

U.S.C.G. Merchant Marine Exam  
Mate Uninspected Fishing Vessels  
Q191 Navigation General – Oceans  
(Sample Examination)

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

1. You wish to measure the distance on a Mercator chart between a point in latitude  $42^{\circ}30'N$  and a point in latitude  $40^{\circ}30'N$ . To measure 30 miles at a time where should you set the points of the dividers to obtain the most accuracy?
- A.  $41^{\circ}15'$  and  $41^{\circ}45'$
  - B.  $42^{\circ}15'$  and  $42^{\circ}45'$
  - C.  $41^{\circ}45'$  and  $42^{\circ}15'$
  - D.  $42^{\circ}00'$  and  $42^{\circ}30'$

Correct answer: A

2. Barometers are calibrated at which standard temperature?
- A.  $0^{\circ}F$
  - B.  $32^{\circ}F$
  - C.  $60^{\circ}F$
  - D.  $70^{\circ}F$

Correct answer: B

3. At the magnetic equator there is no induced magnetism in the vertical soft iron because \_\_\_\_\_.
- A. there is no vertical component of the Earth's magnetic field
  - B. the quadrantal error is  $0^{\circ}$
  - C. the intercardinal headings have less than  $1^{\circ}$  error
  - D. the lines of force cross the equator on a  $0^{\circ}$ - $180^{\circ}$  alignment

Correct answer: A

4. Which meteorological feature controls the climate of the Gulf of Mexico and the coastal area during late spring and summer?
- A. Tropical cyclones
  - B. The horse latitudes
  - C. The Bermuda High
  - D. The doldrums

Correct answer: C

5. As a vessel changes course to starboard, which is TRUE concerning the compass card in a magnetic compass?
- A. The card remains aligned with compass north
  - B. The card turns counterclockwise to port
  - C. The card also turns to starboard
  - D. It first turns to starboard then counterclockwise to port

Correct answer: A

6. In the horizon system of coordinates what is equivalent to the equator on the Earth?
- A. Parallels of altitude
  - B. Horizon
  - C. Principal vertical circle
  - D. Prime vertical circle

Correct answer: B

7. The dew point is reached when which condition occurs?
- A. The air becomes saturated with water vapor
  - B. The temperature of the air equals the temperature of the seawater
  - C. The atmospheric pressure is 14.7 lbs. per square inch
  - D. The relative humidity reaches 50%

Correct answer: A

8. Which of the listed properties does warm air possess?
- A. It rises above cooler air and cools as it rises
  - B. Moisture in warm air condenses as the air is heated
  - C. Atmospheric pressure rises as warm air rises
  - D. Warm air that has cooled will develop low pressure areas

Correct answer: A

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

Correct answer: A

10. If an observer in the Northern Hemisphere faces the surface wind, where is the center of low pressure located?
- A. To the left, and slightly in front
  - B. To the right, and slightly in front
  - C. To the left, and slightly behind
  - D. To the right, and slightly behind

Correct answer: D

11. In both regions of the IALA buoyage system, which topmark shown in illustration D022NG below is used on a special mark?
- A. A
  - B. B
  - C. C
  - D. D

Correct answer: D

12. The navigational triangle uses parts of two systems of coordinates, one of which is the celestial equator system, which is the other system?
- A. Horizon system
  - B. Ecliptic system
  - C. Astronomical system
  - D. Terrestrial system

Correct answer: A

13. You are running parallel to the coast and estimate that the current is against you. In plotting a running fix using bearings from the same object on the coast, the greatest safety margin from inshore dangers will result if what speed is used to determine the fix?
- A. Maximum speed estimate
  - B. Average speed estimate
  - C. Minimum speed estimate
  - D. A running fix should not be used under these conditions.

Correct answer: C

14. Illustration D011NG below represents the geographic location of a vessel and the radar presentation at the same time. Which statement is TRUE?
- A. The small island is not detected due to the effect of beam width.
  - B. A tangent bearing of the headland to the south-southeast should be corrected by adding one-half of the beam width.
  - C. Ship No. 2 is not detected due to the reflective mass of the background mountain overpowering the ship's reflective signals.
  - D. Ship No. 1 is not detected due to the shadow effect of the headland.

