

Practice: Safety in The Chemistry Laboratory

Multiple choices: There is one answer for each of the following questions. Circle the most correct answer.

General

- 1) According to the safety instructions, if you fail to follow any safety rule:
 - a) you may pay a fine.
 - b) you may be dismissed from the lab
 - c) you may be asked to work with a partner.
 - d) you may be asked to explain yourself.
 - e) you may be asked to work alone and away from other students

- 2) You are excused from wearing goggles in lab:
 - a) if you have permission from your doctor
 - b) if they are uncomfortable to wear
 - c) if you are finished with the experiment and ready to clean up.
 - d) none of the above

Safety Equipment

- 1) The drench hose
 - a) should be handled carefully to avoid explosions
 - b) can be used on small chemical spills on the counter
 - c) can be used on chemical spill on a small area of the body or as an eye wash
 - d) should not be used on people
 - e) none of the above

- 2) The phone located in the lab:
 - a) is to be used for calling 911 in case of emergency
 - b) is to be used to call home, only if you are late
 - c) should not to be used at all
 - d) is to be used if you have forgotten your cellular phone at home.
 - e) None of the above

- 3) For large chemical spills on counter top or floor:
 - a) use fume hood
 - b) use Spill kit
 - c) use baking soda (sodium bicarbonate)
 - d) use emergency exits
 - e) use drench hose

- 4) In the hallway across from the lab entrance, there is:
 - a) security camera for your safety
 - b) first aid kit
 - c) intercom with a button and a picture of an emergency phone on it
 - d) fire extinguisher
 - e) none of these

Getting Ready for The Chemistry Lab

- 1) You should prepare for the lab by:
 - a) reading the experiment carefully when you enter the lab
 - b) washing your hands well before starting the experiment
 - c) listening well to other students discussing the experiment
 - d) reading the assigned experiment before coming to the lab

- 2) If you do not understand the experimental procedure:
 - a) ask your classmate
 - b) read the experiment many times
 - c) leave the lab
 - d) ask the instructor
 - e) none of the above

- 3) In the lab each student should:
 - a) be responsible for his own safety and no one else
 - b) feel safe and secure like being at home
 - c) be on alert, watching for his own safety and the safety of others
 - d) mind his own business and ignore what the neighbor is doing
 - e) none of the above

- 4) If you are pregnant or have a medical condition:
 - a) wear loose clothes so you can move freely
 - b) do not hesitate to work in the lab since it is well sterilized
 - c) check with your physician prior to working in lab
 - d) bring comfortable shoes to wear
 - e) none of the above

- 5) Before evacuating the lab in case of earthquake or other emergency, you will:
 - a) turn off gas valves and electrical equipments
 - b) clean your desktop and work area thoroughly
 - c) pick up all solids from the floor and sink even if they are not yours.
 - d) wash your hands and any other area of skin that has contacted lab equipment or lab benches
 - e) make sure floor area, fume hoods, and sink area are clean

General Rules of Conduct

- 1) You are permitted to enter the lab if:
 - a) the door is open and nobody is present
 - b) the instructor is present
 - c) the door is open and a group of students are present
 - d) if the janitor is present with his safety trained dog

- 2) You may do an unassigned experiment, only:
 - a) if you are sure it is safe
 - b) if you have found it on the internet
 - c) if you have designed it carefully yourself
 - d) if you are finished early in lab
 - e) none of the above

- 3) You can only change the procedure of the experiment if:
- a) you know for sure it is safe to do so.
 - b) your neighbor is willing to help you
 - c) you want to do something different from everyone else
 - d) you know it will be more interesting
 - e) none of the above
- 4) In lab you are allowed to eat and drink only:
- a) if you are very hungry
 - b) if you have washed your hands well
 - c) if the food is healthy and can be digested fast and easily
 - d) if the food has been covered well to avoid contamination.
 - e) None of the above
- 5) Store your books and bags:
- a) on your lab bench
 - b) in the aisle between lab benches
 - c) in the cabinet in the lab
 - d) under your bench
 - e) on the top of the instructor's desk
- 6) If you notice unexpected chemical reaction of your experiment:
- a) proceed with caution to the next step
 - b) check with your neighbor to see if his experiment is doing the same
 - c) leave the lab immediately
 - d) notify the instructor
 - e) none of the above
- 7) In lab, to avoid bumping into other students, you should:
- a) never step backward
 - b) use the back up cart
 - c) take one step forward before you back up
 - d) look behind you before you back up
 - e) step backward, only if instructed to do so
- 8) Damaged or exposed electric cord:
- a) should always be reported to the instructor
 - b) can be used only if you know how to fix it
 - c) can be used only with caution and care
 - d) should be dried out completely to avoid electric shock
 - e) none of the above
- 9) To avoid electric shock when handling electric plugs and equipment:
- a) your hands must be dry
 - b) your clothes must cover your torso
 - c) your food should be kept at a distance
 - d) your shoes must cover your toes
 - e) none of the above

