

U.S.C.G. Merchant Marine Exam  
Master/Chief Mate Offshore Supply Vessels  
Q203 Navigation General – Near Coastal  
(Sample Examination)

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

1. All of the following can be found on a Pilot Chart EXCEPT information concerning which item?
- A. Amounts of precipitation
  - B. Percentage of poor visibility conditions
  - C. Sea surface temperatures
  - D. Percentage of frequency of wave heights

Correct answer: A

2. What is the standard atmospheric pressure in millibars?
- A. 760.0
  - B. 938.9
  - C. 1000.0
  - D. 1013.2

Correct answer: D

3. The direction in which a vessel should be steered between two points is known by which term?
- A. Heading
  - B. Course
  - C. Course over the ground
  - D. Bearing

Correct answer: B

4. What color is a triangular daymark?
- A. Red and white
  - B. Green
  - C. Green and white
  - D. Red

Correct answer: D

5. When drawing a weather map and an isobar crosses a front, the isobar is drawn \_\_\_\_\_.
- A. perpendicular to the front
  - B. kinked and pointing towards the low
  - C. kinked and pointing away from the low
  - D. kinked and pointing towards the high for a warm front only

Correct answer: C

6. 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 west side of the mark
  - B. The south side of the mark
  - C. The east side of the mark
  - D. The north side of the mark

Correct answer: A

7. Where can information about the direction and velocity of rotary tidal currents be found?

- A. Tidal Current Tables
- B. Mariner's Guide
- C. Tide Tables
- D. Nautical Almanac

Correct answer: A

8. If the current and wind are in the same direction, what does the sea surface represent concern the true wind speed?

- A. It appears less than actually exists
- B. The appearance of the sea surface does not change
- C. It appears at the correct speed
- D. It appears higher than actually exists

Correct answer: A

9. Steam fog will occur when which conditions exists?

- A. Cool rain passes through a warm air mass
- B. Warm dry air from shore passes over cooler water
- C. Extremely cold air from shore passes over warmer water
- D. Cold ocean water evaporates into warm air

Correct answer: C

10. What is the major limitation in using the Sight Reduction Tables for Air Navigation Volume I (Pub. No. 249) for star sights?

- A. Sights must be made at even time increments to benefit from the tables.
- B. Only first magnitude stars are tabulated.
- C. More accuracy is needed for celestial observations on board ship than what is tabulated.
- D. Only certain stars are included and sights must be limited to those stars.

Correct answer: D

11. Mariners are FIRST warned of serious defects or important changes to aids to navigation by which means?

- A. Weekly Notices to Mariners
- B. Corrected editions of charts
- C. Marine broadcast Notice to Mariners
- D. Light Lists

Correct answer: C

12. Which is TRUE of an alternating light?

- A. It shows a light that changes color
- B. It marks an alternate lesser used channel
- C. It shows a light with varying lengths of the lighted period
- D. It is used as a replacement for another light

Correct answer: A

**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

Correct answer: B

**14.** Under the U.S. Aids to Navigation System, which category is a yellow buoy?

- A. A cardinal mark
- B. A junction buoy
- C. A special mark
- D. A safe water buoy

Correct answer: C

**15.** What natural feature is responsible for the rather even climate found on the Florida peninsula throughout the year?

- A. The Gulf Stream
- B. The Bermuda high
- C. Strong masses of continental air
- D. The cool waters of the Sargasso Sea

Correct answer: A

**16.** The winds of the "roaring forties" are strongest near which latitude?

- A. 50°S
- B. 40°S
- C. 40°N
- D. 50°N

Correct answer: A

**17.** Which statement is TRUE concerning a Mercator projection?

- A. Degrees of longitude decrease in length as latitude increases.
- B. The mileage between the meridians is increased as the latitude increases.
- C. The length of the meridians is increased to provide for equal expansion in all directions.
- D. The length of the meridians remains constant at all latitudes

Correct answer: C

**18.** Which term is given to a tornado that moves out over the water from land?

- A. A tornado
- B. A hurricane
- C. A waterspout
- D. A cyclone

Correct answer: C

**19.** You have replaced the chart paper in the course recorder. Which statement is TRUE?

- A. Adjust the chart paper to indicate GMT
- B. Set the zone pen to the far right of the paper
- C. Line the course pen up on 0-degree mark
- D. Test the electrical gain to the thermograph pens

Correct answer: A

**20.** Buoys which mark dredging areas are painted which color?

- A. Black
- B. Red
- C. Yellow
- D. Green

Correct answer: C

**21.** 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 against you at 10 knots
- B. It is slack
- C. It is with you at 2 knots
- D. It is with you at 10 knots

Correct answer: B

**22.** The symbol which appears beside a light on a chart reads "Gp Fl R (2) 10 sec 160 ft 19M". Which characteristic does the light possess?

