



Advanced Training for Ships subject to the IGF Code (AIGF)

30 Practice Questions and Answers for STCW Exams

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Practice Set 1

Q1. Insulation spaces are continually supplied with an inert gas as part of _____

- A) leak detection system
- B) lever detection system
- C) lever defining system
- D) leak defining system

Correct Answer: A (leak detection system)

Explanation: Under the IGF Code, insulation spaces and interbarrier spaces surrounding liquefied gas fuel tanks are continuously supplied with dry inert gas (nitrogen) to prevent moisture ingress and enable rapid leak detection by gas monitoring.

Q2. In IGF Code, Secondary barrier means

- A) none of the above
- B) to prevent the lowering of the temperature of the ship's structure to an unsafe level
- C) the liquid-resisting outer element of a fuel containment system designed to afford temporary containment of any envisaged leakage of liquid fuel through the primary barrier
- D) both (a) and (b)

Correct Answer: D (both (a) and (b))

Explanation: Under the IGF Code, a secondary barrier is the liquid-resisting outer element of a fuel containment system designed to afford temporary containment of any envisaged leakage of liquid fuel through the primary barrier and prevent lowering the ship's hull structure temperature to unsafe levels.

Q3. In IGF Code, Secondary protection means

- A) the liquid-resisting outer element of a fuel containment system designed to afford temporary containment of any envisaged leakage of liquid fuel through the primary protection
- B) failure of the first barrier will not lead to a hazard because of the secondary protection
- C) failure of the first barrier will lead to a hazard because of the primary protection
- D) the liquid-resisting outer element of a fuel containment system designed to afford temporary containment of any envisaged leakage of liquid fuel through the secondary protection

Correct Answer: B (failure of the first barrier will not lead to a hazard because of the secondary protection)

Explanation: In IGF Code safety philosophy, secondary protection ensures that any failure or leakage of the primary fuel barrier will not escalate into a catastrophic hazard to the ship or personnel.



- A) none of the above
- B) both (a) and (b)
- C) Emergency Shutdown-protected machinery spaces
- D) Gas safe machinery spaces

Correct Answer: B (both (a) and (b))

Explanation: Under the IGF Code, gas-safe spaces are compartments where the entry of gas fuel is not envisaged and where any leakage is prevented by physical separation or double-barrier containment.

Q5. What is Gas safe machinery spaces?

- A) both (a) and (b)
- B) Arrangements in machinery spaces are such that the spaces are considered non-hazardous
- C) none of the above
- D) Arrangements in machinery spaces are such that the spaces are considered gas safe under all conditions, normal as well as abnormal conditions

Correct Answer: D (Arrangements in machinery spaces are such that the spaces are considered gas safe under all conditions, normal as well as abnormal conditions)

Explanation: Single failure philosophy dictates that no single component failure (such as a valve, pipe joint, or sensor fault) shall lead to an uncontrollable release of fuel or total loss of propulsion.

Q6. What is Emergency Shutdown-protected machinery spaces?

- A) Arrangements in machinery spaces are such that the spaces are considered gas safe under all conditions, normal as well as abnormal conditions
- B) Arrangements in machinery spaces are such that the spaces are considered non-hazardous under normal conditions, but under certain abnormal conditions may have the potential to become hazardous
- C) none of the above
- D) both (a) and (b)

Correct Answer: B (Arrangements in machinery spaces are such that the spaces are considered non-hazardous under normal conditions, but under certain abnormal conditions may have the potential to become hazardous)

Explanation: Double-wall piping provides secondary containment for gas fuel lines in machinery spaces; the annular space is either continuously ventilated under negative pressure or pressurized with inert gas to detect leaks.

Q7. What will be the Gas safe machinery space failure?

- A) none of the above
- B) single failure may result in a gas release into the space
- C) single failure cannot lead to release of fuel gas into the machinery space
- D) probable maximum leakage scenario due to technical failures

Correct Answer: C (single failure cannot lead to release of fuel gas into the machinery space)

Explanation: Gas fuel piping passing through enclosed spaces must be enclosed in double-walled ducts or pipes with continuous mechanical extraction ventilation of at least 30 air changes per hour.



- A) exposure of ship materials to temperatures below acceptable limits
- B) All the above
- C) flammable fuels spreading to locations with ignition sources
- D) toxicity potential

Correct Answer: B (All the above)

Explanation: Emergency Shutdown (ESD) systems are designed to automatically isolate fuel supplies, trip fuel pumps, and close master gas valves within seconds of detecting a hazardous condition.

