U.S.C.G. Merchant Marine Exam

Tankerman Assistant

Q457-Tankship Liquefied Gases

(Sample Examination)
Chose the best answer to the following Multiple Choice Questions.

1. 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) discharge cargo amidships
   - (D) add ballast forward

   If choice A is selected set score to 1.

2. How should pinching of the cargo hose between the vessel and the dock be prevented?
   - (A) tying off the topping lifts and runners to winch heads
   - (B) adjusting the hose supports
   - (C) laying out an excess length of hose on deck
   - (D) install hose preventers

   If choice B is selected set score to 1.

3. Which of the following is a safety consideration when dealing with Liquefied Gas?
   - (A) it's cold
   - (B) it's carcogenic
   - (C) it's caustic
   - (D) it's corrosive

   If choice A is selected set score to 1.

4. When two ballast pumps used for deballasting a single tank start cavitating, what action should you take?
   - (A) close the valve on the suction side of the ballast pump to re-prime the pump
   - (B) shut down one pump
   - (C) close the valve on the discharge side of the pump to re-acquire suction
   - (D) open all valves on the discharge side to permit improved flow

   If choice B is selected set score to 1.

5. When you notice oil on the water near your vessel while taking on fuel, what should your first action be?
   - (A) determine whether your vessel is the source
   - (B) stop loading
   - (C) notify the senior deck officer
   - (D) notify the terminal superintendent

   If choice B is selected set score to 1.
6. According to U.S. regulations, which of the following describes the declaration of inspection?

- (A) paper issued by the Coast Guard marine inspector which allows you to conduct a transfer operation
- (B) application you must complete and submit to the Coast Guard to have an inspector visit your vessel
- (C) document signed by vessel and shore facility persons in charge declaring that all transfer requirements have been met
- (D) annual report submitted by vessel personnel to the Coast Guard declaring that all transfer equipment has been inspected

If choice C is selected set score to 1.

7. What term is not considered a “discharge” as it applies to the U.S. pollution regulations?

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

If choice A is selected set score to 1.

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

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

If choice A is selected set score to 1.

9. Which of the following procedures would insure proper seating of the valve when closing?

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

If choice B is selected set score to 1.

10. Which of the following describes a liquefied gas?

- (A) A liquid that requires to be heated above normal ambient temperature to make it form a gas.
- (B) A liquid that needs to be stored at absolute zero to prevent it from becoming gaseous.
- (C) A gas that is mixed with another substance that causes it to liquefy.
- (D) A substance that at normal temperature and pressure would be a gas.

If choice D is selected set score to 1.
11. What do the designations A, B, C, D, and E grades of cargo define?
   • (A) pour point, color, and viscosity index of petroleum products
   • (B) degrees of quality of petroleum products
   • (C) flash point range and Reid vapor pressure index of petroleum products
   • (D) grades of crude oil

   *If choice C is selected set score to 1.*

12. When loading a tanker, you should perform which of the following functions to ensure a safe operation?
   • (A) keep a strain on the loading hoses
   • (B) load only one tank at a time
   • (C) keep the seamen on watch on standby in the messroom
   • (D) close valves by closing them down, re-opening one or two turns, and re-closing

   *If choice D is selected set score to 1.*

13. What are flame screens used for?
   • (A) prevent flames from entering tanks
   • (B) keep flames and sparks from getting out of an engine's exhaust system
   • (C) contain flammable fumes
   • (D) protect firefighters from flames

   *If choice A is selected set score to 1.*

14. Which statement is TRUE concerning insulating flanges?
   • (A) After the insulating flange is installed, hot-work may be performed on deck.
   • (B) They should be inspected and tested periodically to ensure that the insulation is clean and in good condition.
   • (C) Switching off a cathodic protection system may be substituted for using an insulating flange.
   • (D) The measured resistance value after installation should be less than 1,000 ohms.

   *If choice B is selected set score to 1.*

15. What is span gas used for aboard liquefied natural gas carriers?
   • (A) odorize the cargo
   • (B) calibrate the gas leak detectors
   • (C) detect leaks in cargo piping
   • (D) inert the barrier spaces

   *If choice B is selected set score to 1.*
16. What is the most common liquefied gas cargo?
   o (A) butane
   o (B) chemical gases
   o (C) hydrocarbons
   • (D) ammonia

   If choice D is selected set score to 1.

17. It would be prudent to perform which of the following actions prior to the commencement of bunkering?
   o (A) close the lids on the vents
   • (B) plug the scuppers
   o (C) plug the sounding pipes
   o (D) plug the vents

   If choice B is selected set score to 1.

18. How is an inert gas system designed to reduce the possibility of tank explosions?
   o (A) by removing all hydrocarbon gases from the cargo tanks
   o (B) by eliminating sparks and fire in the vicinity of cargo tanks
   • (C) by reducing the oxygen concentration below levels necessary for combustion
   o (D) by blanketing cargo tanks with inert foam

   If choice C is selected set score to 1.

19. In what condition is LNG transported?
   • (A) At its boiling point.
   o (B) At a pressure in excess of 15.4 psia.
   o (C) At its critical temperature.
   o (D) At its vapor stage.

   If choice A is selected set score to 1.

20. 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?
   o (A) a signal-board on the bridge
   o (B) a loudhailer from the vessel bridge
   • (C) a pneumatically or mechanically operated device
   o (D) a specific sequence of lights

   If choice C is selected set score to 1.
21. What do the designations A, B, C, D, and E refer to in grades of cargo?