Correct answer: B

15. The upper vertex of a great circle track is in LONG 156°00'E. Sailing eastward, the great circle track will cross the equator in which LONG?
- A. 66°00'E
  - B. 66°00'W
  - C. 110°00'W
  - D. 114°00'W

Correct answer: D

16. Which is TRUE of Radiation fog?
- A. It always forms over water
  - B. It is thinnest at the surface
  - C. It dissipates during the evening
  - D. It is formed by a temperature inversion

Correct answer: D

17. Which is the dividing meridian between zone descriptions -7 and -8?

- A. 112°30'E
- B. 118°30'E
- C. 120°00'E
- D. 116°30'W

Correct answer: A

18. In the North Sea area, you sight a buoy showing a quick white light with 9 flashes every 15 seconds. Which of the four topmarks shown in illustration D030NG below would be fitted to the buoy?

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

Correct answer: C

19. You are enroute to assist vessel A. Vessel A is underway at 4.5 knots on course 233°T, and bears 264°T, 68 miles from you. What is the time to intercept if you make 13 knots?

- A. 6h 31m
- B. 6h 47m
- C. 7h 03m
- D. 7h 37m

Correct answer: D

20. The Light List indicates that a light has a nominal range of 13 miles and is 36 feet high. If the visibility is 17 miles and your height of eye is 25 feet, at what approximate distance will you sight the light?

- A. 10.0 miles
- B. 12.9 miles
- C. 14.2 miles
- D. 17.0 miles

Correct answer: B

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

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

Correct answer: C

22. Which is TRUE concerning a relative bearing?

- A. It is always measured from true north
- B. It is always measured from the vessel's beam
- C. It is always measured from magnetic north
- D. It is always measured from the vessel's head

Correct answer: D

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

Correct answer: C

24. Which term is used to describe the speed at which an ocean wave system advances?
- A. Group velocity
  - B. Wavelength
  - C. Wave velocity
  - D. Ripple length

Correct answer: A

25. The radius of a circle of equal altitude of a body is equal to the \_\_\_\_\_.
- A. altitude of the body
  - B. codeclination of the body
  - C. coaltitude of the body
  - D. polar distance

Correct answer: C

26. A marine sextant has the index arm set at zero and the reflected image of the horizon forms a continuous line with the actual image. When the sextant is rotated about the line of sight the images separate. The sextant has which error?
- A. Prismatic error
  - B. Side error
  - C. Error of perpendicularity
  - D. Centering error

Correct answer: B

27. IN REGION A of the IALA Buoyage System, when entering from seaward, how would the starboard side of a channel be marked?
- A. A green can buoy
  - B. A red conical buoy
  - C. A green conical buoy
  - D. A red can buoy

Correct answer: C

28. When within 300 miles of a named tropical storm or hurricane, it is standard practice to send weather reports at which time interval?
- A. Every 8 hours
  - B. Every hour
  - C. Every 6 hours
  - D. Every 3 hours

Correct answer: D

29. On an isomagnetic chart, which term is used for the line of zero variation?

- A. An agonic line
- B. An isogonic line
- C. A variation line
- D. The zero variation line

Correct answer: A

30. In a tropical cyclone in the Northern Hemisphere, a vessel hove to with the wind shifting counterclockwise would be in which location?

- A. Directly in the path of the center
- B. Ahead of the storm
- C. In the navigable semicircle
- D. In the dangerous semicircle

Correct answer: C

31. What daymark has NO lateral significance?

- A. Green and white diamond
- B. Red triangle
- C. Red triangle with a green horizontal stripe
- D. Green square

Correct answer: A

32. Your radar displays your ship off center. As you proceed on your course, your ship's marker moves on the PPI scope while echoes from land masses remain stationary. What is this display called?

- A. Stabilized
- B. Head up
- C. True motion
- D. Off center

Correct answer: C

33. In the Northern Hemisphere, if your vessel is in a hurricane's navigable semicircle where should you position the wind relative to the vessel?

- A. On the port quarter, maintain course and make as much speed as possible
- B. On the starboard bow and heave to until the hurricane has passed
- C. On the port bow, hold course and make as much speed as possible until the hurricane has passed
- D. On the starboard quarter, hold course and make as much speed as possible

Correct answer: D

34. You are on course 146°T. To check the speed of your vessel you should observe a celestial body on which bearing?

- A. 000°
- B. 056°
- C. 090°
- D. 146°

Correct answer: D

35. How are buoys which mark isolated dangers painted?

- A. Alternating green and white bands
- B. Alternating red and white stripes
- C. Alternating red and black bands
- D. Alternating green and black bands

