

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. If the cause of a sudden severe list or trim is negative initial stability, counter-flooding into empty tanks located high on the vessel, may cause which of the following?
- A. Bring the unit to an upright equilibrium position
 - B. An increase in the righting moment
 - C. Cause the unit to flop to a greater angle
 - D. An increase in the righting arm

Correct answer: C

2. Which basic category of water level fluctuations on the Great Lakes is the most regular?
- A. Short-term fluctuations
 - B. Outflow fluctuations
 - C. Seasonal fluctuations
 - D. Long-term fluctuations

Correct answer: C

3. 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. Salt water - Intermediate
 - B. Fresh water - Intermediate
 - C. Salt water - Winter
 - D. Fresh water - Winter

Correct answer: B

4. Where do signs of racking stresses generally appear on the vessel?
- A. At the thrust bearing of the main shaft
 - B. On the garboard strake, at each side of the keel
 - C. At the junction of the frames with the beams and floors
 - D. At the bow and stern shell frames and plating

Correct answer: C

5. Using the Guidance Manual for Loading the 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. 1050 tons each
 - D. 1070 tons each

Correct answer: D

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

- A. A butt
- B. A seam
- C. A sheet line
- D. A span

Correct answer: A

7. The wind has caused a difference between drafts starboard and port. This difference is known as which of the following?

- A. List
- B. Heel
- C. Flotation
- D. Trim

Correct answer: B

8. Storms that enter the Great Lakes Basin from the west and northwest at a peak in October are the products of which pressure system?

- A. Alberta lows
- B. Northwesters
- C. Fata morgana
- D. Polar highs

Correct answer: A

9. Which term describes the time required to incline the vessel from port to starboard and back to port again?

- A. Initial stability
- B. Range of stability
- C. Inclining moment
- D. Rolling period

Correct answer: D

10. An icebreaker is displaying a flag hoist which consists of the code letters "WO" (Whiskey Oscar). What does this signal indicate?

- A. Icebreaker support is commencing
- B. The icebreaker is beset
- C. Icebreaker support is finished
- D. The icebreaker is icebound

Correct answer: C

11. What name is given to the perforated, elevated bottom of the chain locker, which prevents the chains from touching the main locker bottom and allows seepage water to flow to the drains?

- A. Manger
- B. Cradle
- C. Draft
- D. Harping

Correct answer: A

12. 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. Greenish
- B. Grey
- C. Bluish
- D. Grey-white

Correct answer: C

13. There are basically three categories of water level fluctuations on the Great Lakes. What is NOT included as one of these?

- A. Long range fluctuations
- B. Short period fluctuations
- C. Controlled outflow fluctuations
- D. Seasonal fluctuations

Correct answer: C

14. What is meant by the term "broaching to"?

- A. Having the vessel head toward the sea
- B. Running before a sea
- C. Being turned broadside to the sea
- D. Having the vessel filled with water

Correct answer: C

15. Your vessel is approaching the International Bridge on the St. Mary's River. If the gage on the bridge, read from top to bottom, indicates 124 ft. and the IGLD (1955) is 600 ft., determine the actual vertical clearances between the existing water level and the lowest point of the bridge over the channel.

- A. 124 feet
- B. 476 feet
- C. 724 feet
- D. 840 feet

Correct answer: A

- 16.** When the height of the metacenter is greater than the height of the center of gravity a vessel has which type of stability?
- A. Stable
 - B. Neutral
 - C. Negative
 - D. Unstable

Correct answer: A

- 17.** Which publication offers information on Great Lakes ice services?
- A. National Weather Service, Ice Outlooks
 - B. U.S. Coast Pilot #6
 - C. Light List volume VII
 - D. Marine Weather Log

Correct answer: B

- 18.** Your vessel is being assisted by an icebreaker. How should you indicate that you are ready to cast off the towline?
- A. Display code numeral "5"
 - B. Display code letter "Y" (Yankee)
 - C. Sound one prolonged blast on the whistle
 - D. Sound five short blasts on his whistle

Correct answer: B

- 19.** If the cause of severe list is off-center ballast, what will counterflooding into empty tanks accomplish?
- A. Increase the righting arm
 - B. Increase the righting moment
 - C. Increase list
 - D. Decrease list