- A. It flashes once every ten seconds.
- B. Its distinguishing number is "19M".
- C. It is visible two nautical miles.
- D. It has a red light.

Correct answer: D

**23.** Which weather element cannot be measured accurately while on board a moving vessel?

- A. Temperature
- B. Visibility
- C. Atmospheric pressure
- D. Wind direction

Correct answer: B

**24.** 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°

Correct answer: C

**25.** Which frontal system occurs when a cold air mass and a warm air mass meet, and there is no horizontal motion of either air mass?

- A. An occluded front
- B. A warm front
- C. A stationary front
- D. A cold front

Correct answer: C

**26.** You will be transiting a traffic lane with a wreck having a charted depth of 40 feet. The Zone of Confidence (ZOC) for that area of the chart is ZOC B. Which of the following statements is true? Illustration D055NG

- A. The actual depth of the wreck may be between 36 and 44 feet, anywhere within a 66 feet radius.
- B. The actual depth of the wreck may be between 33 and 47 feet, anywhere within a 1640 feet radius.
- C. The actual depth of the wreck may be between 36 and 44 feet, anywhere within a 164 feet radius.
- D. There is not enough information to determine depth accuracy.

Correct answer: C

**27.** The depth of water on a chart is indicated as 23 meters. What does that depth convert to?

- A. 11.5 fathoms
- B. 12.6 fathoms
- C. 69.0 feet
- D. 78.6 feet

Correct answer: B

**28.** Yesterday your chronometer read 11h 59m 58s at the 1200 GMT time tick. Today your chronometer reads 12h 00m 00s at the 1200 time tick. What is the chronometer rate?

- A. -2s
- B. Nil
- C. +2s
- D. 12h

Correct answer: C

**29.** You desire to make good a true course of  $174^\circ$ . The variation is  $17^\circ W$ , magnetic compass deviation is  $4^\circ W$ , and gyrocompass error is  $4^\circ E$ . A west-southwest wind produces a  $4^\circ$  leeway. What is the course to steer per standard magnetic compass to make the true course good?

- A.  $203^\circ psc$
- B.  $197^\circ psc$
- C.  $195^\circ psc$
- D.  $199^\circ psc$

Correct answer: D

**30.** What can be expected with the presence of stratus clouds and a dying wind?

- A. Thick fog
- B. Clearing skies
- C. Heavy snow
- D. Heavy rain

Correct answer: A

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

- A. Danger
- B. Vessels are excluded from the area
- C. Operating restrictions are in effect
- D. An anchorage area

Correct answer: B

**32.** Why is the wind velocity higher in the dangerous semicircle of a tropical cyclone?

- A. The direction of circulation and forward motion of the storm
- B. The extension of the low-pressure ridge
- C. The pressure gradient and forward motion of the storm
- D. The recurvature effect

Correct answer: C

**33.** When your vessel is on the storm track but behind the storm's center the \_\_\_\_\_.

- A. wind speed decreases
- B. wind direction remains steady
- C. barometer rises
- D. All of the above

Correct answer: D

**34.** Which term is used to describe the small differences between the heights of two successive high tides or two low tides, in a tidal day?

- A. Diurnal tides
- B. Mixed tides
- C. Solar tides
- D. Semidiurnal tides

Correct answer: D

**35.** By convention, the Earth's south magnetic pole is which color?

- A. Black
- B. White
- C. Blue
- D. Red

Correct answer: D

**36.** What does a hygrometer measure?

- A. The atmospheric pressure
- B. The relative humidity
- C. The wind velocity
- D. The absolute temperature

Correct answer: B

**37.** How can the accuracy of an azimuth circle be checked?

- A. Ensuring that the alignment marks on the inner face of the circle are in line with those on the repeater on relative bearings of 000° and 090°
- B. Aligning the relative bearing markings so that 000° is on the lubber's line and the line of sight passes over the center of the compass
- C. Sighting a terrestrial range in line and comparing the observed bearing against the charted bearing
- D. Comparing observed azimuths at different altitudes with computed values at the times of observation to see if the difference is constant

Correct answer: D

**38.** In illustration D051NG below, why was the position labeled "E" plotted?

- A. A dead reckoning position is plotted within a half-hour of each course change
- B. A dead reckoning position is plotted for each speed change
- C. The vessel's position was fixed at 1145
- D. The position is a running fix

Correct answer: B

**39.** While navigating in fog off a coastline of steep cliffs, you hear the echo of the ship's fog horn 2 1/2 seconds after the signal was sounded. What is the distance to the shore?

