



UTAH STATE FIRE MARSHAL

**OUTDOOR FIREWORKS DISPLAY OPERATOR  
EXAMINATION**

**FOR FIREFIGHTERS ONLY**



For Office Use Only  
Score \_\_\_\_\_

**You may use: NFPA 1123 – 2010 Edition**  
**State of Utah Administrative Rule**  
**R710-2** (*available at our website:*  
*firemarshal.utah.gov*)

Name \_\_\_\_\_

Date \_\_\_\_\_

Fire Department \_\_\_\_\_

Phone Number \_\_\_\_\_

**State of Utah**  
**Outdoor Fireworks Display Operator Examination FIREFIGHTERS ONLY**

This examination is based on information contained in the 2010 edition of NPFA 1123, and R710-2. Rules Pursuant to the Utah Fireworks Act. This examination consists of both true, false and multiple choice questions. Please circle or check the correct answer for each test question.

1. Authority having jurisdiction means:
  - a) Fireworks manufacturer
  - b) Display and Special Effects Personnel
  - c) County and municipal officers and all fire enforcement officials.
  
2. A rapidly fired sequence of aerial fireworks is:
  - a) Barrage
  - b) Battery
  - c) Chain Fusing
  
3. A Black Match is a fuse made from string that is impregnated with black powder and used for igniting pyrotechnic devices.  
True False
  
4. A fireworks device consisting of a single pellet of pyrotechnic composition that is ignited and simultaneously propelled into the air from a mortar or tube; a \_\_\_\_\_ is self-consuming as it rises into the air and can be designed to split apart.
  - a) Comet
  - b) Barrage
  - c) Chain Fusing
  
5. A Cake is a chain-fused firework that propels a series of aerial shell, comet, or mine effects into the air from collectively attached tubes.  
True False
  
6. A device that provides and controls the electric current used to ignite fireworks during an outdoor display is:
  - a) Electric Match
  - b) Discharger
  - c) Electrical Firing Unit
  
7. An Electric Match is an electric device that contains a small amount of pyrotechnic material that ignites when current flows through the device.  
True False
  
8. Electrical Ignition is a technique used to ignite fireworks using a source of electric current.  
True False

9. A \_\_\_\_\_ is a pyrotechnic device that functions on the ground (as opposed to an aerial shell that functions in the air: and that includes fountains, wheels, and “set pieces.”
- Aerial Display Piece
  - Ground Display Piece
  - Electrical Display Piece
10. A rapidly fired sequence (barrage) of aerial fireworks, typically fired at the end of a display is best defined as:
- Chain Fusing Comet
  - Barrage
  - Finale
11. A Fireworks Display is defined as a presentation of fireworks for a public or private gathering.
- True False
12. A \_\_\_\_\_ is a thin cardboard tube packed with color producing pyrotechnic composition used to construct ground display pieces.
- Lift Charge
  - Mortar
  - Lance
13. That composition in an aerial shell that propels the shell into the air when ignited defines:
- Mortar
  - Lift Charge
  - Salute
14. A Mine is a device containing multiple pyrotechnic effects that are simultaneously ignited and dispersed into the air from mortar or tube.
- True False
15. A tube from which aerial shells are fired into the air defines:
- Mortar Rack
  - Monitor
  - Mortar
16. An above ground structure filled with sand or similar material into which mortars are positioned ready for use in a fireworks display defines:
- Mortar Trough
  - Mortar Rack
  - Lift Charge
17. A Quick Match is a black match that is encased in a loose-fitting sheath. The fuse for manually fired individual aerial shells that use a quick match fuse to ignite the lift charge shall be long enough to allow not less than 6 in. of fuse to protrude after the shell has been inserted into the mortar.
- True False

18. A storage container for aerial fireworks for use during setup and display defines:
- Safety Cap
  - Ready Box
  - Listed Container
19. A Safety Cap is a paper tube, closed at one end, that is placed over the end of the fuse of a fireworks device to protect it from damage and accidental ignition.  
True False
20. A pyrotechnic composition that makes an explosive sound when ignited and constitutes the sole pyrotechnic effect of a salute defines:
- Mortar Mix
  - Lift Charge
  - Salute Powder
21. A ready box shall be a portable, weather-resistant and fire-resistant container that protects contents from burning debris with a self-closing cover or equivalent means of closure required.  
True False
22. During the performance of an outdoor fireworks display, ready boxes shall be located at a distance not less than \_\_\_\_\_ feet upwind from the mortar placements. If the wind shifts during a display, the ready boxes shall be located to again be upwind from the discharge site.
- 100
  - 30
  - 50
23. Prior to placement, mortars shall be inspected carefully for defects, such as dents, bent ends, damaged interiors, and damaged plugs. Defective mortars shall be turned upside down and the damaged portion of the mortar shall be buried to prevent further damage.  
True False
24. Mortars shall be positioned so that shells are propelled directly over the spectators so that the spectators can have a better view of the entire show.  
True False
25. Where paper mortars are to be placed in damp ground or damp sand or are to be in the ground or sand for more than 12 hours prior to the display, they shall be placed inside a \_\_\_\_\_ or otherwise protected against moisture prior to placement in the ground or sand.
- Cardboard Box
  - Water-resistant Bag
  - Large Paper Bags.
26. Weather-resistant coverings shall be placed over the mouth of mortars wherever there is imminent danger of water collecting in the mortars. Where buried mortars are to be fired more than once during a display, the mortars shall be placed to prevent them from being driven into the ground or re-angled when fired.  
True False