- (A) flash point range and Reid vapor pressure index of petroleum products
- (B) pour point, color, and viscosity index of petroleum products
- (C) grades of crude oil
- (D) degrees of quality of petroleum products

*If choice A is selected set score to 1.*

22. What does the sign used to caution persons approaching the gangway of a tank barge during cargo transfer read?

- (A) "Warning, No Smoking, No Open Lights, No Visitors"
- (B) "Dangerous Cargo Being Transferred"
- (C) "Danger, Do Not Board"
- (D) "Warning, Keep Off, Stay Clear"

*If choice A is selected set score to 1.*

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

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

*If choice C is selected set score to 1.*

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

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

*If choice D is selected set score to 1.*

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

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

*If choice D is selected set score to 1.*
26. LNG is carried at approximately what temperature?

- (A) -160 degrees C
- (B) -160 degrees F
- (C) -160 degrees K
- (D) -160 degrees R

*If choice A is selected set score to 1.*

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

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

*If choice D is selected set score to 1.*

28. What is the lowest temperature at which the vapors of a flammable liquid will ignite and cause self-sustained combustion in the presence of a spark or flame?

- (A) fire point
- (B) flash point
- (C) vaporization temperature
- (D) autoignition temperature

*If choice A is selected set score to 1.*

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

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

*If choice B is selected set score to 1.*

30. Which alarm is NOT found on an inert gas system?

- (A) Low oxygen alarm
- (B) Deck seal low water alarm
- (C) Low pressure alarm
- (D) Scrubber high water level alarm

*If choice A is selected set score to 1.*
31. In reference to accidental oil pollution, the most critical time during bunkering is when __________.

- (A) you first start to receive fuel
- (B) final topping off is occurring
- (C) hoses are being blown down
- (D) hoses are being disconnected

*If choice B is selected set score to 1.*

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

*If choice D is selected set score to 1.*

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

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

*If choice D is selected set score to 1.*

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

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

*If choice C is selected set score to 1.*

35. According to 46 CFR there are specific alarms that are required to be tested prior to cargo transfer. Which of the following items does not require testing?

- (A) low liquid level alarms
- (B) quick closing loading valves
- (C) high level audible alarm
- (D) high level visual alarm

*If choice A is selected set score to 1.*
36. What causes the most frequent incidents of pollution during tanker operations?

- (A) routine discharge of oil during ballasting and tank crude oil washing
- (B) collisions
- (C) loading and discharging
- (D) groundings

*If choice C is selected set score to 1.*

37. Which of the following describes intrinsically safe equipment?

- (A) an electrical circuit normally limited to instrumentation in hazardous areas
- (B) an electrical circuit in which a spark is incapable of causing the ignition of a given explosive mixture
- (C) electrical circuits under 12 volts
- (D) electrical circuits under 2 amperes

*If choice B is selected set score to 1.*

38. 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 red light visible all around the horizon
- (B) A flashing yellow light
- (C) An illuminated red and yellow caution flag
- (D) A green light visible all around the horizon

*If choice A is selected set score to 1.*

39. Span gas is used for what process?

- (A) To insure an inert atmosphere during the span of time when a system is being brought to a dry air condition from a flammable atmosphere.
- (B) To calibrate a gas analyzer to ensure it indicates correct gas concentrations.
- (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.

*If choice B is selected set score to 1.*

40. Your vessel is securely moored to the berth preparing to discharge a cargo of LPG. Which of the following items would not comply with a "Safety Checklist" and should be corrected?

- (A) the inert gas system deck water seal is drained and secured
- (B) cargo tanks atmosphere pressure is positive, with an oxygen content of 8% or below
- (C) the fixed and portable oxygen analyzers are calibrated and operational
- (D) there is sufficient pumproom ventilation

*If choice A is selected set score to 1.*
41. What is the proper first aid for LPG in the eye?
   
   o (A) Rub the eye area clean.
   o (B) Apply an ice pack to the eye.
   • (C) Flush the eye with plenty of water.
   o (D) Keep the eyelid closed.

   *If choice C is selected set score to 1.*

42. What does the MARPOL 73/78 convention deal with?

   o (A) International Convention on Standards of Training Certification and Watch keeping
   • (B) International Convention for the Prevention of Pollution from Ships
   o (C) International Convention of Safety of Life at Sea
   o (D) International Marine Organization Gas Carrier Code

   *If choice B is selected set score to 1.*

43. What is the lowest temperature at which a liquid will give off sufficient vapors to form a flammable mixture with air?

   • (A) flash point
   o (B) threshold limit value
   o (C) fire point
   o (D) lower explosive limit

   *If choice A is selected set score to 1.*

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

   o (A) 45 U.S. gallons at 75°F
   o (B) 43 U.S. gallons at 65°F
   • (C) 42 U.S. gallons at 60°F
   o (D) 40 U.S. gallons at 50°F

   *If choice C is selected set score to 1.*

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

   o (A) crossover line
   • (B) suction side of pump
   o (C) cargo pump pressure gauge
   o (D) atmosphere through pump vent

   *If choice B is selected set score to 1.*
46. Cryogenic burns can result in frostbite, what is the proper immediate treatment?

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

*If choice D is selected set score to 1.*

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

- (A) junction
- (B) connection
- (C) crossover
- (D) transfer

*If choice C is selected set score to 1.*

48. If you observe any situation which presents a safety or pollution hazard during the fuel transfer operations, which action should you take FIRST?

- (A) Shut down the operation.
- (B) Notify the person in charge of the shore facility.
- (C) Sound the general alarm.
- (D) Close the valves at the manifold.

*If choice A is selected set score to 1.*

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

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

*If choice D is selected set score to 1.*

50. What is NOT a precaution to be taken when topping off?

- (A) Notify the engine room of the procedure.
- (B) Give the operation your undivided attention.
- (C) Maintain communications with the dock man.
- (D) Reduce the loading rate.

*If choice A is selected set score to 1.*