- A. 225 yards
- B. 460 yards
- C. 750 yards
- D. 910 yards

Correct answer: B

**40.** What is the reference datum mean high water used to measure?

- A. Both heights and soundings worldwide
- B. Soundings in European waters
- C. Heights of topographical features in the United States
- D. Soundings on the east coast of the United States

Correct answer: C

**41.** Which term is given to a radar display which is oriented, so that north is always at the top of the screen?

- A. Relative display
- B. Unstabilized display
- C. Stabilized display
- D. Composite display

Correct answer: C

**42.** When considering currents, which defines the term set?

- A. It is the velocity in knots
- B. It is the estimated current
- C. It is the direction from which it flows
- D. It is the direction towards which it flows

Correct answer: D

**43.** Which name is given to the pressure-sensitive element of an aneroid barometer?

- A. Syphon cell
- B. Pressure bellows
- C. Column of mercury
- D. Constant pressure capsule

Correct answer: A

**44.** The dry bulb temperature is 78oF and the wet bulb temperature is 62oF. What is the relative humidity?

- A. 16%
- B. 24%
- C. 39%
- D. 79%

Correct answer: C

**45.** The four standard light colors used for lighted aids to navigation are red, green, white, and \_\_\_\_\_.

- A. orange
- B. blue
- C. yellow
- D. purple

Correct answer: C

**46.** The largest waves (heaviest chop) will usually develop where the wind blows \_\_\_\_\_.

- A. over slack water
- B. at right angles to the flow of the current
- C. in the same direction as the flow of the current
- D. against the flow of the current

Correct answer: D

**47.** You take a bearing of  $264^\circ$  of a lighthouse. Which bearing of another object would give the best fix?

- A.  $239^\circ$
- B.  $059^\circ$
- C.  $182^\circ$
- D.  $291^\circ$

Correct answer: C

**48.** While steering a course of  $150^\circ\text{T}$ , you wish to observe the Sun for a speed check. What would the azimuth have to be?

- A.  $090^\circ\text{T}$
- B.  $060^\circ\text{T}$
- C.  $240^\circ\text{T}$
- D.  $150^\circ\text{T}$

Correct answer: D

**49.** Which type of precipitation is a product of the violent convection in thunderstorms?

- A. Freezing Rain
- B. Sleet
- C. Snow
- D. Hail

Correct answer: D

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

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

Correct answer: C

**51.** As the South Equatorial Current approaches the east coast of Africa, it divides with the main part flowing south to form which current?

- A. Agulhas Current
- B. Canary Current
- C. Benguela Current
- D. Madagascar Current

Correct answer: A

**52.** Which cloud is described as a low, dark, sheet-like cloud which is associated with continuous precipitation for many hours?

- A. Cirrus cloud
- B. Cumulus cloud
- C. Nimbostratus cloud
- D. Cumulonimbus cloud

Correct answer: C

**53.** An electronic depth finder operates on which principle?

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

Correct answer: C

**54.** Which is TRUE of Raster-scan chart data?

- A. It is the only format recognized by IMO/IHO
- B. It is organized into many separate files
- C. It is composed of files that are smaller than vector files
- D. It is a digitized "picture" of a chart in one format and one layer

Correct answer: D

**55.** What is a system of reservoirs and connecting tubes in a gyro compass called?

- A. The mercury ballistics
- B. The spider element
- C. The rotor
- D. The gyrotron

Correct answer: A

**56.** Your vessel is on a course of 082°T at 19 knots.

At 0255 a light bears 059.5°T, and at 0312 the light bears 037°T.  
At what time and distance off will your vessel be when abeam of the light?

- A. 0333, 5.1 miles
- B. 0321, 4.7 miles
- C. 0327, 4.3 miles
- D. 0324, 3.8 miles

Correct answer: D

**57.** You are underway on course  $120^{\circ}\text{T}$  and can make 12 knots. The eye of a hurricane bears  $150^{\circ}\text{T}$  at 120 miles. The hurricane is on course  $295^{\circ}$  at 20 knots. What course should you steer at 12 knots to have the maximum CPA?

