

U.S.C.G. Merchant Marine Exam  
Mate Less than 500-1600 Gross Registered Tons  
Q331 Great Lakes Topics  
(Sample Examination)

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

1. Which term defines when a boat turns broadside to heavy seas and winds, thus exposing the boat to the danger of capsizing?
- (A) Trimmed
  - (B) Yawed
  - (C) Broached
  - (D) Pitchpoled

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

2. When is the phenomenon known as a "seiche" most likely to occur on Lake Erie?
- (A) Only during the months of May through August
  - (B) During the passage of a rapidly moving warm front
  - (C) When strong winds from the Northeast suddenly diminish
  - (D) When the Moon and Sun are in alignment

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

3. Which action will affect the trim of a vessel?
- (A) Moving a weight forward
  - (B) Moving high weights lower
  - (C) Adding weight at the tipping center
  - (D) Removing weight at the tipping center

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

4. Which is the normal tendency for a loaded tanker?
- (A) Hog
  - (B) To be very tender
  - (C) Sag
  - (D) Have a permanent list

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

5. Using 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 35 lbs.
- (A) 785 tons each
  - (B) 820 tons each
  - (C) 880 tons each
  - (D) 900 tons each

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

6. For a vessel inclined by the wind, multiplying the buoyant force by the horizontal distance between the lines of action of the buoyant and gravity forces gives which information?
- (A) The transverse moment
  - (B) The vertical moment
  - (C) The longitudinal moment
  - (D) The righting moment

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

7. Transverse frames are more widely spaced on a ship that is designed with the \_\_\_\_\_.
- (A) centerline system of framing
  - (B) longitudinal system of framing
  - (C) isometric system of framing
  - (D) transverse system of framing

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

8. Your vessel is underway and approaching an overhead obstruction on Lake Superior. Given the following information, determine the clearance between your vessel and the obstruction. Highest point on vessel: 74 ft. Lowest point of obstruction: 126 (LWD) Monthly lake level: +2 (LWD) International Great Lakes Datum: 600.0 (182.88 meters)
- (A) 474 feet
  - (B) 400 feet
  - (C) 175 feet
  - (D) 50 feet

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

9. Which of the Great Lakes experiences the least amount of water level fluctuation between seasonal high and low water marks?
- (A) Lake Michigan
  - (B) Lake Huron
  - (C) Lake Superior
  - (D) Lake Erie

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

10. In general, an un-reinforced vessel can safely navigate in ice provided the concentration does not exceed how many tenths?
- (A) 9 - 10 tenths
  - (B) 6 - 8 tenths
  - (C) 4 - 6 tenths
  - (D) 1 - 3 tenths

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

**11.** Horizontal transverse motion of a vessel is known by which term?

- (A) Heave
- (B) Sway
- (C) Surge
- (D) Pitch

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

**12.** 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) High clouds
- (C) Fog
- (D) A southeast to south wind

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

**13.** Multi-year ice is the hardest sea ice and should be avoided if possible. It is recognizable because of what tone to its surface color?

- (A) Bluish
- (B) Greenish
- (C) Grey-white
- (D) Grey

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

**14.** You are steaming in a heavy gale and find it necessary to heave to. Under most circumstances, how is this best accomplished?

- (A) Taking the sea fine on the bow and reducing the speed
- (B) Increasing the speed and taking the sea broad on the bow
- (C) Going slow astern and taking the seas on the quarter
- (D) Stopping the engines and drifting beam to the seas

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

**15.** What does the line labeled "MS" indicate on the Great Lakes load line model shown in illustration D031DG below?

- (A) Midsummer
- (B) Maximum submergence
- (C) Mean sea level
- (D) Midseason

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

**16.** Which of the Great Lakes is generally the last to reach its seasonal low and seasonal high water marks?

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

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

**17.** Your vessel is on a voyage from Ogdensburg, NY, to Chicago, IL, via the Great Lakes. The date is October 3 of the current year. If your vessel is subject to the load line requirements, using illustration D031DG below, to which of her marks should she be loaded?

- (A) Fresh water - Intermediate
- (B) Fresh water - Winter
- (C) Salt water - Winter
- (D) Salt water - Intermediate

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

**18.** Your vessel has been ordered to proceed to the United Grain Growers Wharf at Thunder Bay, Lake Superior, for the purpose of taking on a load of wheat. Which publication(s) would you consult for such information as the length of the wharf, the depth of the water alongside, and the loading capacity at the facility?

