

U.S.C.G. Merchant Marine Exam  
Tankerman Assistant  
Q457 Tankship Liquefied Gases  
(Sample Examination)

**Choose the best answer to the following Multiple-Choice Questions.**

1. What do the emergency shutdown requirements of U.S. regulations apply to?

- A. cargo transfer systems
- B. air compressors
- C. condensate pumps
- D. induced draft fans

Correct answer: A

2. Which of the following is a safety consideration when dealing with Liquefied Gas?

- A. it's cold
- B. it's corrosive
- C. it's carcinogenic
- D. it's caustic

Correct answer: A

3. In reference to accidental oil pollution, the most critical time during bunkering is when \_\_\_\_\_.

- A. Hoses are being blown down
- B. Final topping off is occurring
- C. You first start to receive fuel
- D. Hoses are being disconnected

Correct answer: B

4. Which of the following is the primary function of the screens that are fitted to the fuel oil tank vents?

- A. prevent air from entering the tank vent
- B. prevent oil from flowing out of the tank vent
- C. prevent vapors from leaving the tank vent
- D. prevent flames on deck from entering the tank vent

Correct answer: D

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

- A. junction
- B. crossover
- C. connection
- D. transfer

Correct answer: B

6. Span gas is used for what process?

- A. To calibrate a gas analyzer to ensure it indicates correct gas concentrations
- B. To ensure an inert atmosphere during the span of time when a system is being brought to a dry air condition from a flammable atmosphere
- C. The name of a gaseous state when the temperature of the vapor is the same as that of the liquid.
- D. To find the zero point on a gas analyzer

Correct answer: A

7. Who enforces the U.S. pollution regulations that apply to ships?

- A. Corps of Engineers
- B. Port Authority
- C. State Pollution Board
- D. U.S. Coast Guard

Correct answer: D

8. What is generally, the first action in extinguishing a liquefied gas fire caused by escaping gas?

- A. call the local fire department
- B. sweep flames away with water spray
- C. shut off the leak
- D. use a chemical foam fire extinguisher

Correct answer: C

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

- A. cargo pump pressure gauge
- B. atmosphere through pump vent
- C. suction side of pump
- D. crossover line

Correct answer: C

10. Why is a warning sign displayed at the gangway or access point of a barge during cargo transfer?

- A. To indicate any health risk if applicable
- B. To keep visitors away from the barge
- C. To indicate if the cargo is a marine pollutant
- D. To designate smoking areas

Correct answer: B

11. When discharging a tanker, how can list be controlled?

- A. by using the after-peak tank, loading as necessary
- B. by using a center tank near the bow, discharging as necessary
- C. by shoreside personnel
- D. by using wing tanks near the longitudinal center, discharging as necessary

Correct answer: D

12. Which of the terms best describes the process of the production of vapor above the surface of a boiling cargo due to evaporation on an LNG tanker?

- A. adiabatic
- B. solidification
- C. boil-off
- D. condensation

Correct answer: C

13. According to U.S. regulations, tank vessels with greater than 250 barrels capacity are required to have a means of emergency shutdown. This device does which of the following?
- A. shuts off the main propulsion plant
  - B. shuts off the firefighting foam systems
  - C. stops the flow of oil to shore facility or other vessel
  - D. secures electrical power to all motors

Correct answer: C

14. What are flame screens used for?
- A. contain flammable fumes
  - B. prevent flames from entering tanks
  - C. keep flames and sparks from getting out of an engines exhaust system
  - D. protect firefighters from flames

Correct answer: B

15. Which of the following terms best describes the amount of product in a tank measured from the tank bottom to the level of liquid?
- A. Outage
  - B. Thievery
  - C. Ullage
  - D. Innage

Correct answer: D

16. You have berthed in a port area with other tank vessels. What signal is displayed by a vessel to indicate it is transferring flammable or combustible liquid cargo?
- A. A green light visible all around the horizon
  - B. A flashing yellow light
  - C. An illuminated red and yellow caution flag
  - D. A red light visible all around the horizon

Correct answer: D

17. Which of the following describes heavy fuel oils when they have been spilled?
- A. They are more harmful to sea life than lighter oils
  - B. They are not a real threat to marine life
  - C. They are less harmful to sea life than lighter oils
  - D. They are easier to clean up than lighter refined oils

Correct answer: C

18. Which of the following conditions will cause a combustible gas indicator to become inoperative or give erroneous readings?

