

Appendix I-2: Laboratory Safety Assessment

Multiple Choice Questions/**1ApxI-2**

Safety Data Sheet Exercise/**7ApxI-2**

Answer Key/**8ApxI-2**

MULTIPLE CHOICE QUESTIONS

1. Which type of fires should a TYPE B fire extinguisher be used on?
 - A. Electrical
 - B. Wood and paper
 - C. Grease and oil
 - D. All of the above
2. What should be done to every sample you work with?
 - A. Shake it
 - B. Label it
 - C. Smell it
 - D. Heat it
3. What is the proper way to dispose of used needles?
 - A. Wrap it in gauze, and place it in the garbage
 - B. Recap it, and then place it into a sharps container
 - C. Place it into a sharps container
 - D. Break it, and then place it into a sharps container
4. Which of the following is NOT prohibited in the laboratory?
 - A. Removal of gloves
 - B. Eating
 - C. Smoking
 - D. Drinking
 - E. Applying cosmetics
5. In the event of an injury, which of the following should be done FIRST?
 - A. Fill out an accident form.
 - B. Respond to the injury.
 - C. Clean-up any spilled chemical.
 - D. Notify your instructor or supervisor.
6. In an emergency requiring evacuation of the laboratory, you should:
 - A. clean the laboratory before exiting.
 - B. finish whatever you are doing before exiting.
 - C. immediately exit the laboratory and follow any laboratory specific emergency protocol.
 - D. place all flammable liquids in a flammable liquids storage cabinet.

7. All laboratory hazardous chemicals and spill clean-up residues should be disposed of:
 - A. in the nearest trash receptacle.
 - B. in the nearest sink.
 - C. A or B, dependent on the water solubility of the waste.
 - D. according to instructions provided by your instructor or supervisor.
8. Pipetting should be done by:
 - A. mechanical suction
 - B. mouth
 - C. aspirator bulb
 - D. answers A and C
9. Who is ultimately responsible for your safety in the laboratory?
 - A. You
 - B. Your instructor or supervisor
 - C. Chancellor
10. Which of the following is associated with the concept of "Universal Precautions?"
 - A. Treating all human blood and other potentially infection materials as if they contained pathogens.
 - B. Wearing a lab coat.
 - C. Knowledge of personal protective equipment.
 - D. Inspecting all specimens before working with them.
11. Which of the following vaccinations are recommended before working with human blood?
 - A. HIV
 - B. Hepatitis A
 - C. Hepatitis B
 - D. Smallpox
12. What is the best way to protect yourself when handling a blood sample?
 - A. Minimize your exposure to the sample.
 - B. Employ "Universal Precautions."
 - C. Institute as many engineering controls as possible.
 - D. All of the above.
13. Which is the best listed resource for information about a hazardous chemicals properties and hazards?
 - A. Any standard dictionary.
 - B. Its Safety Data Sheet (SDS).
 - C. The local 911 dispatcher.
 - D. Call your local OSHA inspector.
14. Which of the following should a fume hood be used for?
 - A. Disposal of large quantities of volatile materials.
 - B. An experiment that can generate air contamination.
 - C. Heating a flammable liquid when use of a Bunsen burner is required.
 - D. All of the above.
15. What are the properties of a hazardous waste with the characteristic of ignitability?
 - A. A pH less than or equal to 2.
 - B. A flash point of less than 140 degrees F.
 - C. A flash point of less than 100 degrees F.
 - D. Answers A and C.

16. Hazardous wastes that are only considered hazardous waste because of the corrosivity characteristic can be:
- A. disposed in the laboratory sink followed by flushing with water.
 - B. placed in a collection container with ignitable hazardous wastes.
 - C. neutralized to a pH between 6 and 9 prior to disposal in the laboratory sink.
 - D. None of the above.
17. Which of the following chemical hazard category **IS LEAST LIKELY** to cause a fire or explosion?
- A. Water reactives
 - B. Corrosives
 - C. Peroxidizable chemicals
 - D. Pyrophoric materials
18. What is the proper technique for carrying a reagent?
- A. Use two hands
 - B. Support the base of the container
 - C. Support the neck of the container
 - D. All of the above
19. Following a chemical splash in the eye, what is the normally recommended amount of time the eye should be flushed?
- A. 30 seconds
 - B. 1 minute
 - C. 15 minutes
 - D. 60 minutes
20. When diluting a strong acid:
- A. add the acid slowly to water.
 - B. add water slowly to the acid.
 - C. it does not matter how they are mixed.
21. What are the best ways to minimize your exposure to radioactive materials?
- A. Minimize the time handling them.
 - B. Maximize your distance from them.
 - C. Use shielding whenever possible
 - D. All of the above
22. The yellow portion of a National Fire Protection Association (NFPA) diamond will represent:
- A. health hazard.
 - B. flammability hazard.
 - C. reactivity hazard.
 - D. special hazard information.
23. A "4" located in the red portion of an NFPA diamond indicates that the product:
- A. is combustible.
 - B. poses no hazard.
 - C. is extremely flammable.
 - D. is corrosive.
24. Any unattended container with a potentially hazardous substance must have an identifying label.
- A. True
 - B. False