27. A series of two or more aerial shells or other firework items fused to fire in sequence from a single ignition is defined as:
- A Barrage
  - Chain Fusing
  - Electrical Junctioning
28. Whenever more than three shells are to be chain fused, such as for sequential firing, additional measures shall be required to prevent adjacent mortars from being repositioned in the event that a shell explodes in a mortar, causing it to burst.
- True False
29. Chain fused mortar racks containing mortars 3 inches or less in diameter only shall be limited to a maximum of 15 mortars per unit. Racks containing mortars 4 inches in diameter shall be limited to a maximum of 12 mortars. Racks containing mortars 5 inches to 6 inches in diameter shall be limited to a maximum of 10 mortars. Chain fused racks shall not be used for mortars greater than 6 inches in diameter.
- True False
30. Where mortars are to be reloaded during a display, mortars of various sizes may be intermixed making it essential that the operator be very attentive during the reloading process.
- True False
31. Which of the following materials shall not be used to make mortars:
- Cast Iron
  - Stove Pipe
  - Corrugated Culverts
  - All of the Above
32. The length of the mortar is not important as long as it is buried  $\frac{2}{3}$  to  $\frac{3}{4}$  of their length.
- True False
33. No spectator or spectator parking areas shall be located within the display site.
- True False
34. The area selected for the discharge of aerial shells shall be located so that the trajectory of the shells shall not come within 25 feet of any overhead object.
- True False
35. Ground display pieces of low hazard potential shall be located a minimum distance of 75 feet from spectator viewing areas and parking areas.
- True False
36. Where the mortars are positioned vertically, the mortars shall be placed at the approximate center of the display site. Mortars shall not be angled during a display under any circumstances.
- True False

37. Tents shall not be located within the discharge sit during the display..  
True False
38. Which of the following shall not be located within the fallout area during the display:  
a) Spectators  
b) Unauthorized Vehicles & Watercraft  
c) Combustible Materials  
d) All the Above
39. Fire protection personnel and their vehicles and other emergency response personnel and vehicles may remain within the fallout area so they can respond to emergencies in a timely manner.  
True False
40. During the period before the display, where pyrotechnic materials are present, unescorted public access to the site is permitted and is of little concern to the sponsor or the operator.  
True False
41. During the firing of the display, all personnel in the discharge site shall wear which of the following:  
a) Head Protection  
b) Eye Protection  
c) Hearing Protection  
d) Sandals  
e) Short Legged Clothing That Will Not Burn
42. Firework displays shall be postponed or discontinued if any hazardous condition exists. If a lack of crowd control poses a hazard or high winds or other adverse condition create a hazardous condition the fireworks display shall be terminated or postponed until conditions improve to a reasonable level.  
True False
43. The purpose of having spotters during a firework display is to:  
a) Watch the crowd for improper activities  
b) Watch the aerial shells and other fireworks to verify that they are functioning properly  
c) Watch the operator to insure that he is following proper safety procedures
44. Operators and assistants shall use only flashlights, electric lighting or other nonincendive illumination such as chemiluminescent devices for illuminating the firing and ready box area.  
True False
45. Shells shall be carried from the storage area to the discharge site only by their fuses and never by their bodies.  
True False

46. When being loaded into the mortars, shells shall be held by their fuses or lowered carefully into the mortar. Shells that do not fit the mortar shall be forced into the mortar to insure that they are properly seated at the base of the mortar.  
True False
47. When loading the mortars, it is imperative that the person loading the mortar look down into the mortar to be certain that the shell is properly seated.  
True False
48. All aerial shells greater than 6 in. (152 mm) in diameter shall be preloaded into mortars prior to the beginning of the display. Shells that are nominal 7 in. (178 mm) or 8 in. (203 mm) in diameter shall be permitted to be reloaded during the firing of the display provided that the mortars to be reloaded are buried at least 3/4 of their length in the ground. The reloading of 7 in. (178 mm) and 8 in. (203mm) mortars in troughs, drums, or racks shall not be permitted.  
True False
49. In the event that a shell fails to ignite in the mortar, a fuse shall be dropped into the mortar and allowed to burn until the shell fires.  
True False
50. Immediately following the display but no sooner than 15 minutes after the attempted firing, if the shell still has not fired, the mortar shall be:
- Buried at a depth of not less than 3 feet
  - Left until the next day at which time the shell shall be dumped out and destroyed
  - Flooded with water cautiously and allowed to stand for a minimum of 5 minutes before it is emptied cautiously of the shell.
51. Manual re-ignition of chain fused aerial shells shall be attempted anywhere along the chain fuses.  
True False
52. Following the display, the firing crew shall conduct an inspection of the fallout area for the purpose of locating any unexploded aerial shells or live components. This inspection shall be conducted before any public access to the site shall be permitted.  
True False
53. Any shell found during the search of the display area, after the display shall be doused with water and then buried or disposed of in the nearest dumpster.  
True False
54. To the extent that it is practical, all ground display pieces shall be positioned outside the discharge area of aerial displays.  
True False
55. Where both manual firing and electrical ignition are used during a display, all of the mortars shall be maintained as close as possible to each other.  
True False

56. Manual electrical firing units shall be designed so that only one positive action is necessary to apply an electric current to an electric match. It is imperative to keep the firing mechanism as simple as possible to eliminate confusion during the firing of the mortars during the display.

True False

57. Which of the following shall activate when a manual electrical firing unit is armed:

- a) A light
- b) A beeper
- c) Both of the above
- d) Any one of the above or all of the above