Correct answer: D

- 20.** What does the line labeled "MS" indicate on the Great Lakes load line model shown in illustration D031DG below?
- A. Midseason
 - B. Maximum submergence
 - C. Midsummer
 - D. Mean sea level

Correct answer: C

- 21.** On the Great Lakes, which can cause short-term fluctuations in water levels?
- A. Below normal rain fall
 - B. Calm winds
 - C. Seiches
 - D. Steady barometric pressure

Correct answer: C

22. Your vessel is running in a following sea. Which term defines the motion your vessel is experiencing?

- A. Yawing
- B. Heaving to
- C. Pounding
- D. Reduced speed

Correct answer: A

23. Heave is motion along which axis?

- A. The vessel's vertical axis
- B. The vessel's longitudinal axis
- C. The vessel's transverse axis
- D. The vessel's centerline axis

Correct answer: A

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

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

Correct answer: A

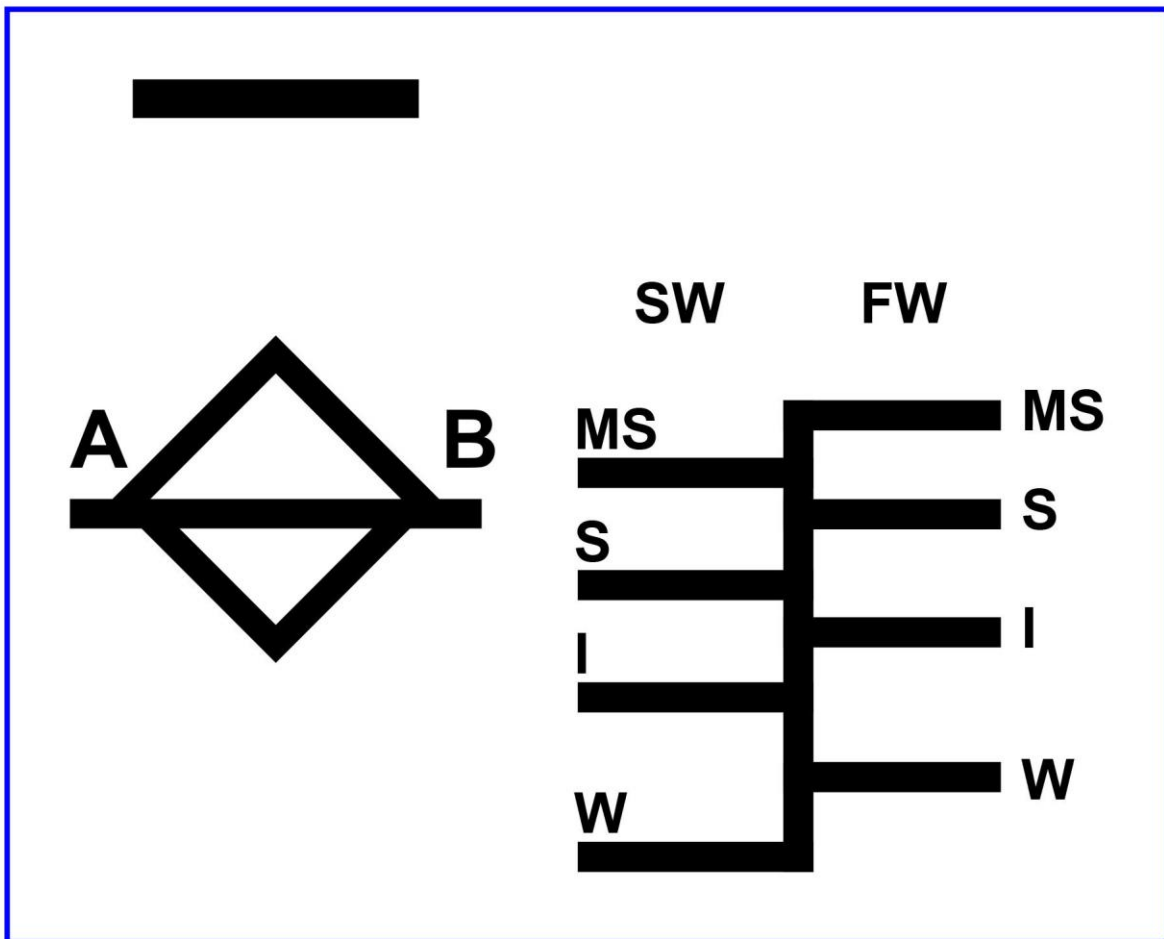
25. What is the center of flotation of a vessel?

