

U.S.C.G. Merchant Marine Exam
Apprentice Mate Steersman
Q413 Navigation General – Oceans
(Sample Examination)

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

1. While navigating in fog off a coastline of steep cliffs, you hear the echo of the ship's foghorn 4 seconds after the signal was sounded. What is the distance to the shore?
- A. 209 yards
 - B. 363 yards
 - C. 480 yards
 - D. 730 yards

Correct answer: D

2. For a well-made and well-maintained sextant, the maximum value of which correction is usually so small that it can be ignored?
- A. Instrument correction
 - B. Dip correction
 - C. Phase
 - D. Personal correction

Correct answer: A

3. When does a Doppler speed log indicate speed over ground?
- A. The unit can only sense speed over ground when there is no current
 - B. When sensing the bottom in depths of less than 600 feet
 - C. When the unit is in the volume reverberation mode
 - D. At all times

Correct answer: B

4. Which is TRUE when using the radar for navigation?
- A. When using ranges, the most rapidly changing range should be measured first
 - B. When using two radar ranges for a fix, the objects of the ranges should be close to reciprocal bearings
 - 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

Correct answer: A

5. The Light List shows that a navigational light has a nominal range of 6 miles and a height above water of 18 feet (5.5 meters). Your height of eye is 47 feet (14.3 meters) and the visibility is 1.5 miles. At what approximate range will you first sight the light?
- A. 1.5 miles
 - B. 2.0 miles
 - C. 6.0 miles
 - D. 12.7 miles

Correct answer: B

6. When a buoy is in position only during a certain period of the year, where may the dates when the buoy is in position be found?
- A. Light List
 - B. On the chart
 - C. Notice to Mariners
 - D. Coast Pilot

Correct answer: A

7. Quadrantal error in a gyrocompass has its GREATEST effect on which of the following?
- A. When the vessel is near the equator
 - B. When the vessel is in high latitudes
 - C. When the vessel is on north or south headings
 - D. When the vessel is on intercardinal headings

Correct answer: D

8. When using an echo sounder in deep water, it is NOT unusual to encounter which situation?
- A. To have to recalibrate every couple of days due to inaccurate readings
 - B. Receiving false echoes at a constant depth day and night
 - C. Receiving a first return near the surface during the day, and a strong return at about 200 fathoms (366 meters) at night
 - D. Receiving a strong return at about 200 fathoms (366 meters) during the day, and one nearer the surface at night

Correct answer: D

9. You are in the Northern Hemisphere and a tropical wave is located 200 miles due west of your position. Where will the wave be located 24 hours later?
- A. Closer and to the west
 - B. Farther away to the west
 - C. Closer and to the east
 - D. In the same place

Correct answer: B

10. Considering the general circulation of the atmosphere, what is the name given to the wind system between latitudes 30°N and 60°N?
- A. Southeasterlies
 - B. Northeast Trades
 - C. Trade winds
 - D. Prevailing Westerlies

Correct answer: D

11. Which is TRUE of an occulting light?

- A. The periods of light and darkness are equal
- B. There is only a partial eclipse of the light
- C. The period of light exceeds the period of darkness
- D. The period of darkness exceeds the period of light

Correct answer: C

12. Which of the following is the most accurate method of determining gyrocompass error while underway?

- A. Comparing the gyro azimuth of a celestial body with the computed azimuth of the body
- B. It cannot be determined accurately at sea due to drift of unknown currents.
- C. Determining from the chart the course made good between celestial fixes
- D. Comparing the gyro heading with the magnetic compass heading

Correct answer: A

13. What do chart legends printed in capital letters indicate about the associated landmark?

- A. The landmark is inconspicuous
- B. The landmark is conspicuous
- C. The landmark has a radio transmitter
- D. It is a government facility or station

Correct answer: B

14. You take a bearing of 313° and 076° of two objects. Which bearing of a third object will give the best fix?

- A. 255°
- B. 339°
- C. 014°
- D. 133°

Correct answer: C

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

- A. Equal interval
- B. Occulting
- C. Flashing
- D. Quick flashing

Correct answer: C

16. A towing vessel is NOT required to be fitted with radar if it is _____.

- A. towing alongside
- B. used occasionally to assist vessels in distress
- C. used solely for pollution response
- D. less than 49 feet in length

Correct answer: C

17. The National Oceanic and Atmospheric Administration publishes which item?

- A. Pilot charts
- B. Coast Pilots
- C. Light Lists
- D. Sailing Directions

Correct answer: B

18. Which topmark shown in illustration D023NG below identifies an isolated danger?

- A. A
- B. B
- C. C
- D. D

Correct answer: B

19. Buoys are marked with reflective material to assist in their detection by searchlight. Which statement is TRUE?

- A. All reflective material is white because it is the most visible at night.
- B. A safe-water buoy will display red and white vertical stripes of reflective material.
- C. A special-purpose mark will display either red or green reflective material to agree with its shape.
- D. A preferred-channel buoy displays either red or green reflective material to agree with the top band of color.

