ASCLS Continuing Education

**Clinical Lab Investigations: Case Studies for the Lab Professional
Case set #22 – Hematology**

Final Quiz

Select the single best answer for each of the following multiple-choice questions and record on the answer sheet.

1. Why would a patient with vitamin B12 deficiency have elevated levels of serum iron and ferritin?
   a. Increased extravascular hemolysis
   b. Decreased hepcidin levels due to increased rates of erythropoiesis
   c. Increased intramedullary hemolysis related to ineffective hematopoiesis
   d. Increased iron absorption in the duodenum and jejunum in an attempt to increase rates of erythropoiesis

2. How would levels of serum MMA and homocysteine be affected in folate deficiency?
   a. Neither level would be affected
   b. Serum MMA would be decreased
   c. Serum homocysteine levels would be increased
   d. Serum MMA would be decreased while serum homocysteine would be increased

3. Which of the following would you expect to see in the bone marrow of someone with pernicious anemia?
   a. Hypocellular bone marrow with a decreased M:E ratio
   b. Hypocellular bone marrow with an increased M:E ratio
   c. Hypercellular bone marrow with a decreased M:E ratio
   d. Hypercellular bone marrow with an increased M:E ratio

4. What causes ineffective erythropoiesis in pernicious anemia?
   a. Impaired cell signaling
   b. Impaired purine synthesis
   c. Impaired histone acetylation
   d. Impaired pyrimidine synthesis

5. What type of jaundice would you see in someone with severe pernicious anemia?
   a. Pre-hepatic jaundice
   b. Post-hepatic jaundice

    c. Intra-hepatic jaundice

    d. You would not expect to see jaundice

6. What antibodies could one expect to find in the serum of a patient with PA?
    a. Anti-nuclear antibodies (ANAs)
    b. Anti-Chief cell antibodies, Anti-M antibodies
    c. Anti-K-Na-ATPase antibodies, Anti-gastrin antibodies
    d. Anti-Intrinsic factor antibodies, Anti-parietal cell antibodies

7. Which of the following CBC results could be the result of pernicious anemia?
    a. RBC: 3.9 x 10^6/μL; Hgb: 9.3g/dL; Hct: 27.5%
    b. RBC: 2.9 x 10^6/μL; Hgb: 7.0g/dL; Hct: 21.6%
    c. RBC: 3.1 x 10^6/μL; Hgb: 10.7g/dL; Hct: 33.9%
    d. RBC: 4.5 x 10^6/μL; Hgb: 13.1g/dL; Hct: 39.6%

8. Why are hyper-segmented neutrophils seen in PA?
    a. Endomitosis
    b. Aberrant DNA synthesis
    c. A maturation block in the granulocytic lineage
    d. Abnormal cell signaling in the granulocytic lineage

9. Levels of gastrin are often elevated in PA. Would you expect to see such gastrin levels in those with folate deficiency?
    a. Yes, elevated levels of gastrin are found in most cases of anemia
    b. Yes, elevated levels of gastrin are found as a result of megaloblastic anemia and pancreatic hypoxia
    c. No, levels of gastrin are only elevated in PA as a result of neuropathy and resulting pancreatic dysfunction
    d. No, levels of gastrin are only elevated in PA as a result of prolonged achlorhydria following parietal cell destruction

10. The neuropathy seen in PA is most likely caused by the:
    a. Defective signaling at synaptic junctions
    b. Neuronal damage secondary to systemic hypoxia
    c. Lack of methionine secondary to a lack of methylcobalamin
    d. The buildup of methylmalonic acid secondary to a lack of adenosylcobalamin

Record all answers on the answer sheet. (1) Complete the form below. (2) record your answers. (3) Detach and **mail** your answer sheet with check or money order **($15 for ASCLS members, $25 for non-members**) to:

American Society for Clinical Laboratory Science
1861 International Dr., Suite 200, McLean, VA 22102
Fax: 571-354-7570

ASCLS Continuing Education Answer Sheet
Clinical Lab Investigations: Case set #22 – Hematology
carries **1.0 hours** of continuing education. This form must be received by **November 30, 2018** to receive credit

<u>Multiple Choice Questions</u>

Circle the single best answer for each question

1.	A	B	C	D
2.	A	B	C	D
3.	A	B	C	D
4.	A	B	C	D
5.	A	B	C	D
6.	A	B	C	D
7.	A	B	C	D
8.	A	B	C	D
9.	A	B	C	D
10.	A	B	C	D

Use this section to evaluate the above titled session. Circle the number (**1-low, 5-high**) to indicate your ratings of this program, objectives, and speaker; use one response per line. Please complete this form to fulfill the session requirements.

To what extent:
Did the author(s) present a knowledgeable, organized, and concise case study?
1   2   3   4   5
Did the case studies achieve their printed objectives?
1   2   3   4   5
Rate your overall satisfaction with the content of this case study.
1   2   3   4   5
<u>**Comments:**</u>

Please allow 4-6 weeks for receipt of certificate.

FULL NAME _____

ASCLS membership number _____License Number _____

ADDRESS _____

CITY _____ STATE/COUNTRY _____ZIP CODE _____

DAYTIME PHONE _____ E-MAIL:_____