Blood Specimen Handling Review

1.You collect a green-top tube for a plasma ammonia test. The lab later reports the sample was rejected because it wasn't chilled. What effect did improper handling most likely cause on the results, and why?

- **False increase** in ammonia due to continued metabolic activity. The sample should be placed on ice immediately and analyzed quickly.

2. During transport, a specimen for serum potassium testing is exposed to freezing temperatures. When thawed and analyzed, the results are abnormally high. Explain the cause and preventive action.

-**False high potassium** due to cell rupture from freezing. Prevent by maintaining specimens at controlled, non-freezing temperatures.

3. A patient's bilirubin sample was collected correctly but left in bright light for several hours before testing. What change occurs in the sample, and how should this test be properly handled?

- **Decreased bilirubin levels** caused by light exposure; protect the specimen by wrapping it in foil or using an amber-colored tube.

4. A coagulation test specimen collected in a light-blue tube is found to be underfilled. What effect will this have on test results, and what should the phlebotomist do?

-**Prolonged clotting time or invalid results** from incorrect blood-to-additive ratio. Discard and recollect a properly filled tube.

5. You notice that a blood culture bottle was overfilled during collection. What potential problem could this cause, and what is the correct procedure for volume control?

-**Inhibited bacterial growth or dilution error**; follow volume limits (usually 8–10 mL per bottle).

6. A phlebotomist shakes a lavender-top tube vigorously to mix it after collection. The lab later reports hemolysis. Explain the likely cause and the correct method to prevent it.

-**Hemolysis** from mechanical trauma. Tubes should be gently inverted 5–10 times to mix additives.

7. A STAT lactic acid sample arrives in the lab 40 minutes after collection at room temperature. What change in lactic acid concentration would occur, and why is timing and temperature crucial for this test?

- **False increase** in lactic acid due to ongoing glycolysis at room temperature; specimens must be kept on ice and tested immediately.

8. After centrifugation, a serum tube is left uncapped on the counter for several hours before testing. What laboratory results might be affected, and what handling steps were missed?

- **Evaporation and CO_2 loss** can alter electrolytes and pH; specimens should remain capped until analysis.

9. A phlebotomist labels a patient's tube after leaving the patient's room and realizes they may have mixed up two specimens. What is the correct action to take, and why?

- **Specimen mix-up**—must be discarded and recollected; relabeling later is prohibited for patient safety.

10. A lipid panel is drawn immediately after a patient's breakfast. How does this impact the results, and what pre-collection instruction should have been given to the patient?

- **False high triglycerides and cholesterol** due to recent food intake; patients should fast 8–12 hours before collection.

11. A phlebotomist collects multiple tubes, but the EDTA (lavender-top) tube is drawn before the serum (red-top) tube. What potential issue could this cause for the serum tests, and why?

- **EDTA contamination** can cause falsely low calcium and falsely high potassium results; always follow correct order of draw.

12. A CBC sample is accidentally stored in a freezer overnight before analysis. What result changes would you expect, and why would this specimen be rejected?

- **Hemolysis and cell damage** from freezing; CBC specimens must be stored at room temperature and processed within 24 hours.

13. A specimen for glucose testing in a gray-top tube is left at room temperature for six hours before processing. How will this delay affect the glucose concentration, and what is the correct handling procedure?

- **False low glucose** because cells continue to metabolize glucose; gray-top tubes should be refrigerated if delayed.

14. A plasma sample is centrifuged, but the plasma is not immediately separated from the cells. After several hours, the lab notes abnormal test values. Explain why cell contact alters results.

-**Altered analytes**—cells continue metabolism, affecting potassium, glucose, and enzymes; plasma must be separated immediately.

15. During transport, several tubes were placed horizontally in a pneumatic tube system. Some arrived with leaks and clots. What caused this issue, and how should tubes be transported to prevent it?

-**Clotting and leakage** from pressure and vibration; tubes should be transported upright and cushioned to prevent mechanical shock.