Anemia/1028]
Identify the amino acid substitution seen in Hemoglobin S disease (Sickle Cell Anemia).
26. [Level 1/Hematology/Hemolytic Anemia/1029]
State the major antibody found in paroxysmal cold hemoglobinuria (PCH).
27. [Level 1/Hematology/Hemolytic Anemia/1030]
Define methemoglobin.
28. [Level 1/Hematology/Hemolytic Anemia/1033]
State the slowest moving hemoglobin on electrophoresis at pH 8.6.
29. [Level 1/Hematology/Hemolytic Anemia/1037]
State the chain composition of Hgb F.
30. [Level 2/Hematology/Hemolytic Anemia/1038]
Describe the type of hemolysis typically found in Hereditary Spherocytosis.

31. [Level 2/Hematology/Hemolytic Anemia/1093]
Evaluate why large numbers of target cells (>60%) might be seen in a patient having a known sickle cell trait.
32. [Level 2/Hematology/Hemolytic Anemia/1097]
Evaluate the efficacy of a transfusion of normal packed red cells into a patient having an extrinsic hemolytic episode.
33. [Level 3/Hematology/Hemolytic Anemia/1100]
Explain how the differentiation is made between iron deficiency anemia, and thalassemia minor.
34. [Level 1/Hematology/Hemolytic Anemia/1102]
Define Hereditary Pyropoikilocytosis.
35. [Level 1/Hematology/Hemolytic Anemia/1104]
State the major causes of acquired hemolytic anemia.
36. [Level 2/Hematology/Hemolytic Anemia/1123]
Explain how certain anti-malarial drugs can induce a hemolytic episode in certain patients with hereditary, non-spherocytic hemolytic anemia.
37. [Level 1/Hematology/Hemolytic Anemia/1135]
State the percentage of Hemoglobin F in the blood of normal adults.
38. [Level 1/Hematology/Hemolytic Anemia/1151]
State the morphologic characteristic most characteristic of hemolysis.
39. [Level 1/Hematology/Hemolytic Anemia/1153]
State in which disorder hemoglobin is usually seen in the first morning urine.
40. [Level 2/Hematology/Hemolytic Anemia/1154]
Give some examples of hemolytic disorders due to membrane defects.
41. [Level 1/Hematology/Hemolytic Anemia/1163]
Define Bart's hemoglobin.
42. [Level 2/Hematology/Hemolytic Anemia/1200]
Discuss the participation of haptoglobin in the process of hemolysis.
43. [Level 2/Hematology/Hemolytic Anemia/1208]
Describe the red cell morphologic abnormality often seen in patients with 'March hemoglobinuria'.
44. [Level 3/Hematology/Hemolytic Anemia/1214]
Evaluate the pathophysiological changes that occur during an episode of hemolysis.
45. [Level 1/Hematology/Leukemia/1464]
Define aleukemic leukemia.
46. [Level 1/Hematology/Leukemia/1467]
Define leukemic hiatus.
47. [Level 1/Hematology/Leukemia/1472]
Identify the major acute leukemia found in children.
48. [Level 1/Hematology/Maturation/1790]
Describe the PSC. (Primitive Stem Cell)
49. [Level 1/Hematology/Maturation/1791]
Define karyorrhexis.
50. [Level 1/Hematology/Maturation/1794]
State the defining characteristic of a Promyelocyte.