- A.  $312^{\circ}$
- B.  $330^{\circ}$
- C.  $348^{\circ}$
- D.  $001^{\circ}$

Correct answer: C

**58.** Which is a characteristic of warm air masses?

- A. Stratiform clouds
- B. Heavy precipitation
- C. Good visibility
- D. Turbulence within the mass

Correct answer: A

**59.** What do widely spaced isobars on a weather map indicate?

- A. Gentle breezes
- B. Ice, snow or frozen rain
- C. The probability of tornados
- D. High winds

Correct answer: A

**60.** To make sure of getting the full advantage of a favorable current, you should reach an entrance or strait at which time in relation to the predicted time of the favorable current?

- A. 30 minutes before
- B. 30 minutes before flood, one hour after an ebb
- C. One hour after
- D. At the predicted time

Correct answer: A

**61.** You swung ship and compared the magnetic compass against the gyrocompass to find deviation. Gyro error is  $2^{\circ}\text{E}$ . The variation is  $8^{\circ}\text{W}$ . Find the deviation on a magnetic compass heading of  $057^{\circ}$ .

Deviation table NP-0109

- A.  $1.0^{\circ}\text{E}$
- B.  $1.5^{\circ}\text{E}$
- C.  $1.5^{\circ}\text{W}$
- D.  $0.5^{\circ}\text{W}$

Correct answer: C

- 62.** Which is the region containing 3/4 of the mass of the atmosphere and to which are confined such phenomena as clouds, storms, precipitation and changing weather conditions?
- A. The troposphere
  - B. The stratosphere
  - C. The stratopause
  - D. The tropopause

Correct answer: A

- 63.** Before a magnetic compass is adjusted certain correctors must be checked to ensure that they are free of permanent magnetism. Which are the correctors?
- A. Heeling magnet and Flinders bar
  - B. Flinders bar and quadrantal spheres
  - C. Fore-and-aft and athwartships magnets
  - D. Dip needle and heeling magnet

Correct answer: B

- 64.** Which of the following causes the development of an occluded front?
- A. A low-pressure area
  - B. A high-pressure area
  - C. An area of calm air
  - D. A cold front overtaking a warm front

Correct answer: D

- 65.** When navigating in high latitudes and using a chart based on a Lambert conformal projection, which is TRUE?
- A. The distance cannot be measured directly from the chart
  - B. The course angle is measured at the mid-longitude of the track line
  - C. A straight line drawn on the chart approximates a great circle
  - D. The chart should not be used outside of the standard parallels

Correct answer: C

- 66.** You are underway in an area where the charted depth is 8 fathoms. You compute the height of tide to be -4.0 feet. The draft of your vessel is 5.0 feet (1.52 meters). You determine the depth of the water beneath your keel to be \_\_\_\_\_.
- A. 39 feet (11.9 meters)
  - B. 43 feet (13.1 meters)
  - C. 47 feet (14.3 meters)
  - D. 57 feet (17.4 meters)

Correct answer: A

**67.** Your vessel is proceeding up a channel, and you see a pair of range lights that are in line ahead. The chart indicates that the direction of this pair of lights is  $311^{\circ}T$ , and the variation is  $8^{\circ}E$ . If the heading of your vessel at the time of the sighting is  $305^{\circ}$  per standard magnetic compass, what is the correct deviation?

- A.  $2^{\circ}E$
- B.  $2^{\circ}W$
- C.  $6^{\circ}E$
- D.  $6^{\circ}W$

Correct answer: B

**68.** The Brazil Current flows in which general direction?

- A. Southwesterly
- B. Northerly
- C. Northwesterly
- D. Southeasterly

Correct answer: A

**69.** The true course between two points is  $057^{\circ}$ . Your gyrocompass has an error of  $3^{\circ}$  east and you make an allowance of  $1^{\circ}$  leeway for a north-northwest wind. Which gyro course should be steered to make the true course good?

