

Machinery, Operation, & Maintenance Sample Questions

- Which of the following statements about arc length when welding is false?
 - An arc that is the correct length sounds like bacon frying
 - An arc that is too long sounds like bacon frying
 - An arc that is too short sounds like bacon frying
 - An arc that is too short makes a booing sound
- You must know the kind of metal to be welded before you can select an electrode. Which of the following is an example of a ferrous metal?
 - Copper
 - Aluminum
 - Steel
 - Porcelain
- Valve protection caps are designed to protect valves from:
 - Damage
 - Water
 - Spiders
 - Dirt
- To keep cylinders from being knocked over while in use, secure them with a:
 - Chain
 - Baling Wire
 - Clamp
 - Wood
- Never allow cylinders to come in contact with live wires or:
 - Water
 - Snow
 - Flames
 - Wind
- One direct flash from the arc on the naked eye can cause:
 - Eye damage
 - Burning feeling in eyes
 - Red spots in vision
 - All the above
- When lighting an oxy-fuel torch, which is the best sequence?
 - Purge, turn on oxygen, turn on fuel, ignite
 - Ignite, Purge, turn on fuel, turn on oxygen
 - Purge, turn on fuel, ignite, turn on oxygen
 - Turn on fuel, ignite, turn on oxygen
- When setting up oxy-fuel equipment, the green hose attaches to what?
 - Oxygen fitting
 - Fuel gas fitting

9. All of these are characteristics of acetylene except?
- a) Shock sensitive
 - b) Unstable
 - c) Flammable
 - d) All the above
10. What is the recommended lens shade for most oxy-fuel cutting applications?
- a) 3
 - b) 7
 - c) 5
 - d) 9
11. What type of thread and color is oxygen associate with?
- a) Right hand threaded – Red
 - b) Right hand threaded – Green
 - c) Left hand threaded – Red
 - d) Left hand threaded – Green
12. As of July 5, 1994, all safety glasses must meet the minimum stands set froth by the American National Standards Institute. Which of the following specifications meet the ANSI requirement?
- a) Z-rock
 - b) Z-safe
 - c) Z-78
 - d) Z-87
13. Which of the following is the leading cause of eye injury in the workplace?
- a) Chemicals
 - b) Misuse of tools
 - c) Flying debris
 - d) Poor tool maintenance
14. Which of the following electrical terms describes the flow of elections?
- a) Volts
 - b) Amps
 - c) Ohms
 - d) Watts
15. Which of the following electrical terms describes the resistance to the flow of electrons?
- a) Volts
 - b) Amps
 - c) Ohms
 - d) Watts
16. Which of the following electrical terms describes the pressure applied to the flow of electrons?
- a) Volts
 - b) Amps
 - c) Ohms
 - d) Watts

17. The purpose of the pressure rated radiator cap in the cooling system of the diesel engine is to:
- Increase the coolant boiling point
 - Decrease the coolant boiling point
 - Has no effect on coolant boiling point
 - Keep coolant from the combustion system
18. Engine Oil:
- Reduces friction and wear
 - Cools moving parts
 - Seals piston rings to the cylinder
 - All the above
19. On a negative ground system, connect the jumper cables to boost a battery, make sure that last connection with the negative cable is at the:
- Battery negative terminal
 - Battery positive terminal
 - Frame of the tractor
 - Starter
20. Ground rods cannot be less than _____ feet in length.
- 10
 - 8
 - 6
 - 12
21. The line from the power supplier's transformer to your electric meter is known as the:
- Service drop
 - Distribution panel
 - Metering circuit
 - Feeder circuit
22. The pressure at which electricity is transmitted through a conductor is called:
- Flow
 - Amperage
 - Voltage
 - Wattage
23. A _____ functions by comparing the current in the "hot" wire with that of the "neutral" and opening the circuit if these currents differ by 5/1000 amp or more, thus shutting off the power and eliminating the shock hazard to personnel.
- Fuse
 - GFCI
 - Breaker
 - Switch
24. The wire through which electric current travels is called a:
- Transmitter
 - Traveler
 - Conductor
 - Sheath

