

Name (print): _____ Date: _____ Score: _____

Signature: _____

Each question is worth 1 point unless otherwise noted. A passing score is 40 out of a possible 50. Return the completed quiz to **Karen Kiselycznyk** (kkis@lle.rochester.edu, Rm. 2212).

- 1) All gas systems must be
 - a) inspected by EE
 - b) inspected by ME prior to operation
 - c) inspected by ME after initial pressure check
 - d) inspected by ASME prior to operation

- 2) At LLE, compressed gas training is required for users of
 - a) bottled gas (e.g. gas cylinders)
 - b) systems capable of developing pressure in excess of 150 psi
 - c) flammable gas systems
 - d) All of the above

- 3) The first person you should ask about required PPE is
 - a) your supervisor
 - b) a work area supervisor
 - c) another trained operator
 - d) a safety officer

- 4) The cleaning and care of PPE is the responsibility of
 - a) your supervisor
 - b) a work area supervisor
 - c) the employee
 - d) safety officers

- 5) Broken or dysfunctional PPE that is provided in a work area must be returned to
 - a) your supervisor
 - b) the work area supervisor
 - c) the employee
 - d) safety officers

- 6) PPE (safety glasses, laser glasses, hard hats, face shields, etc.) that is provided in a work area should remain in the work area.
 - a) True
 - b) False

- 7) Prior to deployment, all commercial/custom pressure and vacuum vessels must be
 - a) tested by an outside laboratory
 - b) qualified by ME before initial pressure check
 - c) qualified by ME after initial pressure check
 - d) have a stamp per ASME Section 8 Div. 1

- 8) Before moving a gas cylinder which step should not be executed
- a) Check the Label for proper contents
 - b) If any cylinder is suspected of leaking, have the purchasing staff contact Airgas immediately
 - c) Always make sure the cylinder cap is on tight before moving
 - d) When cylinders are moved, they should not be subject to abnormal mechanical shocks which may cause damage to their valves, their safety devices, or to the cylinder itself
 - e) Attach a regulator
- 9) Which statement is not a rule that must be followed when moving gas cylinders
- a) Cylinders should never be dragged
 - b) Lift a cylinder by the cap
 - c) Move cylinders in an upright position by using a suitable cylinder cart or hand truck
 - d) The cylinder must always be strapped to a cart
 - e) Never move the cylinder without a cap installed
 - f) Never move the cylinder with a regulator attached
 - g) Small cylinders may be moved on a cart that has sides to prevent them from rolling off
- 10) Oxygen can be used as a substitute for compressed air
- a) True
 - b) False
- 11) Wrenches should be used on a cylinder valve that is equipped with a hand wheel
- a) True
 - b) False
- 12) All gas cylinders must be stored in Shipping and Receiving until they are put into service
- a) True
 - b) False
- 13) All gas cylinders must be returned to Shipping and Receiving when they are removed from service
- a) True
 - b) False
- 14) It is acceptable to store large compressed gas cylinders without a cap.
- a) True
 - b) False
- 15) Nesting of compressed gas cylinders is acceptable at LLE.
- a) True
 - b) False
- 16) Acetylene cylinders must be stored in the upright position.
- a) True
 - b) False
- 17) If an acetylene cylinder is lying on its side, what is the minimum time it must be upright prior to use?
- a) 10 minutes
 - b) 20 minutes
 - c) 30 minutes
 - d) 60 minutes
- 18) Empty and full cylinders must be segregated and appropriately labeled.
- a) True
 - b) False

- 19) Mass storage of gas cylinders containing oxidizers and gas cylinders containing flammables must be separated by a minimum of
- a) 5 ft
 - b) 10 ft
 - c) 20 ft
 - d) 25 ft
- 20) Vacuum and pressure fittings are interchangeable.
- a) True
 - b) False
- 21) All regulators are interchangeable.
- a) True
 - b) False
- 22) Regulators can be repaired by;
- a) EE group
 - b) ME group
 - c) O&M group
 - d) Nobody at LLE is permitted to repair a regulator
- 23) A cylinder PRD can be repaired by;
- a) EE group
 - b) ME group
 - c) O&M group
 - d) Nobody at LLE is permitted to repair a PRD
- 24) Never connect anything to a gas cylinder except the appropriate approved regulator
- a) True
 - b) False
- 25) Organic residue on cylinder, valve, and regulator threads is dangerous.
- a) True
 - b) False
- 26) Use of Teflon tape on cylinder valve and regulator threads is acceptable at LLE.
- a) True
 - b) False
- 27) Lubricants can be used on compressed gas system components
- a) True
 - b) False
- 28) If a high pressure gas cylinder appears to be damaged or malfunctioning, including thread damage notify
- a) EE group
 - b) ME group
 - c) Airgas
 - d) LLE shipping and receiving
- 29) What is the correct order of execution of the items listed below? (3pts)
- _____
- a) Always wear gloves and eye protection
 - b) Before removing the cylinder cap, move the cylinder to the work site
 - c) Visually inspect all equipment used with the cylinder. Replace all defective equipment before proceeding
 - d) Properly secure the cylinder to floor, wall or bench with appropriate chain or stand to prevent toppling