- A.  $059^{\circ}pgc$
- B.  $060^{\circ}pgc$
- C.  $056^{\circ}pgc$
- D.  $053^{\circ}pgc$

Correct answer: D

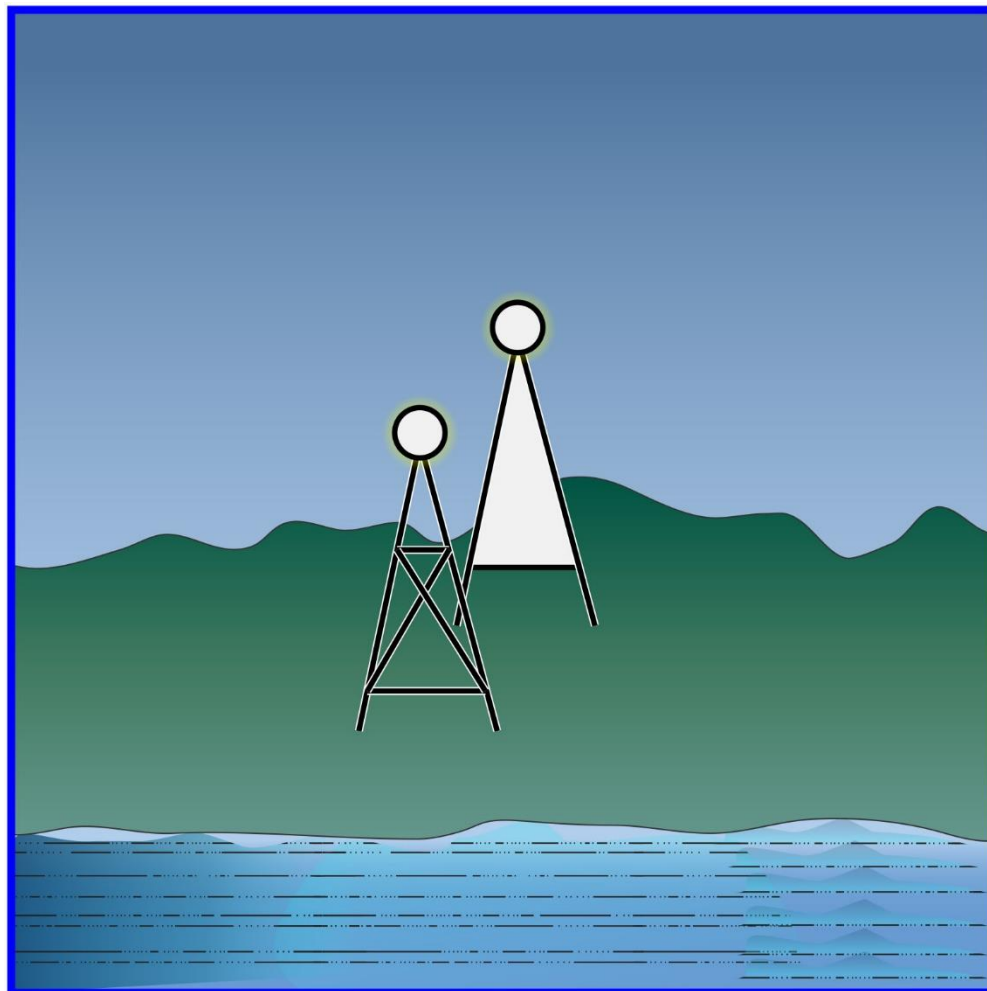
**70.** You are entering port and have been instructed to anchor, as your berth is not yet available. You are on a SW'ly heading, preparing to drop anchor, when you observe the range lights as shown in illustration D047NG below, on your starboard beam. What action should you take?

- A. NOT drop the anchor until the lights are in line
- B. Ensure your ship will NOT block the channel or obstruct the range while at anchor
- C. Drop the anchor immediately as the range lights mark an area free of obstructions
- D. Drop the anchor immediately as a change in the position of the range lights will be an indication of dragging anchor

