U.S.C.G. Merchant Marine Exam

Master Near Coastal Less than 100 Gross Registered Tons

Q162 Navigation General - Near Coastal

(Sample Examination)

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Illustrations: 0

Choose the best answer to the following Multiple Choice Questions:

1. While on a course of 152°T, a light bears 9° on the port bow at a distance of 11.6 miles. What course should you steer to pass 3 miles abeam of the light leaving it to port?

- ○ (A) 153°
- • (B) 158°
- ○ (C) 163°
- ○ (D) 167°

If choice b is selected set score to 1.

2. Your vessel is on a course of 343°T at 14 knots.
At 2156 a light bears 320.5°T, and at 2217 the light bears 298°T.
At what time and distance off will your vessel be when abeam of the light?

- • (A) 2232, 3.4 miles
- ○ (B) 2228, 4.9 miles
- ○ (C) 2241, 6.9 miles
- ○ (D) 2235, 4.3 miles

If choice a is selected set score to 1.

3. You are steering 173°T, and a light is picked up dead ahead at a distance of 13.9 miles at 0054. You change course to pass the light 4.5 miles off abeam to port. If you are making 21 knots, what is your ETA at the position 4.5 miles off the light?

- ○ (A) 0125
- • (B) 0131
- ○ (C) 0122
- ○ (D) 0134

If choice b is selected set score to 1.

4. Your vessel is steering course 197°psc, variation for the area is 7°E, and deviation is 4°W. The wind is from the west, producing a 2° leeway. Which true course are you making good?

- ○ (A) 202°T
- ○ (B) 196°T
- • (C) 198°T
- ○ (D) 192°T

If choice c is selected set score to 1.

5. You are underway on course 254°T at a speed of 16.5 knots. You sight a rock bearing 255°T at a radar range of 6.1 miles at 0916. If you change course at 0922, what is the course to steer to leave the rock abeam to starboard at 1.5 miles?

- ○ (A) 268°T
- • (B) 236°T
- ○ (C) 233°T
- ○ (D) 239°T

If choice b is selected set score to 1.

6. You are underway on course 160°T at 10 knots. The current is 210°T at 0.9 knots. What is the course made good?

- ○ (A) 156°T
- ○ (B) 160°T
- • (C) 164°T
- ○ (D) 169°T

If choice c is selected set score to 1.

7. An electronic depth finder operates on which principle?

- • (A) Sound waves travel at a constant speed through water
- ○ (B) Radio signals reflect from a solid surface
- ○ (C) Pressure increases with depth
- ○ (D) Radar signals travel at a constant speed through water

If choice a is selected set score to 1.

8. Which of the following statements is TRUE regarding automatic identification systems (AIS)?

- ○ (A) AIS will not provide information on another vessel if that vessel is indistinguishable in radar sea clutter.
- • (B) AIS provides the other vessel's identity, type and navigational status regardless of visibility.
- ○ (C) AIS is designed to replace ARPA, maneuvering boards, and visual bearings as a means to ascertain the risk of collision.
- ○ (D) AIS can be relied upon as the sole means to determine risk of collision and safe speed.

If choice b is selected set score to 1.

9. When using GPS, how many theoretical position lines are required for a three-dimensional fix?

- ○ (A) 1
- ○ (B) 2
- ○ (C) 3
- • (D) 4

If choice d is selected set score to 1.

10. What is the color scheme of navigational marks used for informational or regulatory purposes?

- ○ (A) Red and white vertically-striped
- ○ (B) Green and red horizontally-banded
- ○ (C) Solid yellow
- • (D) White with orange geometric shapes

If choice d is selected set score to 1.

11. When outbound from a U.S. port, what does a buoy displaying a flashing red light indicate?

- ○ (A) A sharp turn in the channel to the right
- ○ (B) A wreck to be left on the vessel's starboard side
- • (C) The port side of the channel
- ○ (D) A junction with the preferred channel to the left

If choice c is selected set score to 1.

12. Your vessel is leaving New York harbor in dense fog. As the vessel slowly proceeds toward sea, you sight a green can buoy on the starboard bow. Which action should you take?

- ○ (A) Pass the buoy close to, leaving it to your port.
- ○ (B) Stop and fix your position.
- ○ (C) Turn hard right to get back into the channel.
- • (D) Stand on, leaving the buoy to your starboard.

If choice d is selected set score to 1.

13. What does a white buoy with an orange cross within a diamond marked on it indicate?

- ○ (A) Operating restrictions are in effect
- ○ (B) An anchorage area
- ○ (C) Danger
- • (D) Vessels are excluded from the area

If choice d is selected set score to 1.

14. What do the three white lights in a vertical line on a multiple-span bridge indicate?

- ○ (A) The river is obstructed under that span
- ○ (B) Scaffolding under the span is reducing the vertical clearance
- • (C) The main channel
- ○ (D) The draw span is inoperable

If choice c is selected set score to 1.