Correct answer: D

20. When making landfall at night, the light from a powerful lighthouse may sometimes be seen before the lantern breaks the horizon. Which term describes this light?

- A. Elevation
- B. Diffusion
- C. Backscatter
- D. Loom

Correct answer: D

21. In order to remove side error from a sextant, which adjustment can be made?

- A. Adjust the horizon glass to make it perpendicular to the index mirror with the index set at zero
- B. Adjust the telescope to make it parallel to the sextant frame
- C. Adjust the horizon glass to make it parallel to the horizon mirror with the index set at zero
- D. Adjust the horizon glass to make it perpendicular to the sextant frame

Correct answer: D

22. How many high waters usually occur each day on the East Coast of the United States?

- A. One
- B. Two
- C. Three
- D. Four

Correct answer: B

23. The zenith is the point on the celestial sphere that is _____.

- A. 90° away from the poles
- B. on the eastern horizon
- C. directly over the observer
- D. over Greenwich

Correct answer: C

24. The set of the current is the _____.

- A. direction from which the current flows
- B. direction in which the current flows
- C. maximum speed of the current
- D. speed of the current at a particular time

Correct answer: B

25. Which is TRUE of an aneroid barometer?

- A. An instrument that tells which direction a storm is coming from
- B. An instrument that is used to measure the height of waves
- C. An instrument in which the pressure of the air is measured
- D. An instrument used to measure the speed of wind

Correct answer: C

26. What is the light phase characteristic of a lighted isolated-danger mark?

- A. Group flashing
- B. Long flashing
- C. Interrupted quick flashing
- D. Very quick flashing

Correct answer: A

27. Which device maintains a continuous graphic record of the heading of the vessel?

- A. The fathometer
- B. The course recorder
- C. The AIS system
- D. The auto pilot

Correct answer: B

28. Which type of cloud is composed entirely of ice crystals and is found at very high altitudes?

- A. Cirrus
- B. Cumulus
- C. Stratus
- D. Nimbostratus

Correct answer: A

29. What happens to the intensity of a hurricane as it reaches higher latitudes and cooler waters?

- A. Increases
- B. Decreases
- C. Remains the same
- D. None of the above

Correct answer: B

30. You are sailing south on the Intracoastal Waterway (ICW) when you sight a red nun buoy with a yellow triangle painted on it. Which statement is TRUE?

- A. The yellow triangle identifies a sharp turn (over 60°) in the channel.
- B. The ICW and another waterway coincide in this geographical area.
- C. This is an information or regulatory buoy that also has lateral significance.
- D. Geometric symbols such as squares and triangles replace letters and numbers on ICW aids to navigation.

Correct answer: B

31. A sailing chart could have which scale?

- A. Less than 1:25,000
- B. 1:35,000
- C. 1:100,000
- D. 1:700,000

Correct answer: D

32. Which statement about the Flinders bar of the magnetic compass is CORRECT?

- A. It compensates for quadrantal deviation in horizontal hard iron
- B. It compensates for the error caused by the vertical component of the Earth's magnetic field
- C. It compensates for error caused by the heeling of a vessel in rough seas
- D. It is only needed in equatorial waters if the vessel is on a cardinal heading

Correct answer: B

33. In illustration D045NG below, which shape is a daymark warning of danger?

- A. A
- B. B
- C. C
- D. D

Correct answer: B

34. Where is the dangerous semicircle located on a hurricane in the Southern Hemisphere?

- A. To the right of the storm's track
- B. In the high-pressure area
- C. To the left of the storm's track
- D. On the south side

Correct answer: C

35. You are on course 355°T and take a relative bearing of a lighthouse of 275° . What is the true bearing of the lighthouse?

- A. 280°
- B. 085°
- C. 270°
- D. 080°

Correct answer: C

36. Which datum is used for soundings on charts of the East Coast of the United States?

- A. Half tide level
- B. Mean lowest low water
- C. Mean lower low water
- D. Mean low water springs

Correct answer: C

37. You are in a buoyed channel at night and pass a lighted buoy with an irregular characteristic. Who should you report this to?