Correct answer: B



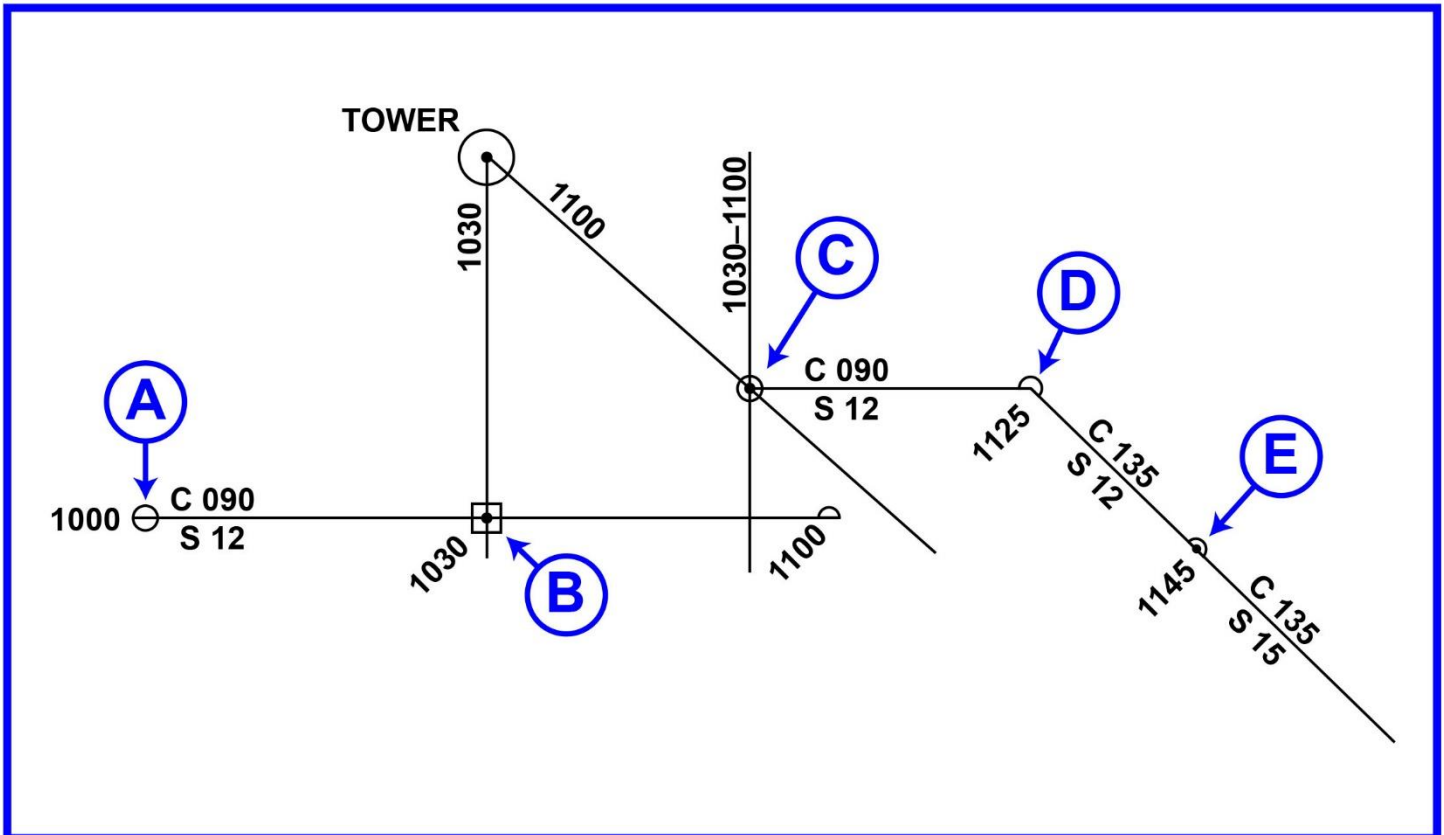
**D047NG**



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## D051NG





## D055NG

### ZOC CATEGORIES

| ZOC | POSITION ACCURACY  | DEPTH ACCURACY                                     | SEAFLOOR COVERAGE  |
|-----|--|--|--|
| A1  | ± 5 m + 5% depth<br>± 16.4 ft + 5% depth                                 | = 0.50 m +1% d<br>= 1.6 ft +1% d<br>= 0.3 fm +1% d | All significant seafloor features detected.  |
| A2  | ± 20 m<br>± 65.6 ft  | = 1.00 m +2% d<br>= 3.3 ft +2% d<br>= 0.6 fm +2% d | All significant seafloor features detected.  |
| B   | ± 50 m<br>± 164.0 ft   | = 1.00 m +2% d<br>= 3.3 ft +2% d<br>= 0.6 fm +2% d | Uncharted features hazardous to surface navigation are not expected but may exist. |
| C   | ± 500 m<br>± 1640.4 ft   | = 2.00 m +2% d<br>= 6.6 ft +2% d<br>= 1.1 fm +2% d | Depth anomalies may be expected.   |
| D   | Worse than ZOC C   | Worse than ZOC C                                   | Large depth anomalies may be expected.   |
| U   | Unassessed - The quality of the bathymetric data has yet to be assessed. |  |  |

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