30) What is the correct order of execution of the items listed below? (3pts)

- a) Verify the cylinder valve is tightly closed
- b) Remove the cylinder cap
- c) Inspect the cylinder valve threads for damage or contamination
- d) Remove the cylinder valve plug, if any
- e) If necessary, clean all threaded connections using isopropyl alcohol and lint free wipes

31) What is the correct order of execution of the items listed below? (2pts)

- a) Attach the regulator and securely tighten
- b) Position yourself with cylinder between you and the regulator
- c) Make sure all connections are dry

32) What is the correct order of execution of the items listed below? (2pts)

- a) If no gross leaks (hissing sound) are readily observable, fully open the valve
- b) Slowly open the cylinder valve and observe the high pressure gauge on the regulator as it climbs to full cylinder pressure
- c) Make sure the regulator working pressure is as low as possible by turning the pressure control knob counter-clockwise

33) When operating a cylinder, the valve should be opened

- a) slowly to the full open position then adjusted with the regulator
- b) quickly to any position with the regulator already adjusted
- c) slowly to the half open position then adjusted with the regulator
- d) quickly to the half open position then adjusted with the regulator

34) Which is not acceptable for leak checking

- a) SNOOP
- b) Soap
- c) An electronic leak tester
- d) Closing all valves and watching a pressure gauge

35) Which statement is false for setting the working pressure on a regulator

- a) Adjust to the desired working pressure by turning the pressure control knob clockwise, while observing the delivery pressure gauge for desired setting.
- b) Do not exceed the maximum delivery pressure indicated on the regulator label
- c) With gas flowing through the system, some adjustment may be required to the regulator
- d) Use the cylinder valve to adjust the inlet pressure to the regulator

36) Cryogenic liquid cylinders are similar to Thermos® bottles with a vacuum space and special insulation

- a) True
- b) False

- 37) Which statement is true
- a) Hearing a slight hiss from a cryogenic liquid cylinder may be the normal operation of its pressure relief device
 - b) Never adjust, block, plug or attempt to repair anything on a cryogenic liquid cylinder
 - c) Cryogenic liquid cylinders should always be stored and used in areas with appropriate natural or mechanical ventilation
 - d) All of the above
- 38) Which statement is false
- a) Store and handle cryogenic liquefied gas containers in well-ventilated areas to prevent hazardous concentration of the gas
 - b) Always use an appropriate four-wheel hand truck when moving cryogenic liquid cylinders with a capacity greater than 120 gal (454 L)
 - c) If the cart has a height adjustment for different cylinders, be sure it's adjusted to the proper height
 - d) Cryogenic liquid cylinders must be individually strapped to a wall bracket or bench clamp
 - e) Containers and equipment assigned for a specific cryogenic liquefied gas service shall not be used for the storage or use of another cryogenic liquefied gas
- 39) Which gas property is the most common risk to LLE personnel
- a) Corrosive or Toxic
 - b) Flammability
 - c) Oxidizer
 - d) Pyrophoric
 - e) Asphyxiation
 - f) All are equal risk
- 40) Cryogenic liquids generate large volumes of gas when they are vaporized and can result in a potentially dangerous environment
- a) True
 - b) False
- 41) An oxygen deficient atmosphere can be fatal in less than 1 minute
- a) True
 - b) False
- 42) The only way to detect an O₂ deficient Atmosphere is with continuous monitoring with an O₂ sensor
- a) True
 - b) False
- 43) LLE personnel are not trained or permitted to work in an O₂ deficient atmosphere
- a) True
 - b) False
- 44) An oxygen rich atmosphere greater than 23.5% is not a problem
- a) True
 - b) False
- 45) Gas lecture bottles should be procured only if small cylinders of the required gas are not available, i.e. as a last resort
- a) True
 - b) False

- 46) Oxygen enrichment of clothing is a serious hazard and can be readily mitigated by
- a) Isolating the clothing from ignition sources
 - b) Get to fresh air and air out the clothing for at least 30 minutes
 - c) Change your clothes
 - d) All of the above
- 47) Never transport a gas cylinder in your car.
- a) True
 - b) False
- 48) Compressed gas streams should never be directed toward a person.
- a) True
 - b) False
- 49) Compressed air shall not be used for cleaning purposes except where reduced to less than
- a) 10 psi
 - b) 30 psi
 - c) 80 psi
 - d) 100 psi
- 50) Employees can use compressed air to clean themselves or the clothing they are wearing
- a) True
 - b) False