- A. The Coast Guard
- B. The Corps of Engineers
- C. The National Ocean Service
- D. The harbor master

Correct answer: A

38. If you were sailing in the North Pacific and were interested in the ice and iceberg limits, where could you find this information?

- A. Coast Pilot
- B. Pilot Chart
- C. Notice to Mariners
- D. None of the above

Correct answer: B

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

- A. An occluded front
- B. An anticyclone
- C. A cold front
- D. A cyclone

Correct answer: D

40. Which is the standard meridian for the time zone +1?

- A. 0°
- B. $7\ 1/2^{\circ}\text{E}$
- C. 15°W
- D. $7\ 1/2^{\circ}\text{W}$

Correct answer: C

41. Under the IALA Buoyage Systems, a cardinal mark may NOT be used to indicate which of the following?

- A. To indicate the port and starboard sides of well-defined channels
- B. The deepest water in an area is on the named side of the mark
- C. To draw attention to a feature in the channel such as a bend, junction, bifurcation, or end of a shoal
- D. The safe side on which to pass a danger

Correct answer: A

42. Where would you expect to find channels marked with the IALA-A Buoyage System?

- A. Canada
- B. India
- C. Japan
- D. Argentina

Correct answer: B

43. 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.

Correct answer: D

44. The measurement of local time is based on the passage of the Sun over the _____.

- A. upper branch of the observer's meridian
- B. lower branch of the observer's meridian
- C. upper branch of the Greenwich meridian
- D. lower branch of the Greenwich meridian

Correct answer: B

45. What causes permanent magnetism on a vessel?

- A. The earth's magnetic field affecting the ship's hard iron during construction
- B. The operation of electrical equipment and generators on board ship
- C. The horizontal component of the earth's magnetic field acting on the horizontal soft iron
- D. The vertical component of the earth's magnetic field acting on the vertical soft iron

Correct answer: A

46. You are inbound in a channel marked by a range. The range line is $040^{\circ}T$. You are steering $036^{\circ}T$. The range is in sight as shown in illustration D047NG below, and is closing. Which action should you take?
- A. Continue on course until the range is closed, then alter course to the right.
 - B. Immediately alter course to the right to bring the range in line.
 - C. Immediately alter course to $040^{\circ}T$.
 - D. Continue on the present heading until the range is in line then alter course to the left.

Correct answer: A

47. You are heading out to sea in a buoyed channel and see a quick flashing green light on a buoy ahead of you. In U.S. waters, how should you leave the buoy?
- A. Well clear on either side
 - B. To starboard
 - C. About 50 yards off on either side
 - D. To port

Correct answer: B

48. Barometer readings in weather reports are given in terms of pressure at which reference location?
- A. Sea level
 - B. The weather station
 - C. The broadcasting station
 - D. Washington, D.C.

Correct answer: A

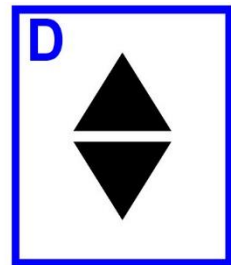
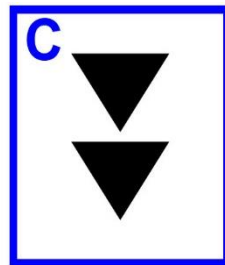
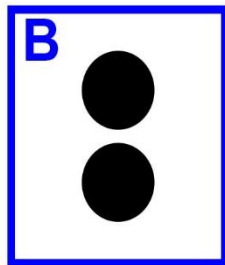
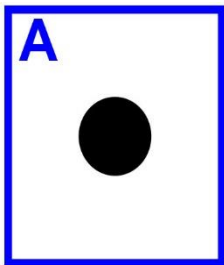
49. The owner or Master of a towing vessel shall ensure that each person that directs and controls the movement of the vessel can accomplish all of the following EXCEPT _____.
- A. enter all required test and inspection results in the vessel's log or other record carried on board
 - B. evaluate the danger of each closing visual or radar contact
 - C. adjust speed with due regard for the weather and visibility
 - D. reduce speed only where local speed limits are posted

Correct answer: D

50. Where will you find information about the duration of slack water?
- A. American Practical Navigator
 - B. Tide Tables
 - C. Sailing Directions
 - D. Tidal Current Tables