- 10) The following should be reported to the instructor:
- a) minor injuries only; major injuries should be directed to the nurse on campus
 - b) major injuries only; keep minor injuries to be dealt with at home
 - c) all accidents except minor chemical splashes and minor spills
 - d) all injuries except small burns
 - e) all accidents no matter how minor
- 11) If you feel ill in lab:
- a) call your folks at home
 - b) tell the instructor
 - c) ask your neighbor to do the experiment for you
 - d) work with a partner in lab
 - e) leave immediately
- 12) For your 'safety', before leaving the lab, you must
- a) put hot objects away
 - b) wash your hands and any other area of skin that has contacted lab equipment or lab benches.
 - c) get the instructor's initial on the lab report
 - d) see that all equipment in community drawer is complete and well organized.
 - e) mix all left over chemicals into one container
- 13) If you accidentally mix wrong chemicals, you must:
- a) immediately dispose of it down the sink
 - b) repeat the experiment one more time
 - c) add an acid to neutralize it
 - d) report it to the instructor
 - e) share your neighbor's experimental results

Dress Code for the Lab

- 1) If you come to lab dressed inappropriately, you will be asked to:
- a) attend lab, but you will not be allowed to do experiment
 - b) leave the lab
 - c) watch the experiment from the side door or the screen monitor
 - d) make up lab after class dismissal
 - e) borrow an apron to protect yourself
- 2) Goggles will be worn :
- a) when working only with solutions and liquids
 - b) when fumes are present
 - c) when doing specific dangerous experiments
 - d) all the time during lab

- 3) You will wear goggles in the lab because:
 - a) they look cool and are trendy fashion
 - b) they protect your eyes from fumes and odors
 - c) they protect your eyes from chemical splashes
 - d) the instructor wants all students to have uniform eyewear.
 - e) None of the above

- 4) Proper apparel for the lab includes:
 - a) dangling jewelry
 - b) short fitted clothes
 - c) loose clothes with loose sleeves that also cover your torso
 - d) cloths that cover your torso and your legs to the knees
 - e) none of the above

- 5) A proper footwear in lab is
 - a) sandals that allow proper ventilation to the feet
 - b) a comfortable pair of slippers
 - c) closed-toe shoes
 - d) shoes with low heel
 - e) none of the above

- 6) For safety, long hair needs to:
 - a) be tied to the back
 - b) hang over your face and cheeks for protection
 - c) be cut short
 - d) be dyed without using harsh chemicals
 - e) none of the above

Working with Chemicals

- 1) If you are instructed to smell a chemical in the lab, you need to:
 - a) fan the air above the chemical toward your nose
 - b) bring the chemical close to your nose and inhale deeply
 - c) stir and shake the chemical well to allow the odor to come out.
 - d) add water before you smell it
 - e) close your eyes during sniffing

- 2) If you need to touch or rub your eyes, you must
 - a) step outside the lab where there are no chemicals
 - b) ask permission from the instructor
 - c) use rubbing alcohol
 - d) use the eye wash
 - e) wash your hands

- 3) You will always hold containers that have chemicals:
 - a) with a pair of rubber gloves
 - b) with a clean pair of tongs
 - c) away from your body
 - d) close to your chest and with a strong grip
 - e) after rotating the lid in the counterclockwise direction

- 4) Before using the content of a bottle, check:
 - a) the size of the bottle
 - b) the color and consistency of the reagent inside
 - c) the odor and concentration of the reagent inside
 - d) the label on the bottle
 - e) none of the above

- 5) To remove solid chemicals from a bottle:
 - a) use your spatula to remove the solid
 - b) use your spoon to remove the solid
 - c) pour the solid directly into your container
 - d) pour the solid first into the palm of your hands
 - e) none of the above

- 6) To remove liquid from a reagent bottle:
 - a) gently tap the bottle with the palm of your hands
 - b) use your medicine dropper to get out the amount of liquid needed
 - c) pour directly some liquid into your container
 - d) use your spatula to get the required amount
 - e) none of the above