15. When approaching a lock and at a distance of not more than a mile, vessels desiring a single lockage shall sound which signal?

- ○ (A) Two long blasts
- ○ (B) Two short blasts
- ○ (C) One short blast followed by one long blast
- • (D) One long blast followed by one short blast

If choice d is selected set score to 1.

16. A List of Lights entry (L Fl) is a single flashing light which shows a long flash of not less than which duration?

- ○ (A) 1.0 second duration
- ○ (B) 1.5 seconds duration
- • (C) 2.0 seconds duration
- ○ (D) 3.0 seconds duration

If choice c is selected set score to 1.

17. The Light List shows that a navigational light has a nominal range of 15 miles and a height above water of 40 feet (12.2 meters). Your height of eye is 25 feet (7.6 meters) and the visibility is 5 miles. At about what range will you FIRST sight the light?

- ○ (A) 6.2 miles
- • (B) 9.5 miles
- ○ (C) 12.9 miles
- ○ (D) 14.2 miles

If choice b is selected set score to 1.

18. Which scale is considered a harbor chart?

- ○ (A) not more than 1:25,000
- ○ (B) not less than 1:500,000
- • (C) 1:35,000
- ○ (D) 1:150,000

If choice c is selected set score to 1.

19. Mean lower low water is the reference plane used for which measurements?

- ○ (A) The water depths on the U.S. east coast only
- ○ (B) The heights above water for lights, mountains, etc.
- ○ (C) All vertical measurements
- • (D) The soundings on the U.S. east and west coasts

If choice d is selected set score to 1.

20. The compass rose on a nautical chart indicates both variation and which other information?

- ○ (A) Annual rate of precession change
- ○ (B) Deviation
- • (C) Annual rate of variation change
- ○ (D) Compass error

If choice c is selected set score to 1.

21. Which describes the visible range marked on charts for lights?

- ○ (A) The minimum distance at which the light may be seen based on a 12 mile distance to visible horizon
- ○ (B) The maximum distance the light may be seen restricted by the height of the light and the curvature of the earth
- • (C) The maximum distance at which a light may be seen in clear weather with 10 miles visibility
- ○ (D) The minimum distance at which the light may be seen with infinite visibility

If choice c is selected set score to 1.

22. You are planning to enter an unfamiliar U.S. port. Which publication provides information about channel depths, dangers, obstructions, anchorages, and marine facilities available in that port?

- ○ (A) American Practical Navigator
- ○ (B) Notice to Mariners
- ○ (C) Sailing Directions
- • (D) Coast Pilot

If choice d is selected set score to 1.

23. Which agency publishes the Light Lists?

- ○ (A) National Ocean Service
- • (B) United States Coast Guard
- ○ (C) Oceanographic Office
- ○ (D) Army Corps of Engineers

If choice b is selected set score to 1.

24. How are Coast Pilots and navigational charts kept corrected and up to date?

- ○ (A) By the use of pilot charts
- • (B) Notices to Mariners
- ○ (C) Tide Tables
- ○ (D) Current Tables

If choice b is selected set score to 1.

25. What must change for the compass deviation to change?

- (A) The heading of the vessel
- (B) The geographical position of the vessel
- (C) The longitude of the vessel
- (D) The speed of the vessel

If choice a is selected set score to 1.

26. Deviation in a compass is caused by which of the following?

- (A) The influence of the magnetic materials of the vessel
- (B) The earth's magnetic field
- (C) The vessel's heading
- (D) The vessel's geographic position

If choice a is selected set score to 1.

27. What is an advantage of the magnetic compass aboard vessels?

- (A) All points on the compass rose are readily visible.
- (B) It is reliable due to its essential simplicity.
- (C) Compass error is negligible at or near the earth's magnetic poles.
- (D) It does not have to be checked as often.

If choice b is selected set score to 1.

28. 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°T, and the variation is 6°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°E
- (B) 5°W
- (C) 10°E
- (D) 10°W

If choice d is selected set score to 1.

29. It is desirable that a vessel encountering hurricane or typhoon conditions sends weather reports to the closest meteorological service at which time interval?

- (A) Every 3 hours
- (B) Every 8 hours
- (C) Every hour
- (D) Every 6 hours

If choice a is selected set score to 1.

30. In a weather report, which defines the term "visibility"?

- ○ (A) The ability to identify an object at night utilizing binoculars
- ○ (B) The distance an observer can see with the unaided eye
- ○ (C) The distance an observer can see a prominent object with a telescope or binoculars
- • (D) The distance in miles at which prominent objects are identifiable by the unaided eye

If choice d is selected set score to 1.

31. What is the average speed of movement of a hurricane prior to recurvature?

- ○ (A) 4 to 6 knots
- ○ (B) 6 to 8 knots
- • (C) 10 to 12 knots
- ○ (D) 15 to 20 knots

If choice c is selected set score to 1.

