This test is designed to test your knowledge of hemoglobin testing with the DM HemoCue and the JHH quality control program. You must achieve 88% to pass this test.

DO NOT WRITE ON THIS TEST! Please use the separate answer sheet provided. Questions marked with an asterisk (*) must be answered correctly.

1. Cuvettes have an expiration date from the manufacturer, but once the cuvette container is open they will expire in
   a. 7 days
   b. 30 days
   c. 60 days
   d. 90 days

2. When the cuvette bottle is first opened, the following information is written on the label
   a. Opening date
   b. Expiration date
   c. Opening date and operator initials
   d. Expiration date and operator initials

3. The control solutions are stable until the manufacturer’s expiration date when kept refrigerated. Once opened and stored at room temperature, the controls will expire in
   a. 7 days
   b. 30 days
   c. 60 days
   d. 90 days

4. The control solutions are
   a. Synthetic and require no special precautions
   b. Synthetic and should be handled using Standard Precautions
   c. Derived from blood products and require no special precautions
   d. Derived from blood products and should be handled using Standard Precautions

5. The quality control (QC) procedure (cleaning, optics check with red control cuvette, and low and high control solutions) must be done
   a. Every 8 hours
   b. Every 24 hours
   c. Once a week
   d. Every 24 hours and whenever the photometer has been turned off
6. The solution used to clean the exterior surface of the HemoCue is
   a. Water
   b. 1:10 bleach solution or hospital approved germicide
   c. Isopropyl alcohol
   d. Denatured alcohol

7. When the red control cuvette is used, the acceptable range of the assigned value is
   a. 0.1 g/dL
   b. 0.3 g/dL
   c. 0.5 g/dL
   d. 1.0 g/dL

8. The control solutions must be adequately mixed, with no clumping present, before use. Minimum mixing requires
   a. Holding upright and rolling between hands for at least 1 to 2 minutes
   b. Holding upright and rolling between hands for at least 2 to 5 minutes
   c. Inverting and rolling between hands for at least 2 to 3 minutes
   d. Inverting and rolling between hands for at least 5 to 8 minutes

9. Tiny bubbles in the center of a filled cuvette
   a. Are not significant and will not effect the result
   b. May interfere with the result, and the cuvette should be refilled
   c. May interfere with the result, and another cuvette sample should be used if the results are abnormal
   d. May interfere with the result, and you should start again with a new cuvette

10. After a cuvette is filled with control solution or blood it should be read
    a. In 1 _ minutes
    b. In at least 2, but less than 10 minutes
    c. In at least 5, but less than 30 minutes
    d. At any time that is convenient

11. Used cuvettes are discarded in
    a. A red hospital waste bag
    b. A cardboard biohazard container
    c. A sharps container
    d. Any convenient container since the blood if fully contained in the cuvette
12. Causes of low and high solution QC testing failure may include
   a. Mixing too much and waiting longer than 1 _ minutes
   b. Mixing too much and waiting longer than 10 minutes
   c. Insufficient mixing and not waiting 10 minutes
   d. Insufficient mixing and waiting longer than 1 _ minutes

13. Fingersticks are contraindicated for patients
   a. Greater than 70 years old
   b. In shock or receiving pressors
   c. With a platelet count < 150,000
   d. With arthritis

14. If a blood sample is being taken from a vacutainer or syringe, adequate mixing is achieved by
   a. Keeping the vacutainer/syringe inverted until the blood is transferred to the cuvette
   b. Placing the vacutainer/syringe in the centrifuge for 30 – 45 seconds
   c. Shaking vigorously for 30 – 60 seconds until no clumping is visible
   d. Inverting 10 times

15. When a syringe is used to collect a sample for HemoCue testing, it must
   a. Contain lithium heparin (e.g. arterial blood gas syringe)
   b. Be 3 cc in volume
   c. Be 10 cc in volume
   d. Not be used for any other near patient testing study

16. Documentation of the HemoCue hemoglobin results includes
   a. Result, date, and time
   b. Result, date, time, and operator’s initials
   c. Result, date, time, operator’s initials, and HemoCue identification number
   d. Result, date, time, operator’s initials, HemoCue identification number, and physician

17. HemoCue hemoglobin meter accurately reads hemoglobin levels from
   a. 0 – 10.5 g/dL
   b. 0 – 23.5 g/dL
   c. 3.5 – 30.4 g/dL
   d. 8.0 – 20.4 g/dL
18. A specimen should be sent to the laboratory for confirmation results when the HemoCue result is

a. Beyond the range the meter accurately tests
b. More or less than 1.5 g/dL different than the last HemoCue result
c. Any value outside normal limits
d. Unusual or not consistent with the clinical condition

19. If a problem develops with a HemoCue meter, the operator should

a. Use the backup meter system developed for their unit and call Clinical Engineering
b. Call Clinical Engineering for a loaner and repair service
c. Use the back-up meter system developed for their unit and call Johns Hopkins Medical Laboratories for repairs
d. Call Johns Hopkins Medical Laboratories for a loaner and repair service

20. In order to show competence in HemoCue testing, every operator must

a. Test a patient sample at least once a month
b. Test a patient sample at least every six months
c. Demonstrate testing technique to laboratory personnel every 3 months
d. Document successful QC testing every 6 months

21. What does the following HemoCue display indicate?

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HemoCue B-Hemoglobin
02/01/99             10:00am
Pat. Test Locked Out
Run QCC, QCL, QCH
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22. When a control fails, the operator should
   a. Remix and repeat the control test
   b. Enter an appropriate comment code for the repeat test
   c. Open a new vial of control and repeat the test if the control fails again
   d. All of the above

23. If the control lot number displayed on the HemoCue does not agree with the lot number on the bottle, the operator should
   a. Continue with control testing
   b. Stop and contact the Johns Hopkins Medical Laboratories
   c. Skip the control test and begin patient testing
   d. Open a new bottle of control

24. What does the following HemoCue display mean?

   Patient test
   Operator: 123456789
   Pat: 678910
   Endpoint Not Found: 975

   a. Turn the HemoCue off then back on to clear the message
   b. Contact the Johns Hopkins Medical Laboratories immediately
   c. Use the backup HemoCue for testing
   d. Both b and c

25. An operator ID number
   a. Can be entered manually, using the number keypad
   b. Is not required for HemoCue testing
   c. Can be entered with a barcode wand
   d. Both a and c
The Johns Hopkins Medical Institutions
The Johns Hopkins Hospital Point-of-Care Testing Program
Hemoglobin Testing with Data Management HemoCue
Test for Operators

Name/title: ________________________________          Employee ID #: __________________
Date: _______       Site: ______________     Department: _______________      Score: ________

ANSWER SHEET

Instructions: Circle the one BEST answer for each question. 88% is required to pass this test. Questions marked with an asterisk (*) must be answered correctly.

1. a.  b.  c.  d.            13. a.  b.  c.  d.
2. a.  b.  c.  d.            14. a.  b.  c.  d.
*3. a.  b.  c.  d.            15. a.  b.  c.  d.
*5. a.  b.  c.  d.            *17. a.  b.  c.  d.
*8. a.  b.  c.  d.            20. a.  b.  c.  d.
*9. a.  b.  c.  d.            21. a.  b.  c.  d.

25. a.  b.  c.  d.