25. _____ is the best material for conducting electricity because it is durable, has excellent conducting properties, and has proven to be relative free from problems over time.
- Wood
 - Copper
 - Bronze
 - Stainless steel
26. Aluminum conductors must be _____ sizes larger than copper conductors to carry the same electrical load?
- 1
 - 2
 - 3
 - None of the above
27. Overload protection of a branch circuit is determined by the amount of _____ that the conductor will safely carry.
- Amperage
 - Voltage
 - Hertz
 - Cycles
28. In what units are electric motor speed measured?
- Revolutions per minute
 - Gallons per minute
 - Kilowatts per hour
 - Miles per hour
29. Which terminal on a receptacle is designated for the ground wire?
- Brass terminal screw
 - Silver terminal screw
 - Green terminal screw
 - Black terminal screw
30. A live wire without insulation or guarding is called or considered to be:
- Exposed
 - De-energized
 - Opened
 - Closed
31. A worker who knows how to avoid the hazards of working on or near an exposed electrical part is:
- Authorized worker
 - Unqualified worker
 - Affected worker
 - Qualified worker
32. Workers who are not qualified should have a clearance distance of _____ feet between energized 50kv overhead power lines and themselves.
- 14
 - 25
 - 10
 - 20

33. A flexible cord should be inspected for the following defects:

- a) Pinched outer jacket
- b) Missing or damaged outer jacket
- c) Damaged insulation
- d) All the above

34. When using portable electric equipment, you should do all the following except:

- a) Remove the ground pin on the plug so the plug matches the two-prong receptacle
- b) Use adaptors which do not affect the equipment grounding connections
- c) Remove from service equipment which deformed plugs
- d) Use dry hands to plug and unplug equipment

35. One safe work practice while working around electrical equipment is:

- a) Wear jewelry
- b) Use conductive ladders
- c) Use insulated tools
- d) Wear keys or keychains on your clothes

36. To alert you of exposed energized parts, you might see the following:

- a) A sign warning of shock hazard
- b) A barricade surrounding the electrical hazard area
- c) An attendant to warn you of the hazard
- d) All the above

37. Flammable materials should:

- a) Always be stored near electrical equipment that may cause a spark
- b) Not be stored near electrical equipment that may cause a spark
- c) Only be stored near electrical equipment when precautions are taken to prevent the development of a hazardous condition
- d) Either B or C

38. Exposed parts are considered to be energized:

- a) If they are not locked/tagged out
- b) If they are insulated
- c) If they are locked/tagged out
- d) If you cant see that they are disconnected

39. Lockout - Tagout:

- a) Must be done by a qualified person
- b) Can be done by an unqualified person
- c) Must be done by a supervisor
- d) Can be done by anyone

40. Portable cord-and-plug-connected equipment:

- a) Must be inspected before use on every shift
- b) Should be inspected each morning
- c) Must be inspected annually by a licensed electrician
- d) Only needs an inspection if you notice a problem

41. If a circuit breaker trips and de-energizes the machine you are using, you should:
- a) Manually reset the circuit breaker and continue to use the machine
 - b) Determine that it would be safe to reenergize the circuit before the circuit breaker can be reset
 - c) Immediately lock out the machine
 - d) Install a new circuit breaker

42. In the welding shop, the recommend acetylene pressure should set at ____ to ____ psi.

43. The oxygen hose is colored _____ and has _____ handed threads.

44. The fuel hose is colored _____ and has _____ handed threads.

45. **True or False:** Fuel gas and oxygen regulator can be used interchangeably?