- A. Hydrocarbon content of the atmosphere is above the upper explosive limit
- B. Atmosphere has sufficient oxygen
- C. Compartment to be tested is free of CO<sub>2</sub>
- D. Inerted content of the atmosphere is less than the lower explosive limit

Correct answer: A

19. Which of the following describes the depth of a product in a tank?

- A. Outage
- B. Thieverage
- C. Innage
- D. Ullage

Correct answer: C

20. What is the distance between the surface of the liquid and the tank bottom in a cargo tank called?

- A. Innage
- B. Tankage
- C. Thieverage
- D. Ullage

Correct answer: A

21. How is an inert gas system designed to reduce the possibility of tank explosions?

- A. by reducing the oxygen concentration below levels necessary for combustion
- B. by blanketing cargo tanks with inert foam
- C. by removing all hydrocarbon gases from the cargo tanks
- D. by eliminating sparks and fire in the vicinity of cargo tanks

Correct answer: A

22. Your tank vessel is fully loaded to the marks, and you find that she is down slightly by the head. Which of the following choices would be the best action to take to trim the vessel slightly by the stern?

- A. load more cargo aft
- B. add ballast aft
- C. shift ballast from the aft to forward
- D. shift cargo aft

Correct answer: D

23. The boiling point of Methane is -161°C. How is the substance carried?

- A. Fully refrigerated
- B. Atmospheric pressure
- C. Fully pressurized
- D. Normal ambient temperature

Correct answer: B

24. What are the primary concern(s) for safely transporting and handling liquefied gas?

- A. a system of cargo tanks and piping free from leaks
- B. cargo tanks and piping located or protected to minimize physical damage
- C. cargo tanks and piping strong enough to withstand the pressure
- D. All of the above

Correct answer: D

25. The condition of asphyxia arises from which of the following?

- A. an inadequate supply of oxygen
- B. sleep deprivation
- C. improper caloric intake
- D. too much oxygen

Correct answer: A

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

- A. 43 U.S. gallons at 65°F
- B. 42 U.S. gallons at 60°F
- C. 40 U.S. gallons at 50°F
- D. 45 U.S. gallons at 75°F

Correct answer: B

27. Cryogenic burns can result in frostbite, what is the proper immediate treatment?

- A. Massage the affected area.
- B. Warm the area quickly by placing it in water at 108°F until it has thawed.
- C. Compress the affected area with cryogenic burn heat wrap.
- D. Apply ice to the area and gradually warm.

Correct answer: B

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

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

Correct answer: D

29. What causes the most frequent incidents of pollution during tanker operations?

- A. groundings
- B. collisions
- C. loading operations
- D. routine discharge of oil during ballasting and tank crude oil washing

Correct answer: C

30. Which of the following describes the flash point temperature of a liquid?

- A. that a liquid must reach before it will flow readily
- B. at which a liquid will give off inflammable vapors
- C. at which a liquid will explode
- D. at which a liquid will burn steadily

Correct answer: B

31. U.S. regulations require an emergency means of stopping the flow of oil or LNG during transfer operations. The emergency means may be which of the following?

- A. emergency pump control on the cargo deck
- B. self-closing automatic disconnect fitting
- C. manually-operated quick-closing valve
- D. automatic pressure-sensitive oil flow regulator

Correct answer: A

32. U.S. regulations state that a person may not transfer oil or hazardous materials to or from a vessel unless each person in charge has signed which of the following documents?