- A. The center of gravity of the water plane
- B. The point at which all the vertical downward forces of weight are considered to be concentrated
- C. The center of volume of the immersed portion of the vessel
- D. The point at which all the vertical upward forces of buoyancy are considered to be concentrated

Correct answer: A

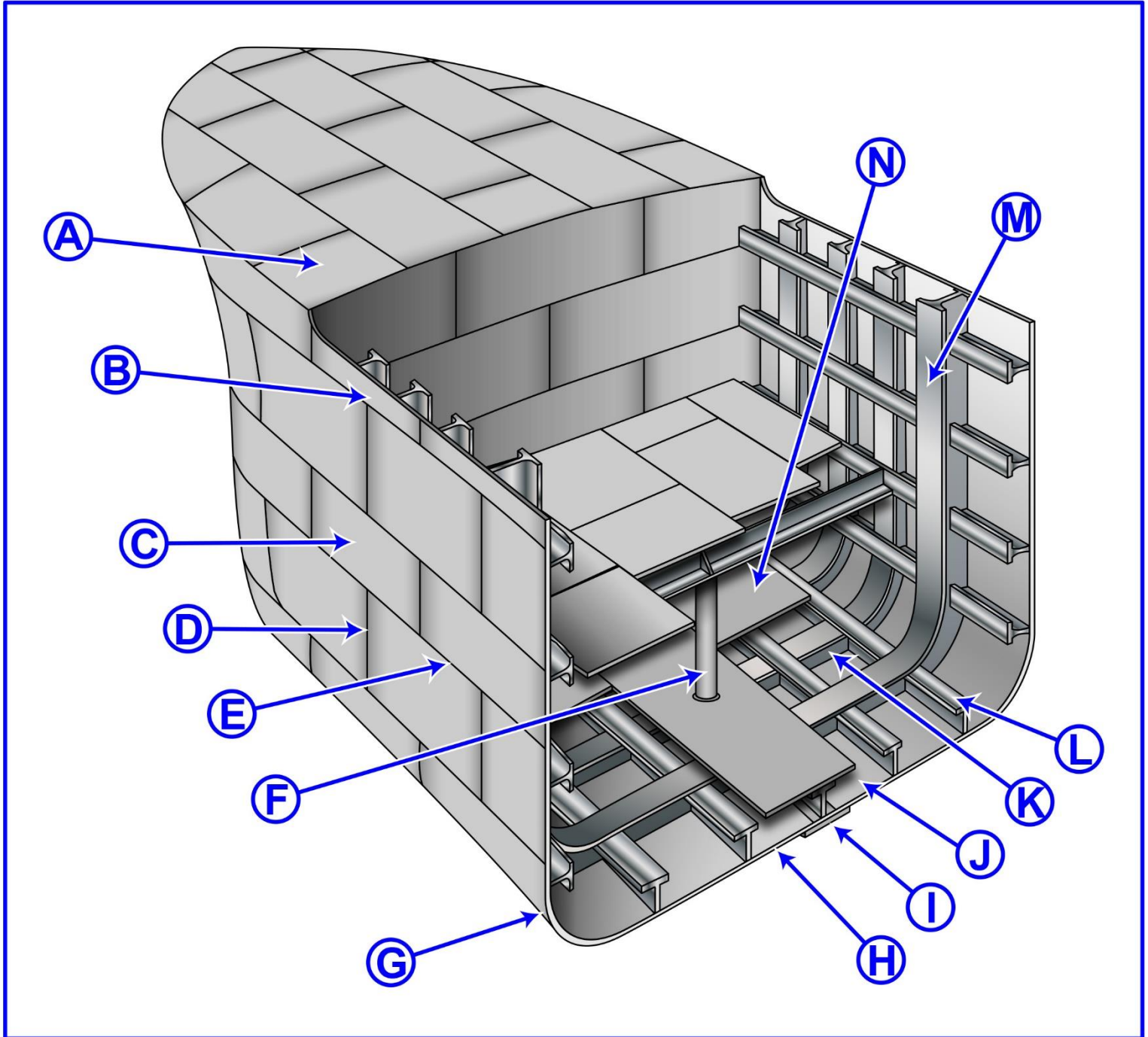


D031DG





D033DG



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