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MEWB - Engineering Safety & Environmental Protection

1. The midships house of your break bulk ship is constructed with an interior stair tower from the main deck to the bridge. Under what circumstances may the doors from each deck to the stair tower be kept open when underway?

- They are to be kept closed at all times.
- They may be kept open if the ventilation or air conditioning system is shut down.
- They can be kept open if the Muster List ("Station Bill") has personnel designated to close them in case of fire.
- **They may be kept open if they can be automatically closed from the bridge.**

Note:

Stair tower doors may be kept open while underway only if equipped with an approved automatic-closing system controlled remotely, such as from the bridge, ensuring reliable closure during an emergency without relying on crew action.

2. 2.5.7.2A2-78) What is the minimum required number of fire axes that must be carried on a mobile offshore drilling unit?

- **2**
- 3
- 4
- 5

Note:

46 CFR 108.499 mandates that mobile offshore drilling units carry a minimum of two fire axes.

2. In the event of a fire, the doors to a stair tower must be closed to prevent the spread of fire by which method?

- Conduction
- Ventilation
- Radiation
- **Convection**

Note:

Closing stair tower doors prevents fire spread by interrupting convection, the transfer of heat via rising hot gases and smoke. Conduction involves heat transfer through solids, while radiation involves electromagnetic waves; neither is primarily controlled by door closures. Ventilation is a firefighting tactic, not a method of heat transfer.

3. Before entering any space that has been sealed, its oxygen level should be tested. What level of oxygen in the space is equal to fresh air?

- 10.0%
- 15.8%
- **20.8%**
- 25.8%

Note:

Fresh air contains approximately 20.8% oxygen by volume; therefore, a space should have 20.8% oxygen to be considered equivalent to fresh air.

4. Which is the best way to ensure adequate oxygen is present for safe entry into a seldom used cargo tank?

- Test tank atmosphere with a combustible gas indicator.
- Observe the amount of rust deposited on the tank's surface.
- **Ventilate the tank with fresh air and test with an oxygen indicator.**
- Open the manhole cover for approximately ten minutes.

Note:

Ventilating the tank with fresh air and testing the atmosphere with an oxygen indicator is the only reliable method to ensure safe oxygen levels for entry. Confined space procedures require mechanical ventilation and atmospheric testing; an oxygen indicator measures oxygen concentration, unlike a combustible gas indicator. Visual inspection and simply opening a manhole are insufficient and unsafe.

5. How does good housekeeping prevent fires on a vessel?

- Allowing better access in an emergency
- Improving personnel qualifications
- **Eliminating potential fuel sources**
- Eliminating trip hazards

Note:

Good housekeeping prevents fires by eliminating potential fuel sources, directly addressing the 'fuel' component of the fire triangle. Fire prevention focuses on controlling fuel and ignition sources, and good housekeeping practices like cleaning spills and properly storing combustibles reduce the risk of fire ignition or spread. Options related to emergency access, personnel qualifications, and trip hazards address safety and response, not primary fire prevention.

6. Fire prevention during welding or burning aboard any vessel should include _____.

- posting a fire watch in the immediate area
- providing an extinguisher which is ready for immediate use
- requiring the fire watch to remain on post for an adequate cool down period after the completion of welding or burning
- **All of the above.**

Note:

Fire prevention during welding or burning aboard vessels requires a fire watch, readily available firefighting equipment, and a post-work cool-down period to address potential delayed ignition; therefore, all listed precautions are necessary.

7. According to Coast Guard Regulations (46 CFR Part 92), a bulkhead capable of preventing the passage of smoke and flame for one hour would be classified as a/an _____.

- **A-60**
- B-60
- C-60
- D-60

Note:

According to 46 CFR Part 92, a bulkhead preventing smoke and flame passage for one hour is classified as A-60, indicating an A-class division with a 60-minute fire resistance rating.

8. The Coast Guard requires machinery spaces and enclosed mud handling spaces to have _____.

- **remote ventilation shutdowns**
- remote pump shutdowns
- alternative control stations
- smoke and/or fire detection system

Note:

Remote ventilation shutdowns are mandated to quickly stop airflow from a safe location in case of fire or hazardous vapors in machinery spaces and enclosed mud handling spaces.

9. According to Coast Guard regulations (46 CFR), A fire door that is held open by magnets may be found in the _____.

- wheelhouse
- galley
- engine room
- **stairway enclosure**

Note:

Coast Guard regulations allow fire doors held open by magnets in stairway enclosures to maintain accessibility while ensuring automatic closure in a fire or power loss.