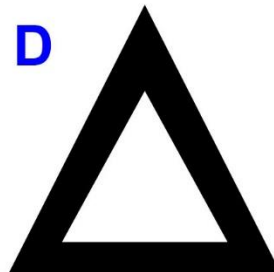
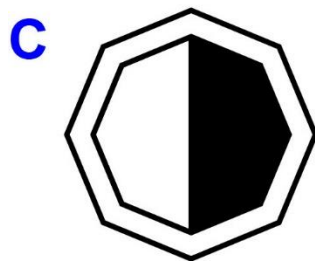
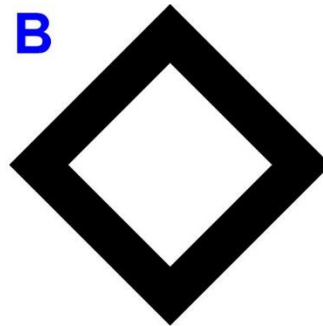
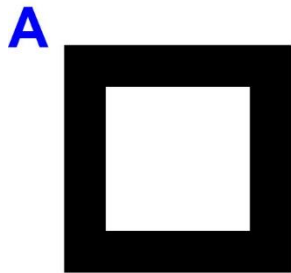
Correct answer: D

D023NG



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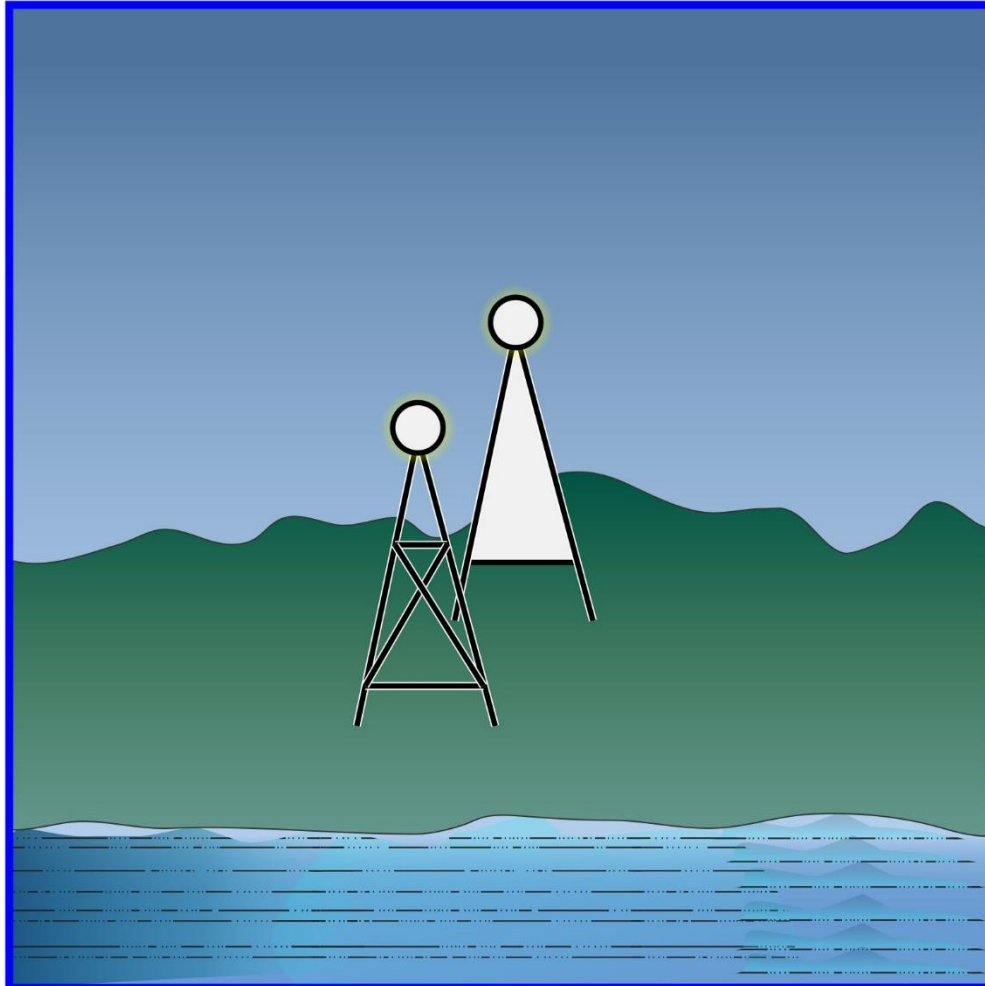


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