46. What are the two purposes of the regulators on an oxy/acetylene rig?

47. What do the numbers on the electrode mean? (E6013 for example)

48. What shade of lens should be worn when arc welding? _____

49. What shade of lens should be worn when welding with acetylene? _____

50. Why should you warn people around you before you strike an arc? (list 5 potential hazards)

Answers provided below

- Which of the following statements about arc length when welding is false?
 - An arc that is the correct length sounds like bacon frying
 - An arc that is too long sounds like bacon frying
 - An arc that is too short sounds like bacon frying
 - An arc that is too short makes a booing sound
- You must know the kind of metal to be welded before you can select an electrode. Which of the following is an example of a ferrous metal?
 - Copper
 - Aluminum
 - Steel
 - Porcelain
- Valve protection caps are designed to protect valves from:
 - Damage
 - Water
 - Spiders
 - Dirt
- To keep cylinders from being knocked over while in use, secure them with a:
 - Chain
 - Baling wire
 - Clamp
 - Wood
- Never allow cylinders to come in contact with live wires or:
 - Water
 - Snow
 - Flames
 - Wind
- One direct flash from the arc on the naked eye can cause:
 - Eye damage
 - Burning feeling in eyes
 - Red spots in vision
 - All the above
- When lighting an oxy-fuel torch, which is the best sequence?
 - Purge, turn on oxygen, turn on fuel, ignite
 - Ignite, Purge, turn on fuel, turn on oxygen
 - Purge, turn on fuel, ignite, turn on oxygen
 - Turn on fuel, ignite, turn on oxygen
- When setting up oxy-fuel equipment, the green hose attaches to what?
 - Oxygen fitting
 - Fuel gas fitting

9. All of these are characteristics of acetylene except?
- a) Shock sensitive
 - b) Unstable
 - c) Flammable
 - d) All the above
10. What is the recommended lens shade for most oxy-fuel cutting applications?
- a) 3
 - b) 7
 - c) 5
 - d) 9
11. What type of thread and color is oxygen associate with?
- a) Right hand threaded - Red
 - b) Right hand threaded - Green
 - c) Left hand threaded - Red
 - d) Left hand threaded - Green
12. As of July 5, 1994, all safety glasses must meet the minimum stands set froth by the American National Standards Institute. Which of the following specifications meet the ANSI requirement?
- a) Z-rock
 - b) Z-safe
 - c) Z-78
 - d) Z-87
13. Which of the following is the leading cause of eye injury in the workplace?
- a) Chemicals
 - b) Misuse of tools
 - c) Flying debris
 - d) Poor tool maintenance
14. Which of the following electrical terms describes the flow of elections?
- a) Volts
 - b) Amps
 - c) Ohms
 - d) Watts
15. Which of the following electrical terms describes the resistance to the flow of electrons?
- a) Volts
 - b) Amps
 - c) Ohms
 - d) Watts
16. Which of the following electrical terms describes the pressure applied to the flow of electrons?
- a) Volts
 - b) Amps
 - c) Ohms
 - d) Watts

17. The purpose of the pressure rated radiator cap in the cooling system of the diesel engine is to:
- a) Increase the coolant boiling point
 - b) Decrease the coolant boiling point
 - c) Has no effect on coolant boiling point
 - d) Keep coolant from the combustion system
18. Engine Oil:
- a) Reduces friction and wear
 - b) Cools moving parts
 - c) Seals piston rings to the cylinder
 - d) All the above
19. On a negative ground system, connect the jumper cables to boost a battery, make sure that last connection with the negative cable is at the:
- a) Battery negative terminal
 - b) Battery positive terminal
 - c) Frame of the tractor
 - d) Starter
20. Ground rods cannot be less than _____ feet in length.
- a) 10
 - b) 8
 - c) 6
 - d) 12
21. The line from the power supplier's transformer to your electric meter is known as the:
- a) Service drop
 - b) Distribution panel
 - c) Metering circuit
 - d) Feeder circuit
22. The pressure at which electricity is transmitted through a conductor is called:
- a) Flow
 - b) Amperage
 - c) Voltage
 - d) Wattage
23. A _____ functions by comparing the current in the "hot" wire with that of the "neutral" and opening the circuit if these currents differ by 5/1000 amp or more, thus shutting off the power and eliminating the shock hazard to personnel.
- a) Fuse
 - b) GFCI
 - c) Breaker
 - d) Switch
24. The wire through which electric current travels is called a:
- a) Transmitter
 - b) Traveler
 - c) Conductor
 - d) Sheath