- 7) An unused/leftover chemical should be:
 - a) returned back 'immediately' to its original container
 - b) returned back to its original container right 'before' you leave the lab
 - c) taken outside the lab and dumped on the soil to fertilize it
 - d) sent out to the Safety Committee
 - e) disposed of in the designated waste container

- 8) To dispense a required amount of reagent:
 - a) move reagent bottle to your bench
 - b) take your container to the reagent bench
 - c) move reagent bottle to a designated area for dispensing
 - d) ask the teacher to dispense it for you
 - e) none of the above; reagents are not to be dispensed in lab for safety reasons

- 9) Pick up a reagent bottle by holding it:
 - a) with your hand over the label
 - b) at the top part above the label
 - c) at the bottom part underneath the label
 - d) by the lid or stopper
 - e) none of the above

- 10) To dilute a concentrated acid:
 - a) add acid to the water
 - b) add water to the acid
 - c) mix both, the water and the acid, simultaneously
 - d) never mix acid and water; for the result could be quite hazardous

- 11) Store chemicals in:
- a) labeled containers
 - b) glass containers
 - c) plastic containers
 - d) large containers
- 12) Apply labels and markings on the etched part found on beakers and flasks by using:
- a) pencil only
 - b) ballpoint pen only
 - c) crayons only
 - d) special markers
 - e) none of the above
- 13) The fume hood is used for:
- a) perfumed chemicals
 - b) experiments that may cause explosion
 - c) liquids that are colorless
 - d) procedures that produce smoke or toxic gases
 - e) none of the above
- 14) When working with an experiment under a fume hood:
- a) keep fume hood sash down as far as possible
 - b) use your hand to fan fumes away from you
 - c) get the instructor's permission
 - d) make sure to put your head inside the fume hood and carefully inspect the reaction taking place
 - e) none of the above
- 15) Flammable liquids:
- a) do not evaporate unless boiled
 - b) need direct flame for heating
 - c) can catch fire easily
 - d) can become solid fast
 - e) none of the above
- 16) Alcohol available in lab:
- a) is tainted with poison
 - b) is suitable for drinking
 - c) must have a blue label
 - d) is not denatured
 - e) none of the above
- 17) Wash bottles should be filled 'only' with
- a) washing or cleansing solution
 - b) tap water
 - c) distilled/deionized water
 - d) distilled alcohol
 - e) none of the above

- 18) To add water to a reagent used in an experiment:
- use water from the faucet
 - use distilled/deionized water
 - use tap water from the wash bottle
 - use your own water bottle from home
 - none of the above
- 19) To weigh 2 grams of salt in lab:
- place salt into a beaker before weighing it on the balance
 - place salt directly on the balance to avoid contamination
 - do not use a balance and just eye-ball a sample that may look to be about 2 grams
 - mix the salt with water before weighing it on the balance
 - none of the above
- 20) If you spill solid chemicals on a balance:
- clean it immediately using a bucket filled with water and a mop
 - brush off any spills
 - use a disinfectant like "Purell"
 - allow the chemicals to rest on the balance for at least 15 minutes before brushing it off
 - Ignore it since you are not trained to handle spilled chemicals
- 21) After dispensing chemical from a container:
- keep the stopper off the container for a few minutes to allow for proper ventilation
 - no need to replace the stopper
 - replace the stopper immediately
 - allow the chemical to drip gently on the outside of the bottle
 - get rid of the container as soon as you can

Disposal of Chemicals

- 1) If no specific instructions for disposing of waste chemicals, you will dispose of all liquids and solutions into:
- any waste container available in the lab
 - the sink with lots of water
 - the flower beds outside the lab
 - any empty container found around the lab
 - none of the above

Handling Chemical Spills

- 1) You will get under the shower in lab:
- if you spill chemicals on your hands or fingers
 - if there is a large chemical splash on the body
 - if chemicals get splashed into your eyes
 - if there is a large chemical spill on the bench or floor.
 - None of the above

- 2) If the eyewash or shower is used in lab, the affected area should be irrigated and rinsed with water for at least:
 - a) 20 seconds
 - b) half a minute
 - c) an hour
 - d) 15 minutes
 - e) none of the above

- 3) If you spill a large amount of chemical on the floor:
 - a) ignore it and keep working on your experiment so you can finish on time.
 - b) walk straight over the spilled chemical to notify the instructor
 - c) keep it confidential and do not let the students around you know about it.
 - d) alert nearby students and call the instructor for help on how to clean it up
 - e) none of the above

