**Chapter 1: Safety and Quality Management**

**Multiple Choice**

1. An example of a chemical hazard is:

A. Carcinogen exposure

B. Strained back

C. Viral infection

D. Shock

ANS: A

DIF: Level 1

OBJ: 1-1

TOP: Safety hazards

2. Centrifuging an uncapped tube of urine is most likely to produce a/an:

A. Electrical shock

B. Broken tube

C. Unbalancing

D. Aerosol

ANS: D

DIF: Level 2

OBJ: 1-1

TOP: Safety hazards

3. Laboratory equipment and other inanimate objects serve as what in the chain of infection?

A. Host

B. Reservoir

C. Point of entry

D. Point of exit

ANS: B

DIF: Level 1

OBJ: 1-2

TOP: Chain of infection

4. The chain of infection includes all of the following *except* a:

A. Source

B. Host

C. Disinfectant

D. Transmission method

ANS: C

DIF: Level 1

OBJ: 1-2

TOP: Chain of infection

5. You arrive to work in the clinical laboratory with a small cut on your hand. Your supervisor removes you from specimen collection (phlebotomy) duties for the day, citing chain of infection protocols. Why is your supervisor concerned about the cut on your hand?

A. Because you will not have the mobility in your hand to properly collect blood.

B. Because you are going to have to wear a bandage all day long.

C. Because you have a point of entry that could expose you to infectious agents.

D. Because you are going to be an active transmitter of infection onto general surfaces.

ANS: C

DIF: Level 3

OBJ: 1-2

TOP: Chain of infection

6. Which of the following guidelines states that laboratory personnel should consider all patients as possible carriers of blood-borne pathogens?

A. Urinalysis precautions

B. Blood-borne pathogen precautions

C. Standard precautions

D. Body fluid precautions

ANS: C

DIF: Level 1

OBJ: 1-3

TOP: Standard precautions

7. The Centers for Disease Control and Prevention (CDC) recommends that universal precautions be followed when encountering:

A. Specimens containing visible blood

B. Patients who are infected with blood-borne pathogens

C. All body fluid specimens

D. Specimens that may produce aerosols

ANS: A

DIF: Level 1

OBJ: 1-3

TOP: Standard precautions

8. Which of the following CDC guidelines considers all moist body substances to be potentially infectious and stresses hand washing?

