

# **National Marine Manufacturers Association**

## **Product Compliance Specialist Examination**

### **Carbon Monoxide Detectors and CO Concerns (12/07)**

#### **ABYC A-24, TH-22, TH-23**

1. Carbon Monoxide is:
  - a. Heavier than air
  - b. Lighter than air
  - c. Mixes evenly with air
  - d. Is explosive
  
2. Carbon Monoxide can collect inside a boat from:
  - a. The station wagon effect
  - b. A tail wind while idling
  - c. A blocked or leaky exhaust
  - d. An adjacent vessel
  - e. All of the above
  
3. If exposed to Carbon Monoxide concentrations of 800 parts per million for twenty minutes, a person may:
  - a. Have a headache and be nauseas or drowsy
  - b. Have permanent brain damage
  - c. Collapse into a coma
  - d. Have a 50%CHOb concentration
  
4. If exposed to 100 parts per million CO from 1:00 pm to 4:00 pm, a person may:
  - a. Die
  - b. Collapse
  - c. Have a headache
  - d. Be nauseous
  
5. A diesel powered boat is immune from carbon monoxide intrusion into enclosed spaces:
  - a. True
  - b. False

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6. Carbon monoxide poisoning can be confused with seasickness or intoxication.
  - a. True
  - b. False
  
7. The term %COHb is:
  - a. The percentage of carbon monoxide that the blood can absorb
  - b. The percentage of oxygen that the blood can absorb
  - c. The extent to which the blood is hindered from absorbing CO
  - d. The degree to which the oxygen carrying capacity of blood is impeded by the union of carbon monoxide to the hemoglobin in the blood expressed as a percentage.
  
8. CO detectors must be provided with:
  - a. Operation instructions
  - b. Mounting instructions
  - c. The detector manufacturer's recommendations for testing of the unit
  - d. All of the above
  
9. Back drafting is caused by:
  - a. Excessive exhaust back pressure
  - b. Air movement over or around a boat
  - c. Ignition of fuel and air in a gasoline powered engine
  - d. Following a gasoline powered vessel too closely
  
10. Carbon monoxide generated from a gasoline engine is greatest when:
  - a. The engine is at operating temperature
  - b. The carburetor float level is low
  - c. The engine is first started
  - d. The engine is shut down

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11. The detector shall be mounted and located to avoid dilution of sampled air

- a. True
- b. False

12. Carbon monoxide:

- a. Smells like gasoline engine exhaust fumes
- b. Has a sour taste
- c. Looks like smoke
- d. None of the above
- e. All of the above

13. Symptoms of a person with 10% COHb for 4 hours may include:

- a. No symptoms
- b. Vomiting
- c. Nausea
- d. Collapse

14. CO can migrate into a vessel through:

- a. Sink drains.
- b. Voids or openings in bulkheads.
- c. Any drain that is above the waterline while underway and/or at rest.
- d. All of the above

15. Carbon Monoxide accumulation is affected by:

- a. Hatch, window and door openings
- b. Vessel geometry
- c. Canvas enclosures
- d. all of the above

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16. CO monitors:

- a. Must be certified to UL 2034 by an independent third party
- b. Must be certified by an independent third party to UL 1500
- c. Must have a power switch on the detector
- d. Must be powered by the boat's AC power system

17. If a circuit breaker is installed, it shall include a block or other multi-step means to prevent it from being inadvertently turned off.

- a. true
- b. false

18. On gasoline powered vessels, CO monitors must be installed:

- a. Directly below the entryway door in an enclosed accommodation space
- b. In every head
- c. to monitor the atmosphere in the main cabin and every sleeping area
- d. In the galley near the stove or cook top

19. CO monitors can be wired directly to the energized side of a battery switch.

- a. True
- b. False

20. CO monitors shall be powered by:

- a. A self-contained battery
- b. The DC electrical system
- c. The AC electrical system
- d. Both A and B

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21. Instructions included with the detector shall include actions to be taken when the alarm system sounds, wherein the order of action is evacuate, ventilate, investigate, and take corrective action

- a. True
- b. False

22. A gasoline powered cuddy cabin boat, where the cuddy cabin is intended for gear storage only, may be considered to have an enclosed accommodation compartment.

- a. True
- b. False

23. CO levels in excess of \_\_\_\_\_, stabilized for over 5 minutes, in an accommodation compartment are cause for concern, and attempts should be made to reduce such levels.

- a. 100 ppm
- b. 125 ppm
- c. 50 ppm
- d. 180 ppm

24. Isolated, short-term increases of CO to levels above 125 ppm, for less than 5 minutes,

- a. Represents a serious CO condition.
- b. May not represent a serious condition
- c. May need a warning label
- d. May need to be ventilated

25. All new and substantially modified models of gasoline powered boats with accommodation compartments must be tested for CO and O<sub>2</sub> concentrations

- a. true
- b. false