

U.S.C.G. Merchant Marine Exam  
Mate of Unlimited Tonnage  
Q312 Great Lakes Topics  
(Sample Examination)

**Choose the best answer to the following Multiple Choice Questions:**

**1.** Which statement is TRUE concerning weather conditions on the Great Lakes?

- (A) When a vessel is north of an eastward-moving storm center, changes in the weather are less distinctive than when sailing south of the center.
- (B) When a vessel is south of an eastward-moving storm center, the approach of the low is evidenced by winds from the north to northeast.
- (C) The most destructive storms usually come from the northwest or north.
- (D) Thunderstorms are most likely to develop from November through April.

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

**2.** Your vessel is broken down and rolling in heavy seas. How can you reduce the danger of capsizing?

- (A) Move all passengers to the stern
- (B) Move all passengers to one side of the boat
- (C) Constantly shifting the rudder
- (D) Rigging a sea anchor

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

**3.** A vessel operating on the Great Lakes, and whose position is south of an eastward-moving storm center, would experience which condition?

- (A) A rising barometer
- (B) Fog
- (C) High clouds
- (D) A southeast to south wind

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

**4.** Aboard a vessel, what does dividing the sum of the longitudinal moments by the total weight yield?

- (A) The vessel's LCG
- (B) The inclining moments
- (C) The vertical moments
- (D) The righting moments

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

**5.** On the Great Lakes, winter storms compound the ice threat by bringing a variety of wind, wave, and weather problems. On an average of how often does these storms occur?

- (A) Every three days
- (B) Every five days
- (C) Every two days
- (D) Every four days

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

**6.** Which statement about stopping a vessel is TRUE?

- (A) A tunnel bow thruster can be used in an emergency to reduce the stopping distance.
- (B) A vessel is dead in the water when the back wash from astern operation reaches the bow.
- (C) When a vessel is dead in the water any speed displayed by Doppler log reflects the current.
- (D) A lightly laden vessel requires as much stopping distance as a fully laden vessel when the current is from astern.

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

**7.** If the cause of a sudden severe list or trim is negative initial stability, counter-flooding into empty tanks may cause which of the following?

- (A) Cause the unit to flop to a greater angle
- (B) The increase the righting moment
- (C) Bring the unit to an upright equilibrium position
- (D) Cause an increase in the righting arm

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

**8.** Which publication would give detailed information on the commercial vessel traffic reporting system for connecting waters from Lake Erie to Lake Huron?

- (A) U.S. Coast Guard Light List - Vol. VII
- (B) United States Coast Pilot Number 6 - Great Lakes
- (C) Code of Federal Regulations - Title 33
- (D) The appropriate Great Lakes Navigation Chart

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

**9.** Assume that your vessel has just entered Lake Erie by way of the Welland Canal and is proceeding in a southwesterly direction. Which statement about the aids to navigation you can expect to encounter along the route is TRUE?

- (A) All aids are maintained by the U.S. Coast Guard, 9th Coast Guard District, Cleveland, Ohio.
- (B) The characteristics of buoys and other aids are as if "returning from seaward" when proceeding in this direction.
- (C) All red even-numbered buoys should be kept on your port side when proceeding in this direction.
- (D) Lighted aids, fog signals, and radio beacons maintained by Canada are not included in the Great Lakes Light List.

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

**10.** Which action will affect the trim of a vessel?

- (A) Moving high weights lower
- (B) Adding weight at the tipping center
- (C) Moving a weight forward
- (D) Removing weight at the tipping center

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

**11.** Using sheet 25 in the Guidance Manual for Loading M.V. Grand Haven, determine the amount of ballast required in tank No. 5 (P & S) to maintain drafts of 17'-00" forward and 22'-06" aft for a vessel loaded with grain which has a test weight of 33 lbs.

- (A) 1010 tons each
- (B) 1025 tons each
- (C) 1045 tons each
- (D) 1070 tons each

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

**12.** How are aids to navigation on the Great Lakes arranged geographically?

- (A) In an easterly and southerly direction, except on the New York State Barge Canal
- (B) In a westerly and northerly direction, except on Lake Michigan
- (C) In a westerly and northerly direction, except on Lake St. Clair
- (D) In an easterly and southerly direction, except on Lake Erie

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

**13.** When turning a ship in restricted space with a strong wind, which is the BEST action to take?

- (A) Turn so that the tendency to back into the wind can be used, if on a single-screw vessel
- (B) Go ahead on both engines with the rudder hard to one side, if on a twin-screw vessel
- (C) Take advantage of the tendency to back to port, if on a twin-screw vessel
- (D) Back down with the rudder hard to one side, if on a single-screw vessel

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

**14.** Which describes ice blink?

- (A) The soft light appearance on the underside of a cloud layer due to reflection from a surface of open water
- (B) A whitish glare on the underside of a cloud layer
- (C) The dark appearance of the underside of a cloud layer due to reflection of a surface of open water
- (D) A water sky

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

**15.** In illustration D033DG below, what is the joint indicated by letter D?

- (A) A sheet line
- (B) A span
- (C) A seam
- (D) A butt

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

**16.** Which term is used to describe the projecting lugs of the rudderpost which furnish support to the rudder?

- (A) Gudgeons
- (B) Bases
- (C) Rudder lugs
- (D) Pintles

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

**17.** Where on a vessel are the load line markings shown in illustration D031DG inscribed?

- (A) The port side
- (B) The starboard side
- (C) Both the port and starboard sides
- (D) Around the stern

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

**18.** How are nautical charts published by the Canadian Hydrographic service which are referenced in the United States Coast Pilot identified?

