

National Marine Manufacturers
Association
Product Compliance Specialist Examination
Basic Flotation (12/07)

1. The definition of the term “Deadweight” is
 - a. The maximum weight capacity minus the persons capacity for outboards
 - b. The maximum weight capacity minus the persons capacity for inboards, sterndrives, and airboats
 - c. The maximum weight capacity minus the total weight listed in (ABYC S-30) for the maximum recommended horsepower engine weight minus the persons capacity for inboards, sterndrives, and airboats
 - d. The maximum weight capacity minus the engine weight listed in (ABYC S-30) for the maximum recommended horsepower engine weight minus the persons capacity for outboards

2. The reference depth is an important measurement for basic flotation testing?
 - a. True
 - b. False

3. The total flotation material needed for basic flotation, requires which of the following items to be added together,
 - a. Flotation for the submerged boat
 - b. Flotation for the submerged propulsion machinery
 - c. Flotation for the passengers
 - d. All of the above

4. Basic flotation is required for
 - a. Inboard, sterndrive and outboard boats
 - b. Inboard, sterndrive, water jet drive & airboats less than 20’
 - c. Inboard and sterndrive boats only less than 20’
 - d. All outboard powered boats less than 26’

5. After pre-conditioning, a basic float boat must have enough flotation to keep a portion of the boat above the surface of the water when loaded with weights,
 - a. Equal to 75 % of the dry weights of propulsion system and battery(s)
 - b. Equal to 25 % of the persons capacity marked on the boat
 - c. Equal to 25 % of the dead weight
 - d. All of the above

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6. The value “K” used in flotation calculations refers to,
 - a. Ambient temperature expressed in degrees Kelvin
 - b. Dry weights of equipment, hardware, and accessories
 - c. Buoyancy of flotation material in pounds per cubic foot
 - d. Conversion factors for submerged material weights

7. To determine basic flotation for a boat you must know
 - a. The capacity of water and waste tanks
 - b. The swamped weight of the boat
 - c. The swamped weight of the outboard engine
 - d. The combined weight of the boat in salt water

8. Basic flotation requires that all boats of a specific model must
 - a. Include all equipment that may be offered by the dealer to the purchaser.
 - b. Include all optional equipment that was intended or designed for the vessel
 - c. Include all optional equipment that can theoretically be installed on a boat
 - d. exclude all optional equipment the manufacturer permanently installs

9. A 3 cubic foot block of flotation foam weighs 2.4 lbs per cubic foot and absorbs or retains 9% of weight in fresh water after preconditioning. What is its buoyancy of this block of foam?
 - a. 187.2 lbs
 - b. 186.7 lbs
 - c. 62.4 lbs
 - d. 180 lbs

10. If integral air chambers are used for flotation,
 - a. The two largest chambers must be excluded
 - b. Only the two largest chamber must be included
 - c. Only the smallest chambers are used
 - d. They cannot be included as part of the flotation requirement.

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11. When calculating basic flotation requirements, the value We
- a. Is the conversion factor for factory installed equipment, hardware and accessories
 - b. Is the submerged weight for factory installed equipment, hardware, and accessories
 - c. Is the dry weight for factory installed equipment, hardware, and accessories
 - d. May be separated into different submerged material weights instead of using the .63 conversion factor
12. Weights for inboard engines and related equipment may be obtained from ABYC section S-30 tables 1a or 1b.
- a. True
 - b. False
13. The Federal regulation with respect to flotation differs from the ABYC requirements in which of the following ways:
- a. The Federal regulation requires less flotation material to support the submerged boat
 - b. The Federal regulation requires more flotation material to support the submerged boat
 - c. The Federal regulation requires less flotation material to support the live load
 - d. The Federal regulation requires more flotation material to support the live load
14. What is the submerged weight of a Plexiglas windshield with a rolled stainless steel frame when the Plexiglas weighs 30 lbs and frame weighs 32 1/4 lbs?
- a. 26.5 lbs
 - b. 31.2 lbs
 - c. 33.5 lbs
 - d. 37.6 lbs

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For Questions: 15-20:

A 19' 8" inboard boat with a 6' 6" beam has the following weights and information:

V8 Inboard -- 925 lb.
Maximum weight capacity -- 1,225 lb.
Maximum person's capacity -- 955 lb. or 6 persons
Dry hull weight – 990 lbs.—
 Fiberglass - 975 lb.
 Balsa - 15
Dry deck weight –260lbs—
 Fiberglass 250 lb.
 Balsa - 10 lb.
Hardware & optional equipment -- 280 lb.
Fuel capacity – 50 gals
Battery – 45 lbs
Buoyancy of flotation foam (lbs/ft³) – 60.4

15. What is the swamped weight of the boat?
- a. 273.25 lbs
 - b. 466.45 lbs
 - c. 597.45 lbs
 - d. 728.45 lbs
16. How much flotation foam is required to support the swamped boat?
- a. 6.73 ft³
 - b. 9.95 ft³
 - c. 10.3 ft³
 - d. 7.72 ft³
17. How much flotation foam is required to support the person's capacity and dead weight?
- a. 3.52 cubic feet
 - b. 4.00 cubic feet
 - c. 4.83 cubic feet
 - d. 3.83 cubic feet

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18. How much flotation foam is required to support the propulsion equipment?
- a. 8.56 ft³
 - b. 12.04 ft³
 - c. 12.87 ft³
 - d. 13.31 ft³
19. What is the total required amount of flotation material?
- a. 11.51 ft³
 - b. 12.08 ft³
 - c. 23.59 ft³
 - d. 29.70 ft³
20. If a fully loaded vessel in the example above sank and had the required amount of flotation foam for basic flotation, what is its swamped weight with passengers clinging to it?
- a. Less than 0.0 lbs
 - b. 137.45 lbs
 - c. 466.25 lbs
 - d. 674.45 lbs
21. Before conducting the flotation testing preconditioning of the boat requires:
- a. Removal of all optional equipment
 - b. Swamping the boat for at least 18 hours
 - c. Seal off empty water and holding tanks
 - d. Be sure integral air chambers are vented
22. If non-integral air chambers are used for basic flotation:
- a. Requirements shall be met using only the two largest air chambers
 - b. Non-integral air chambers are to be pressurized to 3 psi
 - c. Requirements shall be met excluding the two largest air chambers
 - d. Non-integral air chambers are not allowed

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23. The factor for determining the submerged weight of aluminum is?
- a. .62
 - b. 2.73
 - c. Weight times .63
 - d. .63
24. Flotation material installed less than 12" above the lowest point in an engine compartment must meet which tests
- a. Reference fuel B ASTM D-471
 - b. A five percent solution of trisodium phosphate in water
 - c. Both A & B
 - d. Either A & B
25. A boat that has the correct amount of flotation material for basic flotation:
- a. The swamped boat may float at any angle
 - b. The swamped boat should float upright
 - c. The swamped boat may not float after 18 hours
 - d. Basic flotation is intended to prevent swamping