25. _____ is the best material for conducting electricity because it is durable, has excellent conducting properties, and has proven to be relative free from problems over time.
- a) Wood
 - b) Copper
 - c) Bronze
 - d) Stainless steel
26. Aluminum conductors must be _____ sizes larger than copper conductors to carry the same electrical load?
- a) 1
 - b) 2
 - c) 3
 - d) None of the above
27. Overload protection of a branch circuit is determined by the amount of _____ that the conductor will safely carry.
- a) Amperage
 - b) Voltage
 - c) Hertz
 - d) Cycles
28. In what units are electric motor speed measured?
- a) Revolutions per minute
 - b) Gallons per minute
 - c) Kilowatts per hour
 - d) Miles per hour
29. Which terminal on a receptacle is designated for the ground wire?
- a) Brass terminal screw
 - b) Silver terminal screw
 - c) Green terminal screw
 - d) Black terminal screw
30. A live wire without insulation or guarding is called or considered to be:
- a) Exposed
 - b) De-energized
 - c) Opened
 - d) Closed
31. A worker who knows how to avoid the hazards of working on or near an exposed electrical part is:
- a) Authorized worker
 - b) Unqualified worker
 - c) Affected worker
 - d) Qualified worker
32. Workers who are not qualified should have a clearance distance of _____ feet between energized 50kv overhead power lines and themselves.
- a) 14
 - b) 25
 - c) 10
 - d) 20

33. A flexible cord should be inspected for the following defects:

- a) Pinched outer jacket
- b) Missing or damaged outer jacket
- c) Damaged insulation
- d) All the above

34. When using portable electric equipment, you should do all the following except:

- a) Remove the ground pin on the plug so the plug matches the two-prong receptacle
- b) Use adaptors which do not affect the equipment grounding connections
- c) Remove from service equipment which deformed plugs
- d) Use dry hands to plug and unplug equipment

35. One safe work practice while working around electrical equipment is:

- a) Wear jewelry
- b) Use conductive ladders
- c) Use insulated tools
- d) Wear keys or keychains on your clothes

36. To alert you of exposed energized parts, you might see the following:

- a) A sign warning of shock hazard
- b) A barricade surrounding the electrical hazard area
- c) An attendant to warn you of the hazard
- d) All the above

37. Flammable materials should:

- a) Always be stored near electrical equipment that may cause a spark
- b) Not be stored near electrical equipment that may cause a spark
- c) Only be stored near electrical equipment when precautions are taken to prevent the development of a hazardous condition
- d) Either B or C

38. Exposed parts are considered to be energized:

- a) If they are not locked/tagged out
- b) If they are insulated
- c) If they are locked/tagged out
- d) If you cant see that they are disconnected

39. Lockout - Tagout:

- a) Must be done by a qualified person
- b) Can be done by an unqualified person
- c) Must be done by a supervisor
- d) Can be done by anyone

40. Portable cord-and-plug-connected equipment:

- a) Must be inspected before use on every shift
- b) Should be inspected each morning
- c) Must be inspected annually by a licensed electrician
- d) Only needs an inspection if you notice a problem

41. If a circuit breaker trips and de-energizes the machine you are using, you should:
- Manually reset the circuit breaker and continue to use the machine
 - Determine that it would be safe to reenergize the circuit before the circuit breaker can be reset
 - Immediately lock out the machine
 - Install a new circuit breaker

42. In the welding shop, the recommend acetylene pressure should set at 5 to 7 psi.

43. The oxygen hose is colored GREEN and has RIGHT handed threads.

44. The fuel hose is colored RED and has LEFT handed threads.

45. **True or False:** Fuel gas and oxygen regulator can be used interchangeably?

46. What are the two purposes of the regulators on an oxy/acetylene rig?

Tank pressure

Hose pressure

47. What do the numbers on the electrode mean? (E6013 for example)

E=Electrode

60=60,000 psi tensile strength (pull apart)

1=position the rod can be used for. All positions

3=welding current AC & DC

48. What shade of lens should be worn when arc welding? #10 Lens

49. What shade of lens should be worn when welding with acetylene? #5 Lens

50. Why should you warn people around you before you strike an arc? (list 5 potential hazards)

Shock

Fumes

UV Rays

Spark spatter

Fire and explosion