- (A) The letter "C" in parentheses following the chart number
- (B) A footnote number
- (C) An asterisk preceding the chart number
- (D) The abbreviation "can" preceding the chart number

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

**19.** Regulations define the bulkhead deck as \_\_\_\_\_. (subdivision and stability regulations)

- (A) any deck extending from stem to stern
- (B) the uppermost deck to which transverse watertight bulkheads extend
- (C) the uppermost complete deck
- (D) the lowermost deck to which transverse watertight bulkheads extend

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

**20.** Which is usually the most gentle way of riding out a severe storm on a larger vessel?

- (A) Running before the seas
- (B) Head into the seas at slow speeds
- (C) Hove to
- (D) Rig a sea anchor

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

**21.** Ice concentration is measured in tenths. What concentration range of ice corresponds to "Open Pack"?

- (A) < 1 tenth
- (B) 1 - 3 tenths
- (C) 4 - 6 tenths
- (D) 7 - 8 tenths

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

**22.** Which describes the difference between the height of the metacenter and the height of the center of gravity of a vessel?

- (A) Metacentric height
- (B) Fore and aft perpendicular
- (C) Height of the center of buoyancy
- (D) Height of the righting arm

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

**23.** Assuming that the recommended hatch loading sequence is followed, how many long tons of iron ore may be loaded through hatch No. 20 while using a single belt loader to arrive at a desired mean keel draft of 29'-06"? (Use the Guidance Manual for Loading M.V. GRAND HAVEN.)

- (A) 1550 tons
- (B) 2920 tons
- (C) 3010 tons
- (D) 3515 tons

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

**24.** Which of the Great Lakes generally has the shortest navigation season?

- (A) Lake Superior
- (B) Lake Michigan
- (C) Lake Erie
- (D) Lake Huron

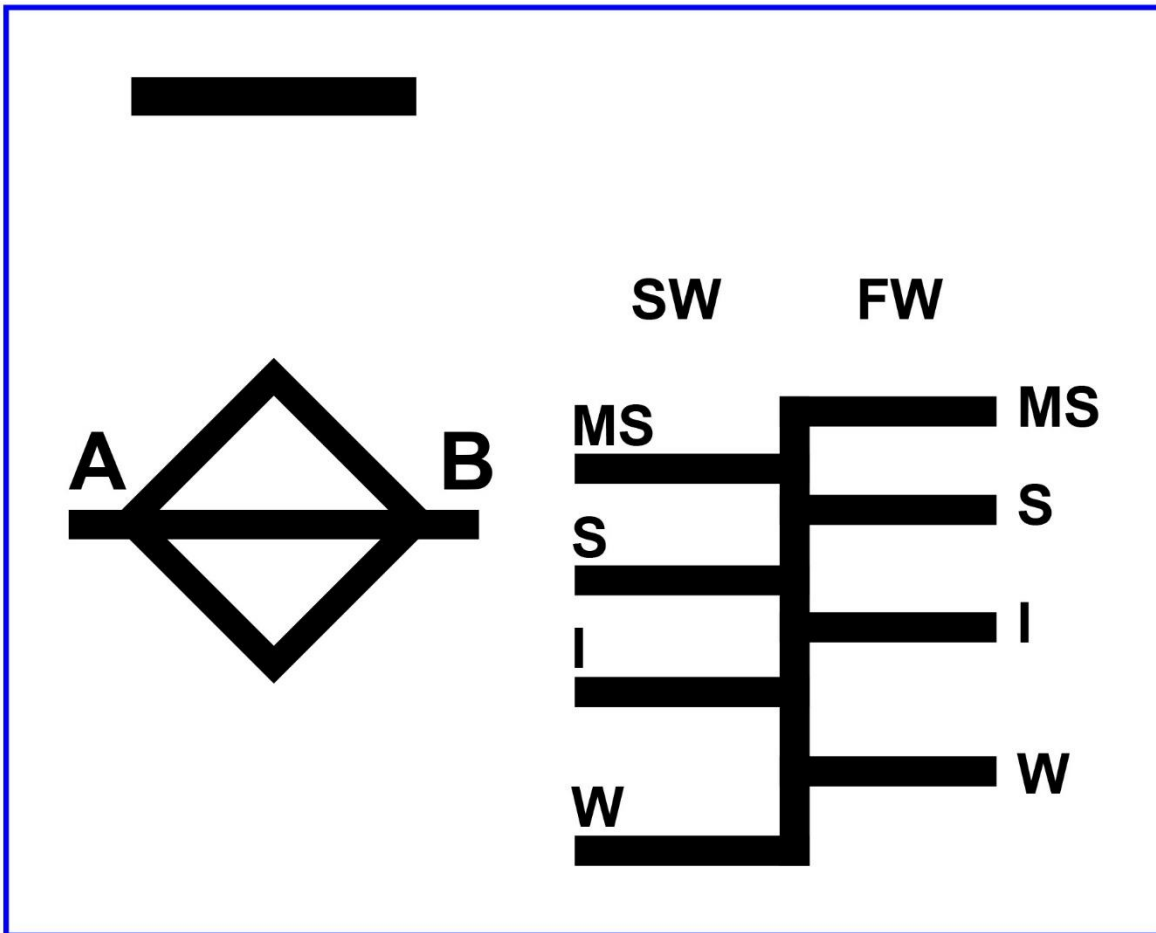
*If choice A is selected set score to 1.*

