U.S.C.G. Merchant Marine Exam

Master of Unlimited Tonnage

Q306 Great Lakes Topics

(Sample Examination)

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

1. A channel is stated as having a controlling depth of 38 feet. Which statement is TRUE?

A. The sides of the channel conform to at least 50% of the controlling depth.
B. At least 50% of the channel is cleared to the charted depth.
C. At least 80% of the channel is cleared to the charted depth.
D. 100% of the channel width is clear to 38 feet.

Correct answer: D

2. On Sunday, 8 November, your ship is enroute from Texas City, TX, to Portland, ME. At 0632 ZT, you fix your position at LAT 27°06'N, LONG 90°36'W. When the lower limb of the Sun was two-thirds of a diameter above the visible horizon, the Sun bore 105° per standard magnetic compass. At this time the chronometer read 12h 39m 20s and is 3m 20s slow. If the variation is 3°E, determine the deviation of the standard compass.

A. 0.8°E
B. 0.8°W
C. 3.8°E
D. 3.8°W

Correct answer: A

3. While steaming at 15.0 knots, your vessel consumes 326 barrels of fuel oil per day. In order to reduce consumption to 178 barrels of fuel oil per day, what is the maximum speed the vessel can turn for?

A. 8.1 knots
B. 12.2 knots
C. 11.1 knots
D. 8.5 knots

Correct answer: B

4. On 1 September your 1115 zone time DR position is LAT 25°20.0'N, LONG 28°24.0'W.

At that time, you observe the Sun bearing 160.5°psc.
The chronometer reads 01h 14m 58s, and the chronometer error is 01m 17s fast.
The variation is 13.5°W.

What is the deviation of the standard compass?

A. 2.1°E
B. 4.1°E
C. 11.0°W
D. 11.0°E

Correct answer: A

5. You are turning 90 RPM, with a propeller pitch of 24 feet, and an estimated slip of -3%. What is the speed of advance?

A. 19.2 knots
B. 20.6 knots
C. 18.8 knots
D. 21.9 knots

Correct answer: D

6. When is the effect of wind on exposed areas of the vessel most noticeable?

A. When going slow ahead
B. When turning
C. When going full ahead
D. When backing

Correct answer: D

7. When does a vessel which is being assisted by an icebreaker, display a flag hoist consisting of the code numeral "4"?

A. When the vessel stops
B. Any time the speed begins to drop
C. If it receives ice damage
D. When it becomes icebound

Correct answer: D

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

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

Correct answer: D

9. An icebreaker may use the code letter "K" to remind ships of their obligation to listen continuously on their radio. How can this signal be communicated to other vessels?

A. By light signal
B. By sound signal
C. By visual signal
D. All of the above

Correct answer: D

10. If the pitch of the propeller is 23.2 feet, and the revolutions per day are 94,910, calculate the day's run allowing 11% negative slip.

A. 362.3 miles
B. 322.3 miles
C. 382.0 miles
D. 402.0 miles

Correct answer: D

11. You have steamed 989 miles at 16.5 knots and consumed 215 tons of fuel. If you have 345 tons of usable fuel remaining, how far can you steam at 13 knots?

A. 2557 miles
B. 3245 miles
C. 1993 miles
D. 1025 miles

Correct answer: A

12. Which basic category of water level fluctuations on the Great Lakes is the most regular?

A. Outflow fluctuations
B. Short-term fluctuations
C. Seasonal fluctuations
D. Long-term fluctuations

Correct answer: C

13. In a following sea, a wave has overtaken your vessel and thrown the stern to starboard. To continue along your original course, which action should you take?

A. Decrease speed
B. Use more left rudder
C. Use more right rudder
D. Increase speed

Correct answer: C

14. An icebreaker assisting a vessel through an ice field would display a visual signal consisting of the code letter "I" (India) to signify that "_____".

A. My vessel is stopped and making no way through the water
B. I am operating astern propulsion
C. I am altering my course to port
D. I am altering my course to starboard

Correct answer: C

15. Why is a VLCC (100,000 DWT+) with a 30,000 Shaft Horsepower Steam Turbine slow to respond to engine movements, and has less stopping power than normal ships?

A. They have a bigger propeller
B. They have larger power to weight ratio
C. They have smaller power to weight ratio
D. They possess smaller propellers

Correct answer: C

16. An icebreaker assisting a vessel through an ice field would display a visual signal consisting of the code letter "E" (Echo). What does this signal indicate?

A. I am operating astern propulsion
B. My vessel is stopped and making no way through the water
C. I am altering my course to port
D. I am altering my course to starboard

Correct answer: D

17. 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. Midseason
D. Mean sea level

Correct answer: A

18. On the Great Lakes, which defines the term "controlling depth"?

A. The designed dredging depth of a channel constructed by the Corps. of Engineers
B. The minimum amount of tail water available behind a dam
C. The distance in units of the chart (feet, meters or fathoms) from the reference datum to the bottom
D. The least depth within the limits of the channel which restricts the navigation

Correct answer: D

19. 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

Correct answer: B

20. As the propeller turns, voids are formed on the trailing and leading edges of the propeller blades causing a loss of propulsive efficiency, pitting of the blades, and vibration. Which term defines this effect?

A. Cavitation
B. Slip
C. Advance
D. Edging

Correct answer: A

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

A. Every five days
B. Every two days
C. Every three days
D. Every four days

Correct answer: D

22. Fog can form in any season on the Great Lakes, but it is most likely to occur over open waters in which period?

A. Winter and early spring
B. Autumn and early winter
C. Spring and early summer
D. Summer and early autumn

Correct answer: C

23. Assuming that the recommended hatch loading sequence is followed, how many long tons of iron ore may be loaded through hatch No. 3 while using a single belt loader to arrive at a desired mean keel draft of 27'-07"? (Use the Guidance Manual for Loading M.V. GRAND HAVEN.)

A. 2500 tons
B. 2550 tons
C. 2600 tons
D. 2650 tons

Correct answer: A

24. Which publication offers information on Great Lakes ice services?

A. National Weather Service, Ice Outlooks
B. Light List volume VII
C. U.S. Coast Pilot #6
D. Marine Weather Log

Correct answer: C

25. A vessel operating on the Great Lakes, and whose position is south of an approaching eastward-moving storm center, would NOT experience which condition?

A. A southwest to west wind
B. A falling barometer
C. Either rain or snow
D. The lowering clouds and drizzle

Correct answer: A

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