

U.S.C.G. Merchant Marine Exam

Apprentice Mate Steersman

Q420 Navigation General – Great Lakes and Inland

(Sample Examination)

Choose the best answer to the following Multiple Choice Questions:

1. What is a "Special Warning"?

- (A) An urgent message concerning a vessel in distress
- (B) A weather advisory about unusual meteorological or oceanographic phenomena hazardous to vessels
- (C) A radio navigational warning concerning a particularly hazardous condition affecting navigation
- (D) A broadcast disseminating an official government proclamation affecting shipping

If choice D is selected set score to 1.

2. The true course between two points is 337° . Your gyrocompass has an error of 3°E and you make an allowance of 5° leeway for a west wind. Which gyro course should be steered to make the true course good?

- (A) 339°pgc
- (B) 335°pgc
- (C) 345°pgc
- (D) 329°pgc

If choice D is selected set score to 1.

3. Your ship is entering port from sea, and you sight a pair of range lights. When in line, they bear 315° per standard magnetic compass. The chart shows that the range bearing is 312°T , and that variation is 6°W . What is the deviation of your compass at the time of the sighting?

- (A) 3°E
- (B) 3°W
- (C) 9°E
- (D) 9°W

If choice A is selected set score to 1.

4. Which is TRUE of a sea breeze?

- (A) A wind caused by cold air descending a coastal incline
- (B) A wind that blows towards an island during the day
- (C) A wind caused by the distant approach of a hurricane
- (D) A wind that blows towards the sea at night

If choice B is selected set score to 1.

5. You are running parallel to the coast and plotting running fixes using bearings of the same object. You are making more speed than assumed for the running fix. In relation to the position indicated by the fix you will be _____.
- (A) on the track line behind the fix
 - (B) farther from the coast
 - (C) on the track line ahead of the fix
 - (D) closer to the coast

If choice B is selected set score to 1.

6. Which term is given to the vertical angle between the horizontal and the magnetic line of force?
- (A) Elevation
 - (B) Vertical angle
 - (C) Magnetic angle
 - (D) Magnetic dip

If choice D is selected set score to 1.

7. What will be the height of tide at Three Mile Harbor Entrance, Gardiners Bay, NY, at 0700 (ZD +5) on 14 Nov 1983?
- (A) 1.1 feet (0.3 meters)
 - (B) 1.7 feet (0.5 meters)
 - (C) 1.9 feet (0.6 meters)
 - (D) 2.2 feet (0.7 meters)

If choice B is selected set score to 1.

8. You are on course 238°T. To check the course of your vessel you should observe a celestial body on which bearing?
- (A) 180°
 - (B) 238°
 - (C) 328°
 - (D) 090°

If choice C is selected set score to 1.

9. Information about direction and velocity of rotary tidal currents for a Port in the United States can be found in which publication?
- (A) Nautical Almanac
 - (B) Mariner's Guide
 - (C) Tide Tables
 - (D) Tidal Current Tables

If choice D is selected set score to 1.

10. On the pole side of the high pressure belt in each hemisphere, the pressure diminishes. The winds along these gradients are diverted by the Earth's rotation toward the east. What is the name of these winds?

- (A) The prevailing westerlies
- (B) The southeast trades
- (C) The geostrophic winds
- (D) The northeast trade winds

If choice A is selected set score to 1.

11. Your vessel is on a course of 358°T at 19 knots.

At 0316 a light bears 024.5°T, and at 0334 the light bears 043°T.

At what time and at what distance off will your vessel be when abeam of the light?

- (A) 0403, 8.0 miles
- (B) 0352, 5.7 miles
- (C) 0355, 6.2 miles
- (D) 0359, 7.1 miles

If choice B is selected set score to 1.

12. Weather forecast messages are usually _____.

- (A) transmitted only by commercial broadcast stations
- (B) given only to TV stations
- (C) broadcast in plain language
- (D) broadcast immediately on VHF Channel 16 and 2182 kHz

If choice C is selected set score to 1.

