**2021 Worksheet # 6**

**Category 1 Warning Systems:**

**Master Alarm:**

**Area Alarm:**

**Local Alarm:**

**Computer (Master) Alarm:**

**Pages:**

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1. Alarm switches / sensors shall be installed so they can be \_\_\_\_\_\_\_\_ and accessible for service and testing.

 **a. Removable**

 b. Ceiling tile

 c. Tools

 d. All of the above

2. All master, area and local alarm systems shall include separate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ indicators for each condition monitored.

 a. Audible

 **b. Visual**

 c. On, off

 d. High, low

3. All medical gas alarm systems shall have an \_\_\_\_\_\_\_\_\_\_\_\_ audible indication for each condition monitored.

 a. Adjustable

 b. All of the above

 **c. Cancelable**

 d. Optional

4. Anesthetizing locations were moderate sedation, deep sedation or general anesthesia is administered. What alarm panel would monitor these locations \_\_\_\_\_\_\_\_\_\_\_\_?

 a. Local alarm panel

 **b. Area alarm panel**

 c. Nurse’s station

 d. Mater alarm panel

5. Area alarm panels for medical gas systems shall indicate when line pressure in the area being monitored increase or decreases by \_\_\_\_\_\_\_\_ percent.

 **a. 20%**

 b. 10%

 c. 25%

 d. 15%

6. Areas for anesthetizing gas delivery shall have the pressure sensors installed on the \_\_\_\_\_\_\_ side of the individual room zone valve box assembly.

 **a. Source or patient**

 b. Patient side

 c. Source side

 d. Upstream only

7. Computer systems used as a master alarm shall be continuously attended or shall provide remote signaling of responsible parties through \_\_\_\_\_\_\_\_\_\_\_.

 a. pagers

 b. telephone

 c. auto-dials

 **d. any of the above**

8. High carbon monoxide level in the medical air system shall indicate at each local alarm site. At what level shall the alarm activate?

 a. 100 ppm or higher

 b. 1000 ppm or higher

 **c. 10 ppm or higher**

 d. None of the above

9. In a cylinder supplied medical gas system with reserve, which alarm system(s) will activate when, or just before, the changeover to the reserve supply occurs?

 a. Area

 **b. Master**

 c. Local

 d. Local and master

10. Category 1 spaces other than anesthetizing locations shall be located on which side of the zone valve box assemblies?

 a. Patient or use side

 b. Outlet/inlet

 c. Downstream side

 **d. All of the above**

11. Initiating devices is remote from the building and the wiring is to run underground to a junction box. How many sets of wires shall be \_\_\_\_\_\_\_\_\_\_\_\_\_ permitted?

 **a. Single set**

 b. Double set

 c. Two set

 d. Three sets

12. One of the master alarm panels shall be located in the office or work space of the individual responsible for the maintenance of the medical gas piping system. Where shall the other alarm be located?

 a. Nurse station

 b. Source equipment room

 c. Office of the authority having Jurisdiction

 **d. Area of continuous observation**

13. The instrument air dew point high alarm from each compressor site will indicate at the master alarm panels when the line pressure dew point is greater than\_\_\_\_\_\_\_\_.

 a. -32 F

 b. -39 F

 **c. -22 F**

 d. -44 F

14. The master alarm system shall activate when the main line of the vacuum system drops to or below\_\_\_\_\_\_\_\_\_.

 a. 10 In. Hg V

 b. 29.0 In. Hg V

 **c. 12 In. Hg V**

 d. 30 In. Hg V

15. The master alarm system shall activate when the press in the main supply line increase or decrease by \_\_\_\_\_\_\_percent.

 a. 40%

 b. 50%

 c. 10%

 **d. 20%**

16. The medical air dew point high alarm from each compressor site will indicate at the master alarm panels when the line pressure dew point is greater than \_\_\_\_\_\_\_\_\_.

 a. 22 F

 b. -44 F

 c. 44 F

 **d. 35 F**

17. The pressure in the main line of each medical gas system, the operation and condition of the source of supply and the reserve source (if any) shall be monitored at the \_\_\_\_\_\_\_\_ alarm.

 a. Local

 b. Area

 **c. Master**

 d. All of the above

18. The two master alarm panels shall be wired independently to the initiating device for each signal. A single initiating device shall be permitted to actuate \_\_\_\_\_\_\_\_\_ master alarms panel.

 a. A single

 **b. Multiple**

 c. Area alarm panels

 d. A computer

19. What is required of the alarm system if another alarm condition occurs while the audible alarm is silenced?

 **a. Reinitiating of the audible signal**

 b. the audible signal will beep

 c. Nothing, the visual indicator is still on

 d. The visual indicator will blink

20. When a medical gas system is supplied by a manifold or other alternating-type bulk system, which alarm system(s) shall activate indicating when, or just before, changeover occurs?

 a. Local, area and master

 b. Local

 c. Area

 **d. Master**

21. Wiring from switches or sensors shall be protected by any of the following.

 a. Conduit

 b. Cable trays

 c. Raceways

 **d. Any of the above**

22. Category 1 spaces, other than anesthetizing locations addressed in 5.1.9.4.4(2), shall have the alarm sensors installed on the patient or use side of each of the individual zone valve box assemblies. What type of alarm is required?

 **a. Area Alarm**

 b. Master Alarm

 c. Local Alarm

 d. None of the above

23. One area alarm panel shall be acceptable to monitor \_\_\_\_\_\_\_\_\_\_\_\_ rooms located within an immediate vicinity of an operating room suite.

 a. Duplex

 b. Single

 **c. Multiple**

 d. Spaces

24. If there is more than one central supply system, for a specific gas or vacuum pipeline or more than one central supply system and pipeline for the same gas in the building, then it shall be necessary for each location to have separate \_\_\_\_\_ alarms and signals at the \_\_\_\_\_\_\_panels.

 **a. Local / master**

 b. Local / area

 c. Area / master

 d. Master / local

25. An alarm indication that the pressure in the common line on the source side of the concentrator line pressure controls is \_\_\_\_\_\_\_\_\_\_\_.

 a. High

 **b. Low**

 c. Middle of gauge

 d. Bottom of gauge

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