- (A) The Lake Carriers Association Facilities Directory
- (B) The International Guide to Canadian Ports and Facilities
- (C) The United States Coast Pilot #6
- (D) The Navigational Chart and Light List Vol. VII

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

**19.** In illustration D033DG below, what is the plating indicated by the letter N known as?

- (A) Inner bottom
- (B) Tank-top rider plating
- (C) Floor riders
- (D) Ceiling

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

**20.** A vessel can be termed as either tender or stiff in relation to its rolling period. Which of the following would cause a vessel to be tender?

- (A) The ship has been loaded with minimal weight in the upper decks
- (B) The ship has excessive weight down low and is trimmed by the stern
- (C) The ship has been loaded with excessive weight in the upper decks
- (D) The ship has excessive weight down low and is trimmed by the head

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

**21.** A concentration of weight has been shifted inboard to the center line of the vessel. Generally speaking, what effect will this have on the vessel?

- (A) The vessel's rolling period will remain the same
- (B) The vessel's rolling period will decrease
- (C) The vessel's rolling period will increase
- (D) The vessel's rolling period will be rapid

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

**22.** Which statement concerning storm surges on the Great Lakes is FALSE?

- (A) They are common along the deeper areas of the lakes.
- (B) They cause rapid differences in levels between one end of the lake and the other.
- (C) The greatest water level difference occurs when the wind is blowing along the axis of the lake.
- (D) If the wind subsides rapidly, a seiche effect will most likely occur.

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

**23.** What is the maximum mean draft to which a vessel may be safely loaded called?

- (A) load line draft
- (B) deep draft
- (C) mean draft
- (D) calculated draft

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

**24.** Which type of ice is a hazard to navigation?

- (A) Pancake ice
- (B) Ice rind
- (C) Growlers
- (D) Frazil ice

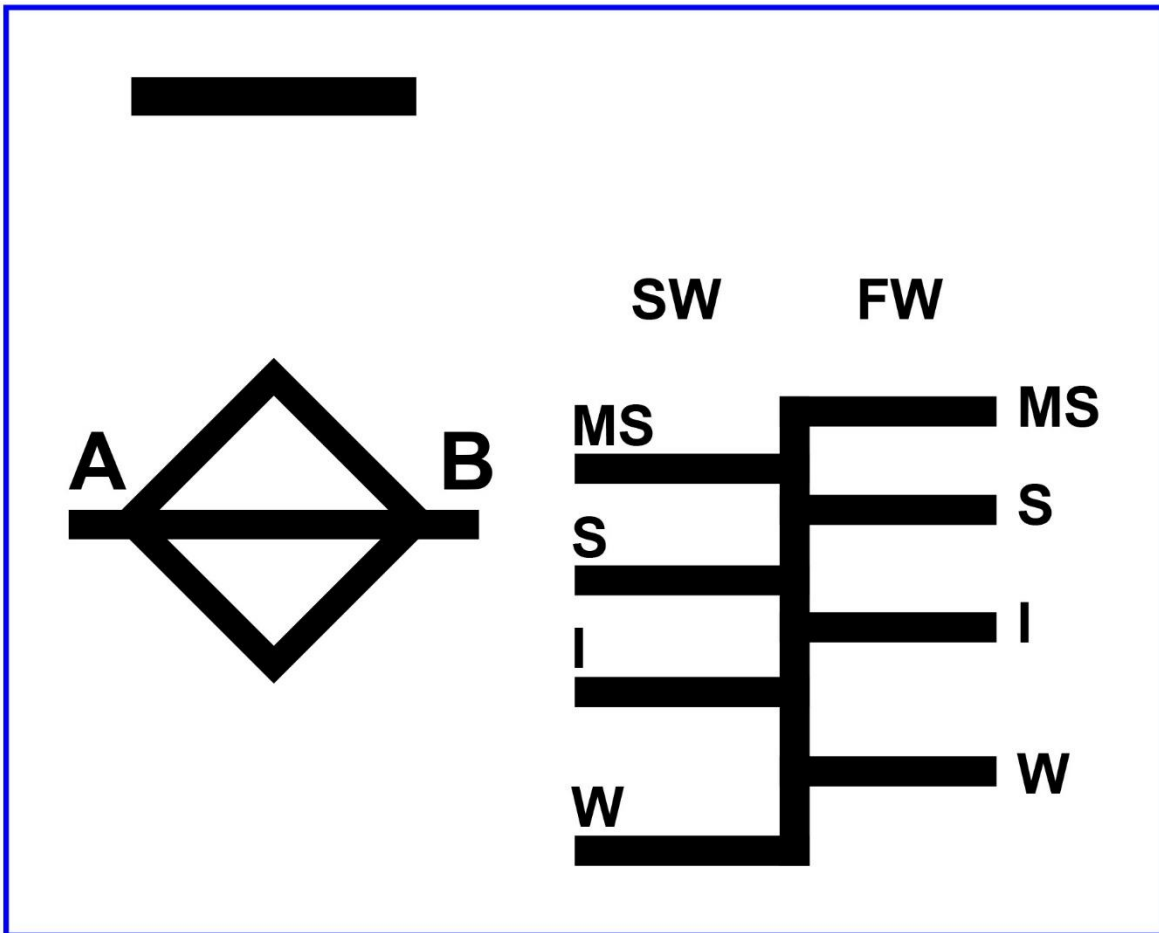
*If choice C is selected set score to 1.*