13. Which term is used to describe a generally circular low pressure area?

- (A) An occluded front
- (B) A cyclone
- (C) An anticyclone
- (D) A cold front

If choice B is selected set score to 1.

14. Which measurement uses mean high water as the reference plane?

- (A) Water depths on the East Coast only
- (B) Heights above water of land features such as lights
- (C) Soundings on the East and West Coasts
- (D) All vertical measurements on charts

If choice B is selected set score to 1.

15. Which of the following is a standard correction applied to the reading of an aneroid barometer?

- (A) Wind speed
- (B) Temperature
- (C) Latitude
- (D) Height

If choice D is selected set score to 1.

16. The climate of the eastern coast of the Gulf of Mexico _____.

- (A) varies from warm to subtropical
- (B) is humid and subtropical throughout the year
- (C) has an east coast marine type of climate
- (D) has a Mediterranean type of climate

If choice A is selected set score to 1.

17. Under the IALA cardinal system, a mark with a quick light showing 9 flashes every 15 seconds indicates that the safest water is on which side of the mark?

- (A) The east side of the mark
- (B) The south side of the mark
- (C) The north side of the mark
- (D) The west side of the mark

If choice D is selected set score to 1.

18. You have been observing your radar screen and notice that a contact on the screen has remained in the same position, relative to you, for several minutes. Your vessel is making 10 knots through the water. Which statement is TRUE?

- (A) The contact is on a reciprocal course at the same speed as your vessel.
- (B) The contact is dead in the water.
- (C) The radar is showing false echoes and is probably defective.
- (D) The contact is on the same course and speed as your vessel.

If choice D is selected set score to 1.

19. Your vessel is steering course 243°psc. Variation for the area is 5°E, and deviation is 2°W. The wind is from the south-southeast, producing a 2° leeway. What true course are you making good?

- (A) 242°T
- (B) 244°T
- (C) 246°T
- (D) 248°T

If choice D is selected set score to 1.

20. All aids to navigation listed in the Mississippi River System Light List are shown as miles from a reference point and on the _____.

- (A) left or right ascending bank
- (B) port or starboard side of the vessel
- (C) east or west bank
- (D) left or right descending bank

If choice D is selected set score to 1.

21. Which statement about gyrocompass error is TRUE?

- (A) The sign (E or W) of the error will change with different headings of the ship.
- (B) Any error will remain constant unless the compass is stopped and restarted.
- (C) Any error shown by a gyro repeater will be the same as the error of the master compass.
- (D) The amount of the error and the sign will generally be the same on all headings.

If choice D is selected set score to 1.

22. Which radar control reduces weak echoes out to a limited distance from the ship?

- (A) The sensitivity time control (sea-clutter control)
- (B) The receiver gain control
- (C) The fast time constant (differentiator)
- (D) The brilliance control

If choice A is selected set score to 1.

23. Your vessel is proceeding up a channel, and you see a pair of range lights that are in line dead ahead. The chart indicates that the direction of this pair of lights is $093^{\circ}T$, and the variation is $6^{\circ}E$. If the heading of your vessel at the time of the sighting is 097° per standard magnetic compass, what is the correct deviation?

- (A) $5^{\circ}E$
- (B) $5^{\circ}W$
- (C) $10^{\circ}E$
- (D) $10^{\circ}W$

If choice D is selected set score to 1.

24. According to Buys Ballot's Law, when an observer in the Southern Hemisphere experiences a northwest wind, where is the center of the low pressure located?

- (A) East-Southeast
- (B) South-Southwest
- (C) West-Southwest
- (D) East-Northeast

If choice B is selected set score to 1.