25. If you have a question about a laboratory chemical, you may consult:
 - A. its Safety Data Sheet (SDS).
 - B. your instructor or supervisor.
 - C. the Environmental Health and Safety office.
 - D. All of the above.
26. To protect your eyes when mixing strong caustics or acids, it is required you wear:
 - A. safety glasses with side shields.
 - B. impact safety goggles.
 - C. a face shield and chemical safety goggles.
 - D. a face shield.
27. Why are open-toed shoes (sandals) and shorts (without a full-length lab coat) not acceptable to wear in the lab?
 - A. You will get too cold.
 - B. The potential for drop and spill hazards is too great.
 - C. They won't protect your feet from sunburn.
 - D. They aren't stylish.
28. What are the consequences if you come to lab without the proper protective eyewear or clothing?
 - A. You will fail the course.
 - B. Answers C and D.
 - C. You will increase the likelihood of an injury to yourself.
 - D. You may be asked to leave until you have the proper protective equipment and attire.
29. What type of information can be found on the Safety Data Sheet (SDS) of a chemical?
 - A. Physical properties
 - B. Manufacturer name
 - C. Health hazards
 - D. Chemical name and list of ingredients
 - E. All of the above
30. The OSHA Permissible Exposure Limit (PEL) refers to:
 - A. the amount of a hazardous chemical that can be ingested over a specified time period.
 - B. an airborne exposure limit.
 - C. a new type of student loan.
 - D. answers A and B.
31. Which of the following is a good laboratory habit?
 - A. Working alone.
 - B. Putting your backpack on the lab bench.
 - C. Washing your hands prior to leaving the laboratory.
 - D. Placing broken glassware in the normal trash.
 - E. Rushing to finish first.
32. Horseplay and practical jokes in a laboratory is:
 - A. common practice
 - B. very dangerous and forbidden.
 - C. acceptable on April Fools day.
 - D. unprofessional and should never be allowed
 - E. answers B and D

33. Before you open any container of any hazardous chemical you should:
- A. determine if there is a less hazardous substitute.
 - B. familiarize yourself with its physical, chemical, and toxicological properties.
 - C. have a plan for using the chemical and know the proper disposal method.
 - D. write the date you opened the container on the label, so that someone else will be able to determine if the shelf life has expired.
 - E. All of the above.
34. Today's properly attired lab worker, in any laboratory containing chemical or biological hazards, would most likely be wearing:
- A. a Tyvek® suit.
 - B. closed-toe shoes, protective eyewear, a lab coat or apron and gloves that have been selected on the basis of what chemicals or biological agents are in use.
 - C. natural fibers, such as cotton or wool.
 - D. a business suit.
 - E. a self-contained breathing apparatus and a fully encapsulating chemical resistant suit.
35. Flammable liquids should be stored:
- A. in a flammable liquids storage cabinet if greater than 10 gallons is in the laboratory.
 - B. in a laboratory exhaust (fume) hood.
 - C. in a conventional refrigerator.
 - D. with oxidizers.
 - E. in unlabeled paper cups.
36. A chemical exhaust (fume) hood's purpose is:
- A. for storage of chemicals.
 - B. a display case for fancy laboratory equipment.
 - C. to assist in the safe handling of hazardous materials that represent an inhalation hazard.
 - D. to assist in control of laboratory hazards that can become airborne.
 - E. both C and D.
37. Chemicals can be safely stored by:
- A. putting them up high, out of the way.
 - B. keeping them on the floor.
 - C. putting them as close to a fire suppression sprinkler as possible.
 - D. none of the above.
38. The best way to tell if a chemical exhaust (fume) hood is properly operating is:
- A. listen to the airflow through the sash.
 - B. a lack of strong odors from hazardous chemicals being used inside the hood.
 - C. make sure the face velocity monitor shows a velocity between 90 and 110 feet per minute.
 - D. placing a piece of tissue paper on the sash.
39. It is okay to block access to the following equipment:
- A. electrical circuit breaker panels.
 - B. fire extinguishers.
 - C. eyewash stations and safety showers.
 - D. fire blankets.
 - E. it is not acceptable to limit immediate access to any emergency response equipment or electric disconnect or circuit breakers panels.
40. What is the predominant route of entry for exposure to hazardous chemicals?
- A. Ingestion
 - B. Dermal (skin) contact
 - C. Inhalation
 - D. Injection