**25.** A vessel is "listed" when it is \_\_\_\_\_.

- (A) inclined due to off-center weight
- (B) inclined due to wind
- (C) down by the stern
- (D) down by the head

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

## D031DG

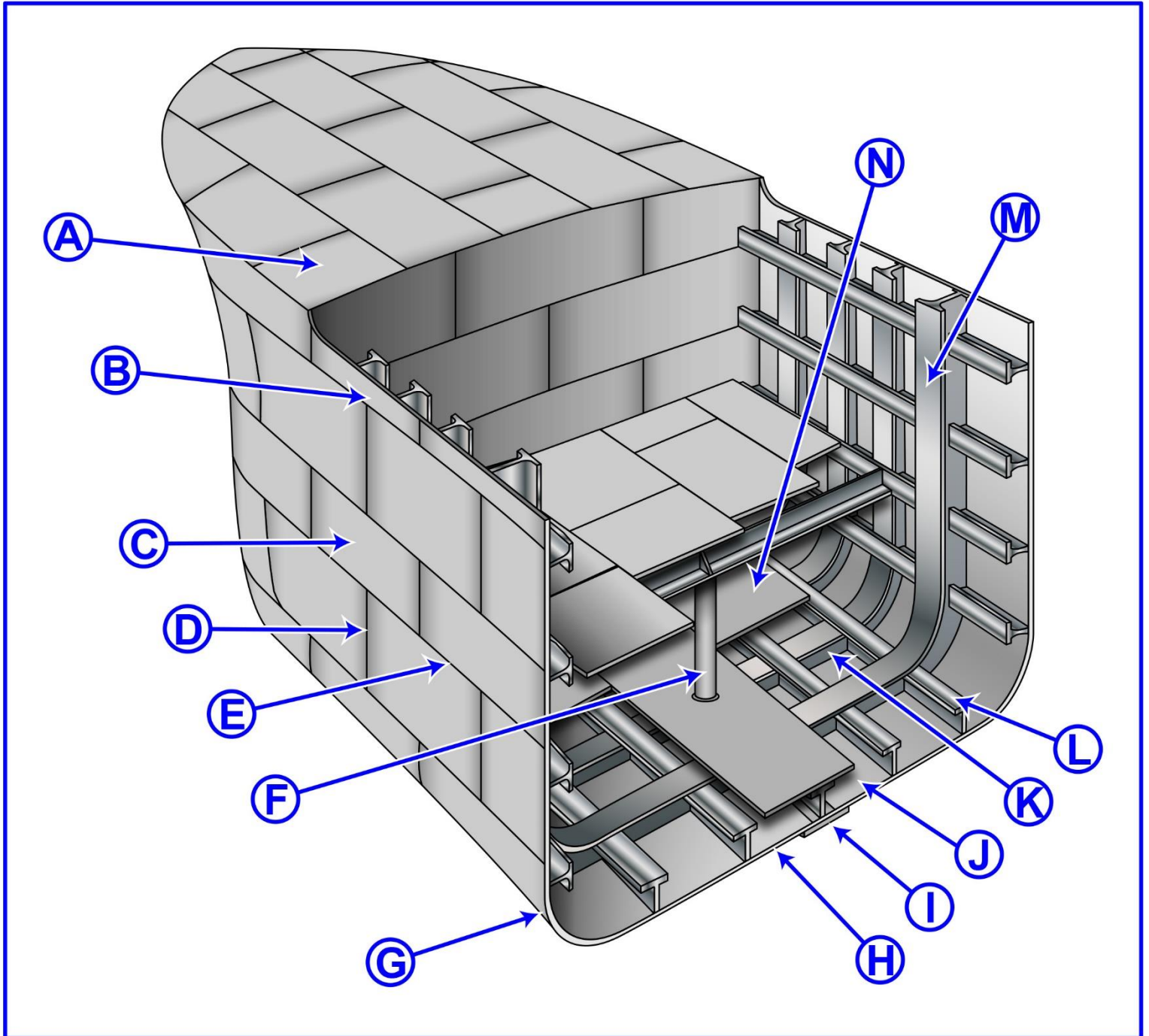


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## D033DG



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