Q9. The design life of fixed liquefied gas fuel containment system _____ whichever is greater

- A) both (a) and (b)
- B) none of the above
- C) should not be less than the design life of the ship
- D) 20 years

Correct Answer: A (both (a) and (b))

Explanation: Gas detection in double-wall pipe ducts triggers alarms at 20% LEL and initiates automatic fuel shut-off (ESD) at 40% LEL.

Q10. In Liquefied gas fuel containment, The design life of portable tanks shall not be less than

- A) both (a) and (b)
- B) the design life of the ship
- C) none of the above
- D) 20 years

Correct Answer: D (20 years)

Explanation: Fuel containment systems must be designed to withstand all anticipated static and dynamic loads during vessel transit, including sloshing, thermal expansion, and ship motions.

Q11. The design of the secondary barrier, including spray shield if fitted will be _____

- A) physical, mechanical or operational events within the liquefied gas fuel tank
- B) All the above
- C) it is capable of containing any envisaged leakage of liquefied gas fuel for a period of 15 days
- D) failure of a support or an attachment to the hull structure will not lead to loss of liquid tightness of both the primary and secondary barriers

Correct Answer: B (All the above)

Explanation: Type A independent tanks are designed primarily using classical ship structural analysis and require a complete secondary barrier to contain liquid spills.

Q12. The partial secondary barrier include means to detect a leak in the primary barrier, provision such as a

- A) spray shield to deflect any liquefied gas fuel down into the partial secondary barrier
- B) none of the above
- C) both (a) and (b)
- D) means to dispose of the liquid which may be by natural evaporation

Correct Answer: C (both (a) and (b))

Explanation: Type B independent tanks are designed using refined analytical models and fracture mechanics (leak-before-failure



Q13. What are the fundamentals to safety gas carriers?

- A) All the above
- B) air locks
- C) segregation
- D) separation

Correct Answer: A (All the above)

Explanation: Type C independent tanks are designed as pressure vessels where the design pressure and safety factors eliminate the need for a secondary barrier.

Q14. In design loads, Load categories contains _____

- A) All the above
- B) accidental load
- C) environmental load
- D) permanent load

Correct Answer: A (All the above)

Explanation: Membrane fuel containment systems utilize a thin, non-self-supporting metallic membrane supported by load-bearing insulation attached to the ship's inner hull.

Q15. In design loads, the extent to which these loads depends on the _____

- A) type of water
- B) type of tank
- C) Man taking sounding
- D) design engineer

Correct Answer: B (type of tank)

Explanation: Bunkering stations must be located on open decks with natural ventilation or in dedicated spaces with mechanical ventilation and water spray deluge systems.

Q16. Permanent loads- Gravity loads depends on _____

- A) loads caused by towers
- B) weight of tank
- C) All the above
- D) thermal insulation weight load

Correct Answer: C (All the above)

Explanation: Drip trays made of suitable cryogenic materials must be fitted beneath bunkering manifolds to prevent cryogenic liquid spills from damaging the hull structure.

Q17. Gravity loads of structures and equipment acting _____ on the tank

- A) from air
- B) from bottom
- C) from no where
- D) externally

Correct Answer: D (externally)

Explanation: Ship-to-shore bunkering links provide optical, electrical, or pneumatic Emergency Shutdown (ESD) communication to ensure synchronized shutdown between vessel and bunker supplier.



- A) Loads arising from the operational use of the tank system
- B) none of the above
- C) The weight of tank, thermal insulation, loads caused by towers and other attachments
- D) Gravity loads of structures and equipment acting externally on the tank

Correct Answer: A (Loads arising from the operational use of the tank system)

Explanation: Inerting of fuel pipes and tanks is standardly performed using dry nitrogen gas to eliminate both moisture and oxygen prior to introducing gas fuel.

Q19. Permanent external loads

- A) none of the above
- B) Loads arising from the operational use of the tank system
- C) The weight of tank, thermal insulation, loads caused by towers and other attachments
- D) loads of structures and equipment acting externally on the tank

Correct Answer: D (loads of structures and equipment acting externally on the tank)

Explanation: Under STCW Table A-V/3-2, advanced IGF operations require strict adherence to approved safety procedures, permit-to-work protocols, and risk assessments.