25. Which information is NOT required to be posted in or near the wheelhouse?

- (A) A diagram of advance and transfer for turns of 30°, 60°, 90° and 120° at full speed with maximum rudder and constant power
- (B) For vessels with a fixed propeller, a table of shaft RPMs for a representative range of speeds
- (C) Operating instructions for change-over procedures for remote steering gear systems
- (D) Stopping time and distance from full speed while maintaining course with minimum rudder

If choice A is selected set score to 1.

26. Which is TRUE when using the radar for navigation?

- (A) When using two radar ranges for a fix, the objects of the ranges should be close to reciprocal bearings
- (B) When using ranges, the most rapidly changing range should be measured first
- (C) The best fix is obtained by using a tangent bearing and a range
- (D) When crossing a radar range of one object with the visual bearing of a second object, the two objects should be 80° to 110° apart

If choice B is selected set score to 1.

27. Which statement is TRUE when a pilot is embarked on a vessel?

- (A) The pilot is a specialist hired for his or her local navigational knowledge
- (B) The pilot relieves the Master of his duties
- (C) The pilot relieves the officer of the watch
- (D) The pilot is solely responsible for the safe navigation of the vessel

If choice A is selected set score to 1.

28. Relative humidity is the percentage of water vapor that is in the air as compared to the maximum amount it can hold at _____.

- (A) a specific wing speed
- (B) a specific barometric pressure
- (C) any time
- (D) a specific temperature

If choice D is selected set score to 1.

29. You want to transit Hell Gate, NY on 23 July 1983. What is the period of time around the AM (ZD +4) slack before ebb when the current will be less than 0.3 knot?

- (A) 0939 to 0957
- (B) 0943 to 0953
- (C) 0844 to 0852
- (D) 0348 to 0356

If choice B is selected set score to 1.

- 30.** Your vessel is on a course of 221°T at 15 knots.
At 0319 a light bears 198.5°T, and at 0353 the light bears 176°T.
At what time and distance off will your vessel be when abeam of the light?

- (A) 0427, 7.4 miles
- (B) 0410, 5.2 miles
- (C) 0417, 6.0 miles
- (D) 0407, 4.3 miles

If choice C is selected set score to 1.

- 31.** If you are the Master of a towing vessel whose only working radar no longer functions, what must you do?

- (A) Moor the vessel until it is repaired.
- (B) Notify the Officer in Charge of Marine Inspection (OCMI) if you cannot repair it within 48 hours.
- (C) Notify the Captain of the Port (COTP) if you cannot repair it within 96 hours.
- (D) Anchor the vessel until it is repaired.

If choice C is selected set score to 1.

- 32.** Which is a weekly publication advising mariners of important matters affecting navigational safety?

- (A) Light List
- (B) Notice to Mariners
- (C) Sailing Directions
- (D) Coast Pilot

If choice B is selected set score to 1.

- 33.** You are approaching a lock and see a flashing amber light located on the lock wall. Which action should you take?

- (A) Hang off your tow on the lock wall
- (B) Approach the lock under full control
- (C) Stand clear of the lock entrance
- (D) Enter the lock as quickly as possible

If choice B is selected set score to 1.

- 34.** What will a buoy marking a wreck show?

- (A) A white light FL (2) and a topmark of 2 black spheres
- (B) An occulting green light and may be lettered
- (C) A continuous quick white light and may be numbered
- (D) A yellow light and will be numbered

If choice A is selected set score to 1.

35. Which of the following describes the principal purpose of magnetic compass adjustment?

- (A) To reduce the magnetic dip as much as possible
- (B) To reduce the deviation as much as possible
- (C) To reduce the variation as much as possible
- (D) To allow the compass bowl to swing freely on its gimbals

If choice B is selected set score to 1.

36. You are steaming southward along the west coast of the United States when you encounter a buoy showing a flashing red light. Which is TRUE concerning the buoy?

- (A) The buoy should be left on the vessel's starboard side
- (B) The buoy can be on either side well clear
- (C) The buoy can remain on either side close aboard
- (D) The buoy should be left on the vessel's port side

If choice D is selected set score to 1.