41. The lowest temperature at which a flammable liquid gives off sufficient vapor to form an ignitable mixture with air near its surface or within a vessel refers to:
 - A. flash-back.
 - B. flash-point.
 - C. autoignition temperature.
 - D. lower explosive limit (LEL).
42. Small fires in laboratory glassware are best controlled by:
 - A. letting them burn out.
 - B. using a fire extinguisher.
 - C. covering them.
 - D. dumping water in the container.
43. Cleaning laboratory bench-top surfaces and glassware should be done:
 - A. by the building custodial staff.
 - B. at minimum, at the end of each laboratory period and whenever a hazardous chemical is spilled.
 - C. by the instructor or supervisor.
 - D. by the person using the space and equipment.
 - E. B and D.
44. What three pieces of information is required by OSHA to appear on all hazardous chemical labels?
 - A. Chemical name, types of personal protective equipment to use, date container opened
 - B. Hazard warning, chemical name, MSDS location
 - C. MSDS location, odor threshold, Chemical name
 - D. Chemical name, manufacturer name, hazard warnings
45. Glove selection is based on:
 - A. permeation rate.
 - B. degradation rate.
 - C. size and use conditions.
 - D. all of the above.
46. The first telephone number to call in case of a LIFE threatening emergency is:
 - A. 9-9999 (UWL Police Services)
 - B. 5-6800 (UWL Safety Office)
 - C. 911
 - D. Instructor or supervisor
47. Compressed gas cylinders should be:
 - A. strapped and transported on carts.
 - B. taken out of service and returned to the manufacturer if damaged or in poor condition.
 - C. at the destination, securely attached to the wall or bench-top with straps or chains.
 - D. all of the above.
48. A copy of the UWL Chemical Hygiene plan can be acquired from:
 - A. instructor.
 - B. UWL Safety Office.
 - C. supervisor.
 - D. all of the above.
49. A material that induces genetic changes in the DNA of chromosomes is a:
 - A. carcinogen.
 - B. mutagen.
 - C. teratogen.
 - D. hepatoxin.

50. I agree to follow all laboratory safety procedures communicated by my instructor and/or supervisor.
- A. Yes
 - B. No
 - C. Only while in the presence of my supervisor and/or instructor.
 - D. Only after getting injured or becoming ill.

SAFETY DATA SHEET EXERCISE

1. Locate a Safety Data Sheet for the following hazardous material.

Chemical Name: _____

Manufacturer: _____

2. Identify the major hazards associated with the hazardous material.

3. List the manufacturer's address.

4. Provide at least one incompatible material.

5. Design a label for the chemical in the below box. (Hint: Based on OSHA regulations a minimum of three items must be present on every hazardous chemical label.)

ANSWER KEY

1. C	11. C	21. D	31. C	41. B
2. B	12. D	22. C	32. E	42. C
3. C	13. B	23. C	33. E	43. E
4. A	14. B	24. A	34. B	44. D
5. B	15. B	25. D	35. A	45. D
6. C	16. C	26. C	36. E	46. C
7. D	17. B	27. B	37. D	47. D
8. D	18. D	28. B	38. C	48. D
9. A	19. C	29. E	39. E	49. B
10. A	20. A	30. B	40. C	50. A

Safety Data Sheet (SDS) Exercise

1. Provide a chemical name and manufacturer for a reagent that will be commonly used in the laboratory.
2. This section should include a brief description of the hazards of the material.
3. This section should list the manufacturer's address.
4. This section should list at least one incompatible material.
5. The label should at least contain the chemical name, manufacturer name, and hazard warnings.