Working with Glassware

- 1) A cracked test tube or chipped glassware should:
 - a) be used with extreme care
 - b) be used only if no other glassware is available
 - c) never be used
 - d) be sent to the dump site on campus, if only the glass blower shop is closed
 - e) none of the above

- 2) When inserting a glass tubing into a rubber stopper, hold the glass tubing:
 - a) close to the end near the stopper
 - b) close to the end away from the stopper
 - c) at a reasonable distance, about half -way to the stopper
 - d) strongly to force it into the stopper
 - e) none of the above

- 3) If a ground glass stopper is frozen (stuck)
 - a) keep it between your fingers to warm it up
 - b) wiggle it nonstop until eventually becomes loose
 - c) pull it out with all your strength if nothing else is working
 - d) report it to your instructor
 - e) none of the above

- 4) When you use a thermometer
 - a) shake it down before using
 - b) lay it on a towel
 - c) lay it on a bench close to the edge
 - d) hold it with a towel to prevent contamination
 - e) none of the above

Stoppers

- 1) To remove stopper or lid from a bottle, pick up the stopper then:
 - a) save it in your pocket while dispensing the reagent
 - b) lay it on its side on the countertop
 - c) turn it upside down before placing it on the countertop
 - d) use it to cover the nearest bottle
 - e) none of the above

Working with Hot Glassware/Equipment

- 1) Since you cannot tell from the appearance of a metal or glass that it is still hot, you should test it by:
 - a) cautiously touching it lightly with your fingers
 - b) cautiously touching it with the palm of your hand
 - c) cautiously bringing the back of your hand close to the hot glass or metal
 - d) cautiously spraying it with cold water to see if it spatters
 - e) none of the above
- 2) To handle hot objects like a beaker or evaporating dish:
 - a) use a dry paper towel
 - b) use a wet cloth towel
 - c) use a wet paper towel
 - d) run cold water on the outside of the beaker to cool it
 - e) use a pair of tongs
- 3) A hot object, like an evaporating dish or crucible, is allowed to cool by placing it on:
 - a) your lab notebook
 - b) paper towel
 - c) lab bench
 - d) wire gauze
 - e) none of the above
- 4) When heating liquid in test tube, the open end of the test tube
 - a) should point exactly towards you
 - b) should be pointing at an angle that allows the liquid to splash gently over the hot glass
 - c) should point towards the closest person next to you
 - d) should be covered with stopper or cork to avoid contamination
 - e) none of the above

Use of Bunsen Burners

- 1) To light a Bunsen burner
 - a) you need to step back
 - b) you need to position the burner right in front of the gas valve
 - c) you need to reach over the burner to turn ON the gas valve
 - d) you need to ask your instructor to light it for you
 - e) none of the above

- 2) You may leave a lit Bunsen burner unattended only, if:
- a) you must go to the restroom
 - b) your neighbor keeps an eye on it
 - c) no one else in the class but you
 - d) you need to go to the reagent bench to get more chemicals
 - e) none of the above

What to Do in Case of Accident?

- 1) Any accident or injury to you or to your classmate:
- a) must be reported immediately to the instructor
 - b) will force all students to evacuate the lab
 - c) must be ignored if it is minor
 - d) must be ignored if it is not painful
 - e) must be handled quietly by yourself without telling anyone
- 2) Small burns from touching hot objects, should be:
- a) placed under running cold water
 - b) covered immediately with Band-Aid to protect it from the oxygen in the air
 - c) massaged gently until it feels better
 - d) brought closer to the air condition to cool it off
 - e) none of the above
- 3) If your clothing catches fire:
- a) run fast to the nearest sink to smother the flame
 - b) drop to the floor and roll on the floor to smother the flame
 - c) let the instructor use the fire extinguisher to smother the fire
 - d) ask the student next to you to use squirt water bottle to smother the fire.
 - e) none of the above
- 4) A small contained fire may be smothered by:
- a) covering it with a fire blanket
 - b) picking it up and throwing it into the sink
 - c) covering it with a cover plate or a watch glass
 - d) picking it up and throwing it into the trash can
 - e) leaving it alone until it burns out completely
- 5) In case of earthquake:
- a) evacuate the lab immediately
 - b) evacuate the building immediately
 - c) run fast towards the emergency exit
 - d) turn off the gas valve and stay away from falling objects
 - e) none of the above