51. [Level 2/Hematology/Maturation/1806]
State which type of WBC inclusions might be seen in patients with various bacterial and viral infections.
52. [Level 2/Hematology/Maturation/1807]
State the defining characteristic of a myelocyte.
53. [Level 1/Hematology/Maturation/1811]
Describe how impaired synthesis of DNA would lead to megaloblastic, asynchronous development within the red cell.
54. [Level 1/Hematology/Maturation/1812]
Identify the cell in the peripheral blood that is the precursor to the fixed tissue histiocyte.
55. [Level 2/Hematology/Polycythemia/2242]
Evaluate the probability of a patient with polycythemia vera who has been treated with phlebotomy developing another disorder due to his therapy.
56. [Level 2/Hematology/Polycythemia/2243]
Differentiate between Absolute and Relative Polycythemia.
57. [Level 1/Hematology/Polycythemia/2244]
Describe erythropoietin levels in patients with polycythemia vera.
58. [Level 1/Hematology/Polycythemia/2246]
Evaluate the expected erythropoietin activity in a patient with primary polycythemia.
59. [Level 1/Hematology/Polycythemia/2247]
Define a M:E ratio.
60. [Level 1/Hematology/Polycythemia/2249]
State the effects that a patient's erythropoietin-concentrating primary tumor might have on the patient's Hemoglobin, Hematocrit, and RBC counts.
61. [Level 2/Hematology/RBC Production/2376]
Explain the usefulness of extramedullary hematopoiesis in patients with severe hemolytic anemia.
62. [Level 2/Hematology/Special Stains/2715]
Explain how the Leukocyte Alkaline Phosphatase Stain be useful in differentiating between a leukemia and a leukemoid reaction.
63. [Level 2/Hematology/Special Stains/2722]
Define polychromasia and its significance in peripheral blood.
64. [Level 1/Hematology/Special Stains/2770]
State the usefulness of the Prussian Blue Reaction.
65. [Level 2/Hematology/Thalassemia/2772]
State the hemoglobins produced in the major types of thalassemia, and give their approximate percentages in peripheral blood.
66. [Level 1/Hematology/WBC Disorders/2774]
State the laboratory findings and symptoms often associated with leukemoid reactions.
67. [Level 2/Hematology/WBC Disorders/2778]
State which of the monoclonal gammopathies is of B-cell origin?
68. [Level 1/Hematology/WBC Disorders/2780]
Describe the peripheral blood observations often seen in patients with Chediak-Higashi syndrome.
69. [Level 1/Hematology/WBC Morphology/2787]
State the atypical cell most frequently seen in an uncomplicated case of Infectious Mononucleosis.

70. [Level 1/Hematology/WBC Morphology/2800]
Evaluate laboratory differential results seen in a patient with Pelger Huet anomaly.
71. [Level 1/Hematology/WBC Morphology/2804]
Define a Dohle body.
72. [Level 1/Hematology/WBC Morphology/2815]
Define hypersegmentation.

Levels given in brackets at the beginning of the question objective indicate the level of difficulty for the actual question on this examination, NOT the level of difficulty for the stated objective. Levels of difficulty were developed using Bloom, et.al. Taxonomy of Educational Objectives. Also shown in the brackets are the Category of the question, the Topic of the question, and the number of the question in the database.

Explanation of Categories in the Cognitive Domain: (with Outcome-Illustrating Verbs)

Level 1: Recall

Knowledge of terminology; specific facts; ways and means of dealing with specifics (conventions, trends and sequences, classifications and categories, criteria, methodology); universals and abstractions in a field (principles and generalizations, theories and structures). Knowledge is (here) defined as the remembering (recalling) of appropriate, previously learned information.

* defines; describes; enumerates; identifies; labels; lists; matches; names; reads; records; reproduces; selects; states; views.

Level 2: Comprehension

Grasping (understanding) the meaning of informational materials.

* classifies; cites; converts; describes; discusses; estimates; explains; generalizes; gives examples; makes sense out of; paraphrases; restates (in own words); summarizes; traces; understands.

Level 3: Application

The use of previously learned information in new and concrete situations to solve problems that have single or best answers.

* acts; administers; articulates; assesses; charts; collects; computes; constructs; contributes; controls; determines; develops; discovers; establishes; extends; implements; includes; informs; instructs; operationalizes; participates; predicts; prepares; preserves; produces; projects; provides; relates; reports; shows; solves; teaches; transfers; uses; utilizes.

Taxonomy of educational objectives : the classification of educational goals ; / by a committee of college and university examiners ; Benjamin S. Bloom, editor [and others] IMPRINT New York : D. McKay Co., Inc., c1956-1964 (1971-72 printing) DESCRIPT. 2 v. in 1 : ill. ; 22 cm. NOTE Vol.2 by D.R. Krathwohl and others.

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