- A. machinery log
- B. valve inspection record
- C. Oil Record Book
- D. Declaration of Inspection

Correct answer: D

33. Who completes the Declaration of Inspection before loading a tank vessel?

- A. The US Coast Guard
- B. The manager of the shore facility
- C. The American Bureau of Shipping
- D. The designated person in charge

Correct answer: D

34. What is the primary hazard of liquefied petroleum gas and liquefied natural gas?

- A. flammability
- B. temperature
- C. toxicity
- D. pressure

Correct answer: A

35. When loading bulk liquid cargo, what is the FIRST action you should take if a cargo valve jammed open?

- A. Call the owner, operator, or terminal supervisor.
- B. Order the dock personnel to shut down.
- C. Trip the pump relief valve.
- D. Run out the vessel or terminal fire hose.

Correct answer: B

36. To ensure proper seating when closing a valve on a tank, what position should the valve be in?

- A. closed against the stop and the locking pin inserted
- B. closed, opened one turn, and then closed again
- C. set up tight using a valve wrench
- D. set up as tight as possible by hand

Correct answer: B

37. LNG is carried at approximately what temperature?

- A. -160 degrees K
- B. -160 degrees R
- C. -160 degrees F
- D. -160 degrees C

Correct answer: D

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

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

Correct answer: B

39. For all loading operations, the terminal must supply the vessel with a means in which the vessel's designated person in charge may stop the flow of oil to the vessel, insuring immediate shutdown in the event of a hose rupture, tank overflow, etc. Which of the following choices will accomplish this task as required by 33 CFR?

- A. a signal-board on the bridge
- B. a specific sequence of lights
- C. a pneumatically or mechanically operated device
- D. a loudhailer from the vessel bridge

Correct answer: C

40. What is a cofferdam?

- A. Area the product is loaded into
- B. Opening in the deck used for cleaning a tank
- C. Tube fitted to an ullage hole
- D. Void or empty space separating two tanks

Correct answer: D

41. Which of the following describes one of the principal dangers inherent in liquefied petroleum gas?

- A. as it warms up it becomes heavier than air
- B. the way it reacts with sea water
- C. the strong odor it produces
- D. its low temperature causes frostbite or freezing

Correct answer: D



42. What is span gas used for aboard liquefied natural gas carriers?

- A. odorize the cargo
- B. inert the barrier spaces
- C. detect leaks in cargo piping
- D. calibrate the gas leak detectors

Correct answer: D

43. When providing first aid to a victim of gas poisoning, what is the MOST important symptom to check for?

- A. slow and weak pulse
- B. unconsciousness
- C. cold and moist skin
- D. suspension of breathing

Correct answer: D

44. How should pinching of the cargo hose between the vessel and the dock be prevented?

- A. adjusting the hose supports
- B. laying out an excess length of hose on deck
- C. tying off the topping lifts and runners to winch heads
- D. install hose preventers

Correct answer: A

45. Cargo hose carried on tank vessels shall be able to withstand a pressure of at least how many psi?

- A. 75 psi
- B. 100 psi
- C. 120 psi
- D. 150 psi

Correct answer: D

46. It would be prudent to perform which of the following actions prior to the commencement of bunkering?

- A. plug the scuppers
- B. plug the vents
- C. close the lids on the vents
- D. plug the sounding pipes

Correct answer: A

47. What would likely happen if you were exposed to a 100% methane atmosphere for more than 15 minutes?

- A. break out in a cryogenic rash
- B. become quite ill due to the toxic nature of the gas
- C. suffocate
- D. be severely burned

Correct answer: C

48. Which topic is NOT required to be discussed at the pre-transfer conference?

- A. Emergency shutdown procedures
- B. Estimated time of finishing cargo
- C. Details of transferring and receiving systems
- D. Identity of the product to be transferred

Correct answer: B

49. What term is not considered a "discharge" as it applies to the U.S. pollution regulations?

- A. leaking diesel fuel oil
- B. sampling a harmful substance
- C. pumping a harmful substance
- D. spilling a harmful substance

Correct answer: B

50. Your tank vessel is loaded down to her marks, and you find that she has too much trim by the stern. What action should you take to obtain an even keel and still maintain profitability?

- A. shift bunkers forward
- B. load more cargo forward
- C. add ballast forward
- D. discharge cargo amidships

Correct answer: A