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Q456 - Tankerman Assistant Dangerous Liquids

1. Which of the following is the pipe used to connect two separate piping systems on a tank vessel?

- **crossover**
- connection
- junction
- transfer

Note:

A crossover is the pipe that connects two separate piping systems on a tank vessel, enabling fluid transfer between them. This is the standard technical term, unlike 'connection,' 'junction,' or 'transfer,' which are generic. Understanding crossovers is crucial for safe cargo routing and equalization on tank vessels.

2. Which of the following is equivalent to a "barrel", which is a unit of liquid measure?

- 43 U.S. gallons at 65°F
- **42 U.S. gallons at 60°F**
- 40 U.S. gallons at 50°F
- 45 U.S. gallons at 75°F

Note:

A barrel is defined as 42 U.S. gallons at 60F.

3. What is the standard net barrel for petroleum products?

- 48 gallons at 70°Fahrenheit
- 50 gallons at 50°Celsius
- **42 gallons at 60°Fahrenheit**
- 60 gallons at 100°Saybolt

Note:

The standard net barrel for petroleum products is defined as 42 U.S. gallons at 60F, a measurement used for contracts and documentation to ensure consistent quantity reporting regardless of temperature fluctuations.

4. On tankers using manually operated tank valves, what does the deck hand wheel indicator register?

- exact lift position of the tank valve disk, through 100% of its operation
- oxygen content of the tank
- **approximate number of turns the tank valve has been opened**
- level of oil in the tank

Note:

The deck hand wheel indicator on tankers with manually operated tank valves registers the approximate number of turns the valve has been opened due to mechanical limitations and slack in the linkage system; it does not provide precise valve disk position, tank atmosphere readings, or liquid level information.

5. On tankers with manually operated tank valves, which of the following is the type of valve most commonly used?

- globe valve
- check valve
- **gate valve**
- butterfly valve

Note:

Gate valves are the most common manually operated tank valves on tankers due to their full-bore design, low flow resistance, and tight shutoff, making them suitable for large cargo lines and typical isolation valve operation. Globe valves are for throttling, check valves are automatic, and butterfly valves are less common for this application.

6. Which of the following procedures would ensure proper seating of the valve when closing?

- closed against the stop and the locking pin inserted
- **closed, opened a half turn, and then closed again**
- set up tight using a valve wrench
- set up as tight as possible by hand

Note:

Closing a valve, opening it slightly, and then reclosing allows the disc to align evenly on the seat, ensuring a proper seal without excessive force or potential damage.

7. What is the purpose of the relief valve of a cargo pump?

- Allows two or more tanks to be filled at the same time
- Provides for the removal of vapors
- Provides for the emergency shutdown of the pump
- **Permits the return of cargo to the suction side of the pump**

Note:

The cargo pump relief valve protects the system from overpressure by returning liquid to the suction side.

8. What type of valve is usually on the discharge side of a cargo pump on a tank vessel?

- spectacle valve
- butterfly valve
- **check valve**
- globe valve

Note:

A check valve is installed on the discharge side of a cargo pump to prevent backflow and protect the pump.

9. The cargo pump relief valve is usually piped to which of the following components?

- **suction side of pump**
- atmosphere through pump vent
- crossover line
- cargo pump pressure gauge

Note:

The cargo pump relief valve is piped to the pump suction to safely recirculate excess pressure within a closed system, preventing cargo loss, pollution, or overpressure in other components. Venting to atmosphere, crossover lines, or pressure gauges are unsuitable due to safety and system integrity concerns.

10. The term "segregated ballast" is defined in the U.S. regulations as ballast water introduced into which of the following?

- isolated tank for analysis because of its noxious properties
- fuel settling tank for segregation from lighter fluids
- **tank that is completely separated from the cargo oil and fuel oil systems**
- oily-water separator for segregation

Note:

Segregated ballast, as defined in U.S. regulations, refers to ballast water held in a tank physically separated from cargo and fuel oil systems to prevent contamination and potential oil pollution.