A. Universal precautions

B. Body fluid precautions

C. Standard precautions

D. Health-care personnel standards

ANS: C

DIF: Level 1

OBJ: 1-4

TOP: Blood-borne pathogens

9. The Occupational Exposure to Blood-Borne Pathogens Standard is:

A. A guideline developed by the Food and Drug Administration (FDA)

B. Guidelines recommended by the Clinical and Laboratory Standards Institute (CLSI)

C. A guideline recommended by the Centers for Disease Control and Prevention (CDC)

D. A law enforced by the Occupational Safety and Health Administration (OSHA)

ANS: D

DIF: Level 1

OBJ: 1-4

TOP: Blood-borne pathogens

10. A laboratory worker who observes a red hand rash after removing gloves should:

A. Avoid wearing gloves for 2 days

B. Wash the hands with antimicrobial soap

C. Apply cortisone cream to the hands

D. Avoid wearing latex gloves in the future

ANS: D

DIF: Level 2

OBJ: 5

TOP: Protective equipment

11. Plexiglas shields are used in the laboratory when urine tube specimens are being:

A. Sorted according to laboratory

B. Uncapped for analysis

C. Centrifuged for analysis

D. Observed for color characteristics

ANS: B

DIF: Level 2

OBJ: 1-5

TOP: Protective equipment

12. A urine specimen received in the laboratory is leaking in a transport bag. What is the next course of action?

A. It should be relabeled.

B. It should be rejected.

C. It should be processed with no special handling.

D. It should be poured into a clean container.

ANS: B

DIF: Level 2

OBJ: 1-7

TOP: Specimen handling

13. Laboratory coats worn in the urinalysis laboratory should:

A. Be worn loosely over uniforms

B. Have short sleeves

C. Be completely buttoned

D. Be worn at all times in and outside of the laboratory

ANS: C

DIF: Level 2

OBJ: 1-5

TOP: Protective equipment

14. Proper hand washing includes all of the following procedures *except:*

A. Rubbing to create a lather

B. Using warm water

C. Rinsing hands in a downward position

D. Using a paper towel to turn on the water faucet

ANS: D

DIF: Level 2

OBJ: 1-6

TOP: Biological hazards

15. The acceptable method for disposing of urine specimens is:

A. Autoclaving the entire urine specimen

B. Pouring the urine specimen down the sink followed by copious amounts of water

C. Placing the urine specimen in a biohazard bag

D. Diluting urine with sodium hypochlorite

ANS: B

DIF: Level 2

OBJ: 1-7

TOP: Specimen handling

16. Disinfection of the sink in the urinalysis laboratory should be performed:

A. On a daily basis

B. When a positive bilirubin is detected

C. Following an accidental spill

D. By using dilute hydrochloric acid

ANS: A

DIF: Level 2

OBJ: 1-7

TOP: Specimen handling

17. Safety precautions observed in the urinalysis laboratory include all of the following *except:*

A. Wearing goggles or a face shield

B. Checking tube balance in the centrifuge

C. Centrifuging only uncapped tubes

D. Wearing a fluid-resistant laboratory coat

ANS: C

DIF: Level 2

OBJ: 7

TOP: Specimen handling

18. The source, method of transmission, and host are all deemed:

A. Steps of standard precautions

B. Components of the chain of infection

C. Components of the chemical hygiene plan

D. Considerations in urine specimen transport

ANS: B

DIF: Level 1

OBJ: 1-2

TOP: Chain of infection

19. Which of the following is a practice that all laboratory workers must avoid?

A. Changing gloves that are soiled

B. Centrifuging conical tubes

C. Moving puncture-resistant containers

D. Manually recapping needles

ANS: D

DIF: Level 1

OBJ: 1-7

TOP: Sharp hazards

20. Before using a water hose on a burning chemical cabinet, a firefighter would visually check that what is posted on the outside of the cabinet?

A. National Fire Protection Association (NFPA) symbol

B. Safety Data Sheet (SDS)

C. Chemical Hygiene Plan

D. Occupational Safety and Health Administration manual

ANS: A

DIF: Level 2

OBJ: 1-11

TOP: Chemical hazards

21. Immediate information concerning the health hazards, flammability, and reactivity of a chemical can be obtained from the:

A. SDS

B. NFPA symbol

C. CDC

D. OSHA

ANS: B

DIF: Level 2

OBJ: 1-11

TOP: Chemical hazards

22. Laboratory personnel wear special monitory badges when working frequently with which of the following hazards?

A. Biological

B. Chemical

C. Radioactive

D. Explosive

ANS: C

DIF: Level 1

OBJ: 1-12

TOP: Radioactive hazards

23. When encountering a person experiencing an electrical shock, the first thing to do is:

A. Turn off the circuit breaker for the area

B. Lower the person’s head below the heart

C. Wrap the person in a wet fire blanket

D. Move the person away from the electrical object

ANS: A

DIF: Level 2

OBJ: 1-12

TOP: Electrical hazards

24. When a fire is discovered in the laboratory, you should do all of the following *except:*

A. Activate the fire alarm

B. Evacuate the area using the stairs

C. Use an appropriate fire extinguisher

D. Leave the door open when evacuating

ANS: D

DIF: Level 2

OBJ: 13

TOP: Fire hazards

25. The acronym RACE is used when encountering a/an:

A. Fire

B. Chemical spill

C. Electrical shock

D. Needlestick

ANS: A

DIF: Level 1

OBJ: 1-13

TOP: Fire hazards

26. Which of the following items found in the laboratory should be securely fastened to a nonmovable object?

A. Biohazard bags

B. Compressed gas cylinders

C. Chemical spill kits

D. Radiation detectors

ANS: B

DIF: Level 1

OBJ: 1-12

TOP: Fire hazards

27. The most commonly available fire extinguisher in a hospital is:

A. Type A

B. Type B

C. Type C

D. Type ABC

ANS: D

DIF: Level 1

OBJ: 1-12

TOP: Fire hazards

28. Which type of fire distinguisher would be used on combustible metals?

A. Type A

B. Type B

C. Type C

D. Type D

ANS: D

DIF: Level 1

OBJ: 1-12

TOP: Fire hazards

29. When using a fire extinguisher, which action do you perform first?

A. Point the nozzle

B. Pull the pin

C. Protect the patient specimens

D. Position the extinguisher

ANS: B

DIF: Level 2

OBJ: 1-13

TOP: Fire hazards

30. Variables that are included in a quality management program include all of the following *except:*

A. Preexamination

B. Clinical

C. Examination

D. Postexamination

ANS: B

DIF: Level 1

OBJ: 1-15

TOP: Quality management

31. Clinical laboratory personnel have the *least* control over which of the following conditions?

A. Preexamination variables

B. Examination variables

C. Postexamination variables

D. Postdischarge variables

ANS: A

DIF: Level 2

OBJ: 1-15

TOP: Quality management

32. When you receive a specimen and a requisition form that do *not* match, you should:

A. Notify the personnel who collected the specimen

B. Test the specimen and note the error on the requisition form

C. Immediately discard the specimen

D. Analyze the error and make appropriate changes to the label

ANS: A

DIF: Level 2

OBJ: 1-15

TOP: Quality management

33. When a critical value is obtained in the laboratory:

A. The test should be repeated

B. The pathologist should be notified

C. A new specimen must be requested

D. The result must be reported to the health-care provider

ANS: D

DIF: Level 2

OBJ: 1-15

TOP: Quality management

34. The ability to obtain the published result on a control specimen is referred to as:

A. Precision

B. Accuracy

C. Standardization

D. Reliability

ANS: B

DIF: Level 1

OBJ: 1-16

TOP: Quality assessment

35. Obtaining the same result after testing the same specimen three times is called test:

A. Reliability

B. Quality control

C. Precision

D. Accuracy

ANS: C

DIF: Level 1

OBJ: 1-16

TOP: Quality assessment

36. The highest acceptable range for confidence limits in the clinical laboratory is:

A. ±1 SD

B. ±2 SD

C. ±3 SD

D. ±4 SD

ANS: C

DIF: Level 1

OBJ: 1-16

TOP: Quality assessment

37. A procedure with a coefficient of variation of 10% is considered:

A. Reliable

B. Precise

C. Confident

D. Imprecise

ANS: D

DIF: Level 2

OBJ: 1-16

TOP: Quality assessment

38. When plotted on a Levy-Jennings chart, a control specimen that has been left on the counter overnight instead of being refrigerated might show a/an:

A. Shift

B. Increased CV

C. Trend

D. Change in precision

ANS: A

DIF: Level 2

OBJ: 1-16

TOP: Quality assessment

39. Proficiency testing should be performed:

A. When control results exceed the confidence limits

B. By personnel performing the tests routinely

C. By the laboratory supervisor only

D. During an accreditation site inspection

ANS: B

DIF: Level 2

OBJ: 1-16

TOP: Quality assessment

40. Which mode of infection transmission can occur through a sneeze?

A. Direct contact

B. Vehicle contact

C. Droplet contact

D. Indirect contact

ANS: C

DIF: Level 1

OBJ: 1-2

TOP: Chain of infection

41. Testing of unknown specimens from an outside agency that provides validation of the quality patient results is:

A. Electronic Quality Control

B. Internal Quality Control

C. Proficiency Testing

D. External Quality Control

ANS: C

DIF: Level 1

OBJ: 1-16

TOP: Quality assessment

42. The Globally Harmonized System is:

A. A component of the Exposure Control Plan

B. An evaluation of Blood-Borne Pathogens Standard

C. The handling and use of hazard chemicals

D. Classifications of fire extinguishers

ANS: C

DIF: Level 1

OBJ: 1-9

TOP: Globally harmonized system

43. What does the Globally Harmonized System symbol pictured below represent?



A. Flammable

B. Skin irritant

C. Corrosive

D. Biological

ANS: B

DIF: Level 1

OBJ: 1-9

TOP: Globally harmonized system

44. Quality management (QM) refers to:

A. Workplace practices

B. Entire testing processes

C. Quality control (QC)

D. Reagent performance

ANS: B

DIF: Level 1

OBJ: 14

TOP: Quality management

45. What should not be included in a quality management plan?

A. Procedure manual

B. Education requirements

C. Personnel attendance

D. Equipment maintenance

ANS: C

DIF: Level 1

OBJ: 1-14

TOP: Quality management

46. Identify the symbol below:



A. Radiation

B. Sharps

C. Chemical

D. Biological

ANS: a

DIF: Level 1

OBJ: 1-10

TOP: Hazard warning

**True/False**

47. Personnel in the urinalysis laboratory are best protected from blood-borne pathogen exposure when following standard precautions.