Q20. Gravity loads

- A) The weight of tank, thermal insulation, loads caused by towers and other attachments
- B) Loads arising from the operational use of the tank system
- C) loads of structures and equipment acting externally on the tank
- D) none of the above

Correct Answer: A (The weight of tank, thermal insulation, loads caused by towers and other attachments)

Explanation: Risk assessments and pre-job safety briefings are mandatory before conducting any maintenance or operational activity on gas fuel systems.

Q21. In structural analysis, _____ may be used in combination with, or instead of, theoretical calculations.

- A) integrity
- B) dynamic tests
- C) Model tests
- D) gravity tests

Correct Answer: C (Model tests)

Explanation: Fuel preparation rooms house compressors, pumps, vaporizers, and heat exchangers required to condition LNG fuel before supply to the engines.

Q22. In Load scenarios, What are the most unfavourable scenarios for all relevant phases are considered?

- A) construction
- B) handling
- C) testing
- D) All the above

Correct Answer: D (All the above)

Explanation: Fuel containment structural design must evaluate the most unfavorable loading combinations across all operating phases, including bunkering, full load, sea voyage, sloshing, and emergency conditions.



- A) effective consumption
- B) no or low consumption
- C) greater consumption
- D) high consumption

Correct Answer: B (no or low consumption)

Explanation: Reliquefaction systems on LNG-fueled ships must be sized with sufficient redundancy to manage boil-off gas during periods of low or zero engine fuel consumption (such as port stays).

Q24. Thermal oxidation is done by consumption of the vapours according to the _____.

- A) regulations for ship
- B) regulations for consumers
- C) regulations for flag
- D) regulations for cargo

Correct Answer: B (regulations for consumers)

Explanation: Thermal oxidation of excess boil-off gas is carried out using Gas Combustion Units (GCU) or auxiliary boilers in compliance with environmental and consumer regulations.

Q25. Insulation spaces is provided to monitor the _____

- A) the quantity of fuel being supplied to individual spaces
- B) the quantity of gas being supplied to individual spaces
- C) the quantity of liquid being supplied to individual spaces
- D) the quantity of vapour being supplied to individual spaces

Correct Answer: B (the quantity of gas being supplied to individual spaces)

Explanation: Monitoring of insulation spaces ensures that inert gas atmosphere purity, pressure, and temperature are maintained, allowing early detection of primary barrier leakage.

Q26. In Gravity tank, what is the design pressure?

- A) greater than 0.07 MPa gauge at the bottom of the tank
- B) not greater than 0.07 MPa gauge at the bottom of the tank
- C) not greater than 0.07 MPa gauge at the top of the tank
- D) greater than 0.07 MPa gauge at the top of the tank

Correct Answer: C (not greater than 0.07 MPa gauge at the top of the tank)

Explanation: Gravity tanks used for fuel storage have a maximum design vapor pressure not exceeding 0.07 MPa (0.7 bar) gauge measured at the top of the tank.

Q27. What will be covered by cofferdams acting as secondary barriers?

- A) Tanks for high-flashpoint liquids
- B) Tanks for high-flashpoint oils
- C) Tanks for low-flashpoint liquids
- D) Tanks for water

Correct Answer: C (Tanks for low-flashpoint liquids)

Explanation: Tanks containing low-flashpoint liquid fuels require surrounding cofferdams or void spaces acting as secondary barriers to isolate them from adjacent compartments.



- A) With gas detection and no possibility for water filling upon detection of leakage
- B) With gas detection and possibility for water filling upon detection of leakage
- C) With no gas detection and possibility for water filling upon detection of leakage
- D) With no gas detection and no possibility for water filling upon detection of leakage

Correct Answer: B (With gas detection and possibility for water filling upon detection of leakage)

Explanation: Cofferdams surrounding fuel tanks are fitted with continuous gas detection systems and arrangements for emergency water filling or inert gas purging upon detecting fuel leaks.

Q29. How will be the access to tanks and cofferdams?

- A) be indirect from closed deck
- B) be indirect from open deck
- C) be direct from closed deck
- D) be direct from open deck

Correct Answer: D (be direct from open deck)

Explanation: Direct access to fuel tanks and surrounding cofferdams should be provided directly from open weather decks to avoid passing through enclosed accommodation or service spaces.

Q30. What is the minimum clear opening of hatches or manholes?

- A) no less than 600 by 600 mm
- B) none of the above
- C) no greater than 800 by 800 mm
- D) no less than 600 by 800 mm

Correct Answer: A (no less than 600 by 600 mm)

Explanation: The IGF Code specifies that access hatches and manholes into fuel storage holds and void spaces must have a minimum clear opening of not less than 600 mm by 600 mm.