**25.** Which statement concerning storm surges on the Great Lakes is TRUE?

- (A) The greatest water level difference occurs when the wind is blowing perpendicular to longitudinal axis of the lake
- (B) Are a result of strong winds and sharp change in barometric pressure
- (C) If the wind subsides gradually, a seiche effect will occur.
- (D) They cause rapid differences in levels at one end of the lake only

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

## D031DG

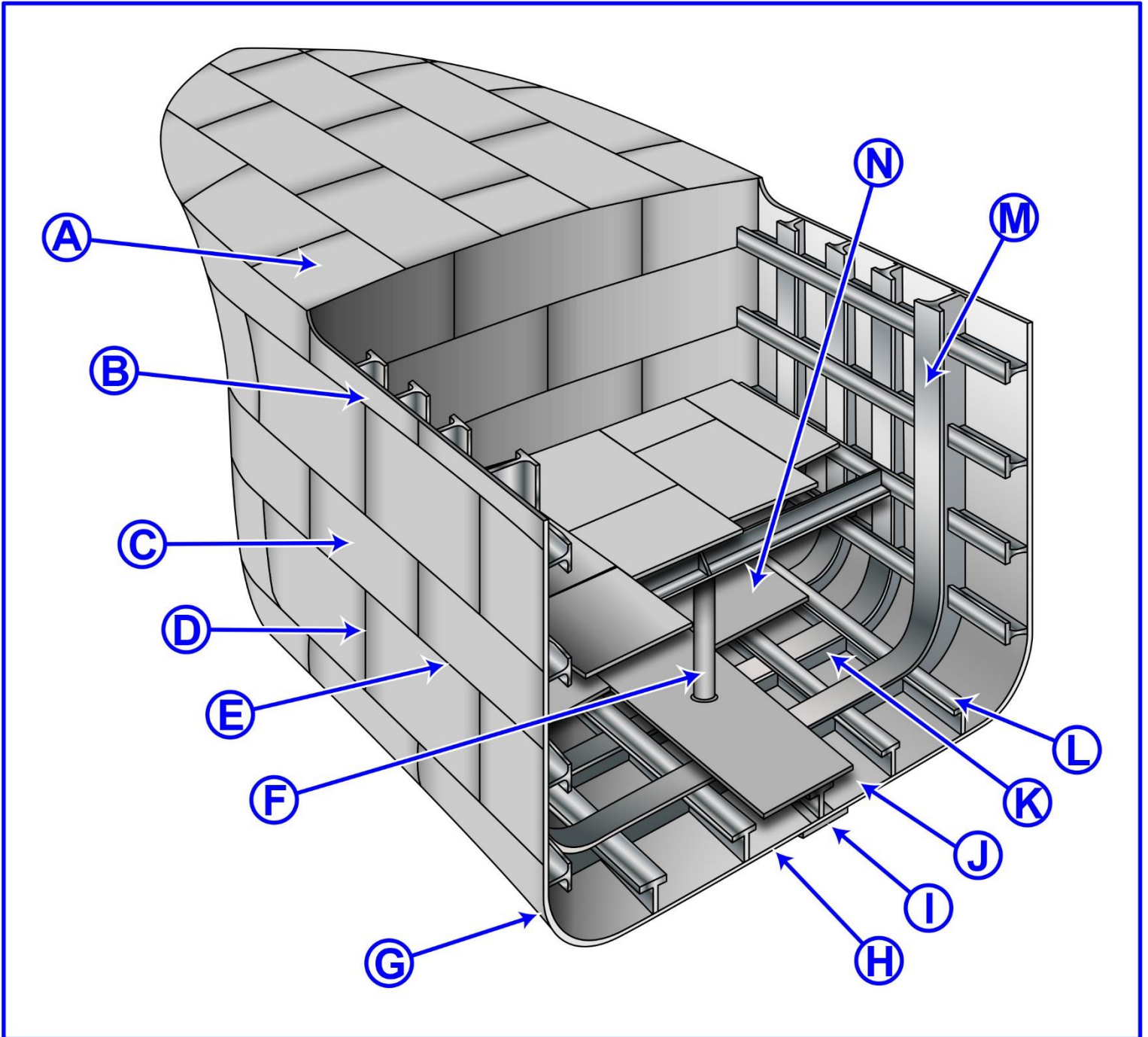


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