
Q400 - Navigation and Deck General/Safety

1. What is the function of wearing rings found on some centrifugal pumps?

- Absorb erosion of high-velocity discharge stream
- Seal pump shaft against entry of air
- **Isolate the outlet side from the inlet side**
- Dampen the turbulent discharge flow

Note:
Wearing rings in centrifugal pumps isolate the high-pressure discharge side from the low-pressure suction side, minimizing internal leakage and maintaining pump efficiency. They are replaceable components designed to limit flow between these pressure zones, unlike shaft seals or flow dampeners.

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2. Open ullage holes in tanks which are not gas-free must be protected by _____.

- warning signs
- **flame screens**
- PV valves
- stop-check valves

Note:
Flame screens are required to protect open ullage holes in tanks not gas-free, preventing external flames from igniting vapors while allowing venting.

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3. According to Coast Guard Regulations (46 CFR), when loading, or discharging oil in bulk at a dock, which of the following signals must be displayed?

- **A red flag (day), red light (night)**
- A signal is not required for discharging oil, only gasoline
- A yellow flag (day), red light (night)
- A green flag (day), green light (night)

Note:
Coast Guard regulations (46 CFR) mandate a red flag during the day and a red light at night when loading or discharging oil in bulk at a dock.

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4. Which of the signals listed is required to be displayed during the day while bunkering?

- **A red flag**
- A red and yellow flag
- A yellow flag
- A red light

Note:
A red flag is the required signal displayed during the day while bunkering, indicating a hazardous fuel transfer operation is in progress. Regulations mandate a red flag by day and a red light by night to warn of these operations; the question specifically addresses the daytime requirement, eliminating options involving lights or mixed-color flags.

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5. When planning the loading or discharging of a VLCC (100,000 DWT+) what is the most important consideration?

- Rate of loading
- Rate of discharging
- Draft and trim
- **Limits of the bending moments**

Note:
Maintaining hull bending moment limits is the primary safety consideration when planning VLCC loading or discharging operations. VLCC hulls act as beams, and exceeding allowable bending moment limits can cause structural damage or failure. Loading and discharging rates, draft, and trim are important but are managed to ensure bending moment limits are not exceeded.

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6. Which signal must you display at night on a docked tank barge to show that it is loading or discharging flammable liquid cargo?

- ICC yellow light.
- **Red light.**
- Flashing amber light.
- Two orange lights.

Note:
A red light is required at night on a docked tank barge to indicate loading or discharging flammable liquid cargo.

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7. According to U.S. regulations, how many emergency outfits are required to be carried onboard all tankships over 1,000 gross tons?

- Four emergency outfits
- One emergency outfit
- **Two emergency outfits**
- Three emergency outfits

Note:
U.S. regulations require tankships over 1,000 gross tons to carry a minimum of two emergency outfits as specified in 46 CFR.

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8. What must be present in order for combustion to occur inside a piping system such as a vapor collection header in a marine emission control system?

- Ignition
- Fuel
- Oxygen
- **All of the above**

Note:
Combustion requires fuel, oxygen, and an ignition source to occur. Vapor collection headers contain hydrocarbon vapors (fuel), often with air present (oxygen), and potential ignition sources like static electricity. Therefore, all three elements must be present for combustion.

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9. What type of gas detection device is used to determine when gassing up is complete?

- Methane detector
- Dew point meter
- **Oxygen meter**
- CO2 meter

Note:
Gassing up is complete when the oxygen content reaches a safe level, which is determined using an oxygen meter.

10. Asphyxia is generally limited to enclosed spaces, and the deficiency of breathable air in an enclosed space can occur with any of the following conditions. Indicate the condition that will NOT cause asphyxia.

- Where rusting of internal tank surfaces has taken place.
- Where large quantities of inert gas is present.
- **When 21% of oxygen is present.**
- When large quantities of cargo vapor is present

Note:
Normal atmospheric air contains 21% oxygen, which supports life and does not cause asphyxia; asphyxia results from oxygen depletion or displacement by other gases, such as those from rusting, inert gas, or cargo vapor.