37. You are in a channel inbound from sea. A daymark used to mark a channel junction, when the preferred channel is to port will have the shape indicated by what letter in illustration D045NG below?

- (A) A
- (B) B
- (C) C
- (D) D

If choice D is selected set score to 1.

38. Which is the difference between the DR position and a fix, both of which have the same time?

- (A) Deviation
- (B) Current
- (C) Leeway
- (D) Variation

If choice B is selected set score to 1.

39. What does the helm command "Steady as you go" mean?

- (A) Steer the course when the swing stops
- (B) Steer the course you are on now
- (C) Maintain the rate of swing
- (D) Don't allow the vessel to swing off course so much

If choice B is selected set score to 1.

40. When do neap tides occur?

- (A) At approximately 28-day intervals
- (B) When the Sun, Moon, and Earth are in line
- (C) At a new or full Moon
- (D) When the Moon is at quadrature

If choice D is selected set score to 1.

41. On an Army Corps of Engineers navigation map, how is each mile A.H.P. on the Lower Mississippi River marked?

- (A) A black dot
- (B) A dashed red line
- (C) A navigation light
- (D) A number showing mileage only

If choice A is selected set score to 1.

42. Which of the sources contains information on Northern Right Whales?

- (A) Ship's Medicine Chest and Medical Aid at Sea
- (B) HO 229
- (C) the Coast Pilot
- (D) the Nautical Almanac

If choice C is selected set score to 1.

43. Under the IALA-B Buoyage System, when entering from seaward, a buoy that should be left to port will be which color?

- (A) Black
- (B) Green
- (C) Yellow
- (D) Red

If choice B is selected set score to 1.

44. You get underway from the shipyard in Chester, PA, at 1515 DST (ZD +4) on 6 August 1983, enroute to sea. You will be turning for eight knots. What current can you expect at Fourteen Foot Bank Light?

- (A) Slack
- (B) 1.3 knots ebbing
- (C) 1.7 knots ebbing
- (D) 0.5 knot ebbing

If choice B is selected set score to 1.

45. Deviation is the angle between the _____.

- (A) axis of the compass card and the degaussing meridian
- (B) true meridian and the magnetic meridian
- (C) true meridian and the axis of the compass card
- (D) magnetic meridian and the axis of the compass card

If choice D is selected set score to 1.

46. Which light characteristic may be used on a special purpose mark?

- (A) Fixed
- (B) Occulting
- (C) Equal interval
- (D) Quick flashing

If choice A is selected set score to 1.

47. Which is TRUE concerning privately maintained aids to navigation included in the Light List?

- (A) Not permitted in or along first-class waterways and may be authorized for second- and third-class waterways
- (B) They must conform to the standards of the U.S. Aids to Navigation System
- (C) They are painted white and must use a white light if lighted
- (D) They must be conspicuously marked by a signboard with the words "PRIVATE AID"

If choice B is selected set score to 1.

48. You are approaching the first of two drawbridges that span a narrow channel. The second drawbridge is close to the first. Which signals should you sound?

- (A) Sound the request-for-opening signal and, after the bridge acknowledges it, sound the request-for-opening signal for the second bridge.
- (B) Sound the request-for-opening signal for the first bridge only, who will notify the second bridge of your approach
- (C) Sound the request-for-opening signal twice in succession to indicate you must pass through both bridges
- (D) Sound the request-for-opening signal, pause for about 10 seconds, then sound two prolonged blasts.

If choice A is selected set score to 1.

49. A daymark used to indicate the safe water in a channel will have which of the shapes shown in illustration D045NG below?

- (A) A
- (B) B
- (C) C
- (D) D

If choice C is selected set score to 1.

50. Which table is NOT found in the U.S. Coast Pilots?

- (A) Coastwise distance table
- (B) Luminous range table
- (C) Meteorological table
- (D) Climatological table

If choice B is selected set score to 1.

D045NG