Correct answer: C

36. Which term is given to a line on a weather chart connecting places which have the same barometric pressure?

- A. Isotherm
- B. Isobar
- C. Isallobar
- D. Isotope

Correct answer: B

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

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

Correct answer: B

38. Under the Uniform State Waterway Marking System how is a mooring buoy painted?

- A. Any color that does not conflict with the lateral system
- B. Yellow
- C. White with a green top
- D. White with a blue band

Correct answer: D

39. Which is TRUE of a vertically-striped buoy?

- A. It may be lighted with a red light
- B. It may be striped black and yellow
- C. It may be striped black and green
- D. It may be lighted with a white light

Correct answer: D

40. Which is TRUE of a dead reckoning (DR) plot?

- A. It ignores the effect of surface currents
- B. It is most useful when in sight of land
- C. It must be plotted using magnetic courses
- D. It may be started at an assumed position

Correct answer: A



41. Which item in illustration D034NG below shows a fixed and flashing light?

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

Correct answer: A

42. In the Northern Hemisphere, when the center of a high-pressure system is due east of your position, you can expect winds from which direction?

- A. South to east
- B. North to west
- C. North to east
- D. South to west

Correct answer: A

43. What publication has information on the climate, distances, navigation regulations, outstanding landmarks, channels and anchorages of Long Island Sound?

- A. Light List
- B. Pilot Chart
- C. Coast Pilot
- D. Sailing Directions

Correct answer: C

44. What is the longitude of the geographical position of a body whose Greenwich hour angle is  $210^{\circ}30'$ ?

- A.  $30^{\circ}30'E$
- B.  $149^{\circ}30'E$
- C.  $59^{\circ}30'W$
- D.  $120^{\circ}30'W$

Correct answer: B

45. Which is TRUE concerning Light Lists for coastal waters?

- A. They are published every five years and require no correction
- B. They are published every year and require no corrections
- C. They are accurate thru NM number on title page and must be corrected
- D. They are published every second year and must be corrected

Correct answer: C

46. Brief, violent showers frequently accompanied by thunder and lightning are usually associated with \_\_\_\_\_.

- A. winds shifting counterclockwise in the Northern Hemisphere
- B. passage of a cold front
- C. passage of a warm front
- D. stationary high-pressure systems

Correct answer: B

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

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

Correct answer: C

48. How are altocumulus clouds defined?

- A. High clouds
- B. Middle clouds
- C. Low clouds
- D. Vertical development clouds

Correct answer: B

49. Mean low water is the average height of \_\_\_\_\_.

- A. all low waters
- B. the lower of the two daily low tides
- C. the surface of the sea
- D. high waters and low waters