ANS: True

DIF: Level 2

OBJ: 1-4

TOP: Standard precautions

48. It is not necessary to change gloves when performing tasks on the same patient.

ANS: False

DIF: Level 1

OBJ: 1-5

TOP: Protective equipment

49. OSHA requires employers to provide free immunization for hepatitis B virus (HBV) to workers in urinalysis.

ANS: True

DIF: Level 1

OBJ: 1-5

TOP: Protective equipment

50. Hands should be sanitized before and after testing each urine specimen.

ANS: False

DIF: Level 2

OBJ: 1-6

TOP: Hand hygiene

51. It is acceptable to recap a needle on a syringe containing urine, but not blood.

ANS: False

DIF: Level 2

OBJ: 1-7

TOP: Sharp hazards

52. Only nontoxic chemicals can be pipetted by mouth.

ANS: False

DIF: Level 1

OBJ: 1-7

TOP: Chemical hazards

53. The SDS should be provided to laboratories by chemical manufacturers or vendors.

ANS: True

DIF: Level 1

OBJ: 1-8

TOP: Safety data sheets

54. Electrical current can pass through glass and wood.

ANS: False

DIF: Level 2

OBJ: 1-12

TOP: Electrical hazards

55. Flammable chemicals must be stored in explosion-proof cabinets.

ANS: True

DIF: Level 1

OBJ: 1-8

TOP: Fire hazards

56. When lifting heavy objects, laboratory workers should bend their knees.

ANS: True

DIF: Level 1

OBJ: 1-1

TOP: Safety hazards

57. Droplet is a means of transmission.

ANS: True

DIF: Level 1

OBJ: 1-2

TOP: Chain of infection

58. Employees are responsible for laundering nondisposable laboratory coats.

ANS: False

DIF: Level 1

OBJ: 1-2

TOP: Standard precautions

59. HCV is a blood-borne pathogen.

ANS: True

DIF: Level 1

OBJ: 1-4

TOP: Blood-borne pathogens

60. What document does OSHA require all laboratories to have on file when using hazardous chemicals?

ANS: Chemical hygiene plan

DIF: Level 1

OBJ: 1-7

TOP: Chemical hazards

61. NFPA are the diamond-shaped, color-coded labels that should be placed on chemical cabinets.

ANS: True

DIF: Level 2

OBJ: 1-10

TOP: Hazard warnings

62. A laboratory worker who is pregnant should avoid areas designated by a radioactive hazard symbol.

ANS: True

DIF: Level 1

OBJ: 1-10

TOP: Hazards warnings

63. The function of Quality Management is to monitor, evaluate, and improve laboratory services.

ANS: True

DIF: Level 1

OBJ: 1-14

TOP: Quality management

64. A Levy-Jennings chart is considered postexamination.

ANS: False

DIF: Level 1

OBJ: 1-15

TOP: Quality assessment

65. Globally Harmonized System standardizes all biological hazards.

ANS: False

DIF: Level 1

OBJ: 1-9

TOP: Globally harmonized system

66. Hand hygiene includes both hand washing and the use of alcohol-based cleaners.

ANS: True

DIF: Level 1

OBJ: 1-6

TOP: Standard precautions

**Case Study 1**

The morning medical laboratory scientist (MLS) has come to work and is assigned to urinalysis. The night shift left urine specimens that were not tested at the workstation. The laboratory aide places today’s urine specimens at the workstation also.

1. Before beginning the testing, the MLS should:

A. Wipe down the area with soap and water

B. Wipe down the area with an alcohol-based cleaner

C. Wipe down the area with a 1:10 bleach solution

D. Wear gloves so no cleaning is necessary

ANS: C

DIF: Level 2

OBJ: 1-3

TOP: Standard precautions

2. The cleaning of workstations is considered a/an

A. Work practice control

B. Environmental control

C. Chemical hygiene control

D. External quality control

ANS: A

DIF: Level 1

OBJ:1-3

TOP: Standard precautions

3. Urinalysis testing is performed by the MLS. The first task is to:

A. Test all the urines that are marked stat

B. Test two levels of quality control

C. Test the urines that were left previously

D. Start with a new bottle of urine strips

ANS: B

DIF: Level 2

OBJ: 1-16

TOP: Quality assessment

**Case Study 2**

The morning medical laboratory scientist (MLS) has come to work and is assigned to urinalysis. The night shift left urine specimens that were not tested at the workstation. The laboratory aide places today’s urine specimens at the workstation also.

1. Before beginning the testing, the MLS should:

A. Wipe down the area with soap and water

B. Wipe down the area with an alcohol-based cleaner

C. Wipe down the area with a 1:10 bleach solution

D. Wear gloves so no cleaning is necessary

ANS: C

DIF: Level 2

OBJ: 1-3

TOP: Standard precautions

2. The cleaning of workstations is considered a/an

A. Work practice control

B. Environmental control

C. Chemical hygiene control

D. External quality control

ANS: A

DIF: Level 1

OBJ:1-3

TOP: Standard precautions

3. Urinalysis testing is performed by the MLS. The first task is to:

A. Test all the urines that are marked stat

B. Test two levels of quality control

C. Test the urines that were left previously

D. Start with a new bottle of urine strips

ANS: B

DIF: Level 2

OBJ: 1-16

TOP: Quality assessment