32. The needle of an aneroid barometer points to 30.05 on the dial. What does this indicate?

- ○ (A) The barometric pressure is falling
- ○ (B) 30.05 millibars
- • (C) 30.05 inches of mercury
- ○ (D) 30.05 millimeters of mercury

If choice c is selected set score to 1.

33. Which of the listed properties does warm air possess?

- • (A) It rises above cooler air and cools as it rises
- ○ (B) Atmospheric pressure rises as warm air rises
- ○ (C) Moisture in warm air condenses as the air is heated
- ○ (D) Warm air that has cooled will develop low pressure areas

If choice a is selected set score to 1.

34. A hurricane is characterized by winds of which speed?

- ○ (A) Up to 33 knots
- ○ (B) 34 to 47 knots
- ○ (C) 48 to 63 knots
- • (D) 64 knots or greater

If choice d is selected set score to 1.

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

- ○ (A) Northwest of the observer
- ○ (B) South-southeast of the observer
- • (C) Northeast of the observer
- ○ (D) West-southwest of the observer

If choice c is selected set score to 1.

36. What does the prefix "nimbo" in a cloud's name mean?

- ○ (A) It means sheet or layer clouds
- ○ (B) It means great vertical development
- • (C) It means rainy clouds
- ○ (D) It signifies middle or high-altitude clouds

If choice c is selected set score to 1.

37. The appearance of nimbostratus clouds in the immediate vicinity of a ship at sea would be accompanied by which of the following conditions?

- ○ (A) Severe thunderstorms
- ○ (B) High winds and rising sea
- • (C) Rain and poor visibility
- ○ (D) Dropping barometric pressure and backing wind in the Northern Hemisphere

If choice c is selected set score to 1.

38. Which condition would most likely result in fog?

- • (A) Warm moist air blowing over cold water
- ○ (B) Warm moist air blowing over warm water
- ○ (C) Dew point falling below the air temperature
- ○ (D) Airborne dust particles

If choice a is selected set score to 1.

39. If you count 20 seconds between seeing lightning and hearing the thunder, how far is the storm away from you?

- ○ (A) 2 miles
- • (B) 4 miles
- ○ (C) 6 miles
- ○ (D) 8 miles

If choice b is selected set score to 1.

40. What weather change accompanies the passage of a cold front in the Northern Hemisphere?

- ○ (A) Wind shift from northeast clockwise to southwest
- • (B) A line of cumulonimbus clouds
- ○ (C) Steady precipitation, gradually increasing in intensity
- ○ (D) Steady dropping of barometric pressure

If choice b is selected set score to 1.

41. What is the standard atmospheric pressure as measured in inches of mercury?

- • (A) 29.92
- ○ (B) 500.0
- ○ (C) 760.0
- ○ (D) 1013.2

If choice a is selected set score to 1.

42. Which term describes the temperature at which the air is saturated with water vapor and below which condensation of water vapor will occur?

- ○ (A) Absolute humidity
- • (D) Dew point
- ○ (C) Vapor point
- ○ (D) Precipitation point

If choice b is selected set score to 1.

43. Which refers to the period at high or low tide during which there is no change in the height of the water?

- ○ (A) Reversing of the tide
- • (B) Stand of the tide
- ○ (C) Range of the tide
- ○ (D) Plane of the tide

If choice b is selected set score to 1.

44. Which is TRUE of the velocity of the current in large coastal harbors?

- • (A) The current is predicted in Tidal Current Tables
- ○ (B) The current is generally too weak to be of concern
- ○ (C) The current is unpredictable
- ○ (D) The current is generally constant

If choice a is selected set score to 1.

45. What will be the velocity of the tidal current at New London Harbor Entrance, CT, at 1615 EST (ZD +5) on 26 December 1983?

- (A) 0.2 knot
- (B) 0.4 knot
- (C) 0.7 knot
- (D) 0.9 knot

If choice a is selected set score to 1.

46. Determine the height of the tide at 1430 EST (ZD +5) at New Bedford, MA, on 10 April 1983.

- (A) 1.1 feet
- (B) 1.2 feet
- (C) 1.4 feet
- (D) 1.7 feet

If choice c is selected set score to 1.

47. Which is the term used for a position obtained by taking lines of position from one object at different times and advancing them to a common time?

- (A) Dead-reckoning position
- (B) Estimated position
- (C) Running fix
- (D) Fix

If choice c is selected set score to 1.

48. When possible, a DR plot should always be started from where?

- (A) An assumed position
- (B) A known position
- (C) Any position
- (D) None of the above

If choice b is selected set score to 1.

49. Discounting slip, if your vessel is turning RPM for 10 knots and making good a speed of 10 knots, which is TRUE of the current?

- (A) It is with you at 2 knots
- (B) It is slack
- (C) It is with you at 10 knots
- (D) It is against you at 10 knots

If choice b is selected set score to 1.

50. The direction in which a vessel is steered is the course. The path actually followed is the __________.

- ○ (A) route
- ○ (B) track
- ○ (C) heading
- • (D) course over the ground

If choice d is selected set score to 1.