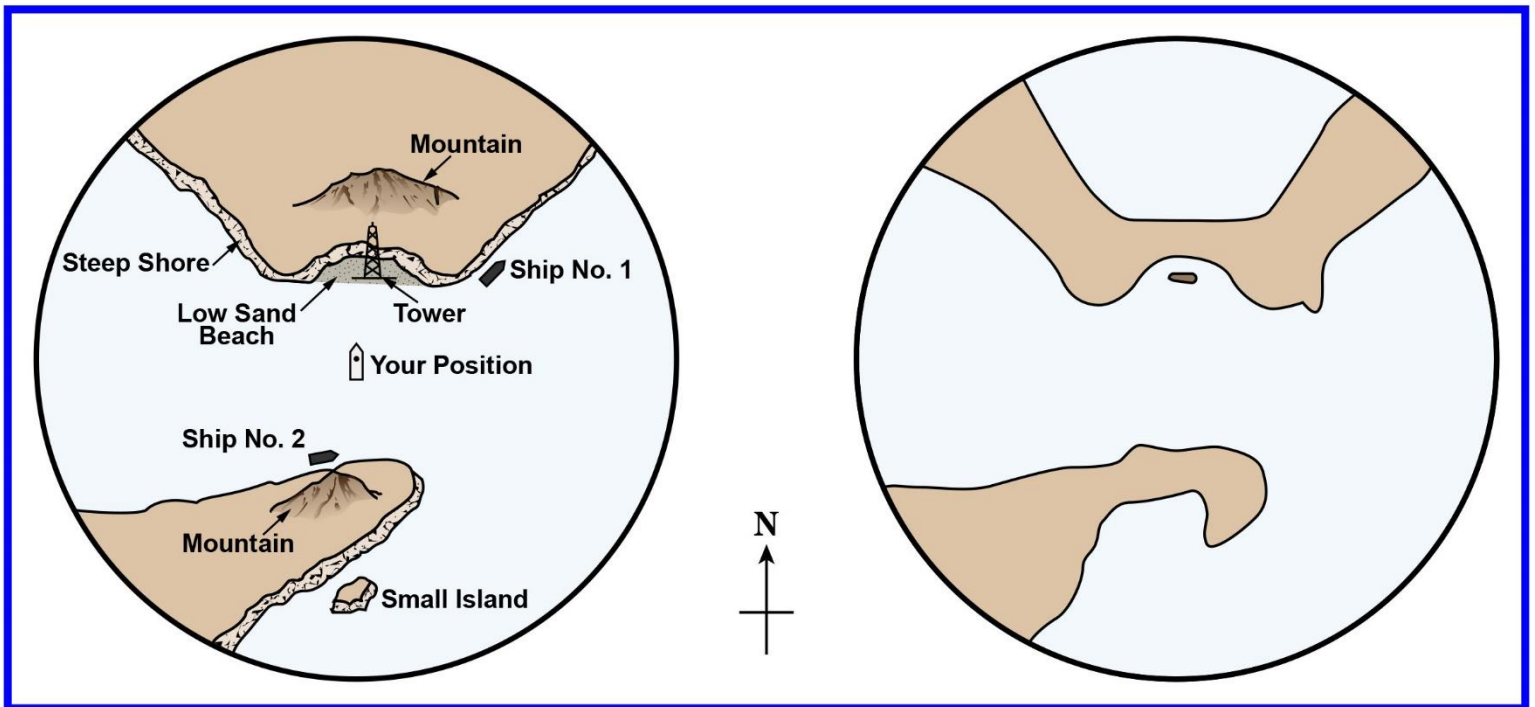
Correct answer: A

50. Yesterday you took a time tick using the 1200 GMT broadcast, and the chronometer read 11h 59m 59s. Today at the 1200 GMT time tick the chronometer read 00h 00m 01s. What is the chronometer error?

- A. Fast 1 second
- B. Losing 2 seconds
- C. Gaining 2 seconds
- D. Fast 2 seconds

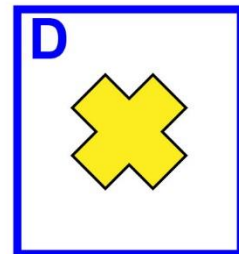
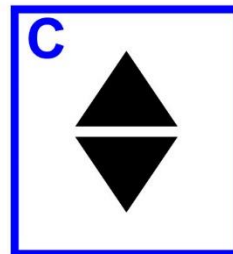
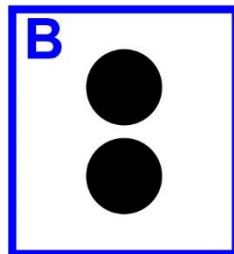
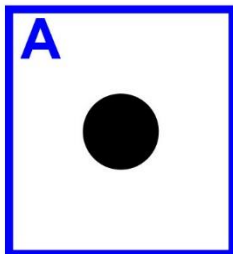
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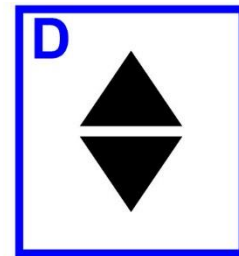
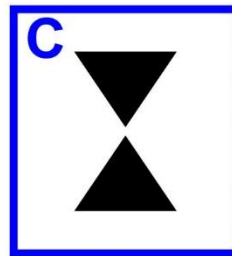
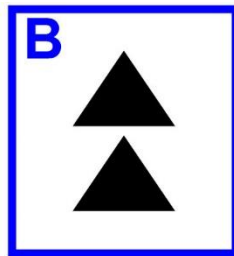
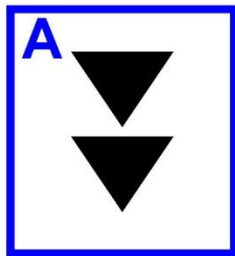
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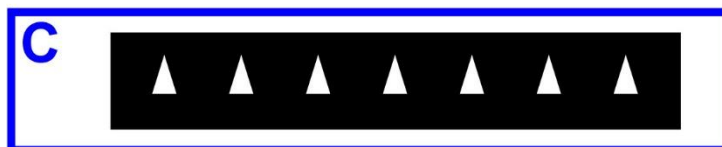
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## D034NG



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