

U.S.C.G. Merchant Marine Exam
Apprentice Mate Steersman
Q412 Navigation General – Near Coastal
(Sample Examination)

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

1. What are the only magnetic compass correctors that correct for both permanent and induced effects of magnetism?

A. Fore-and-aft magnets
B. Quadrantal spheres
C. Athwartships magnets
D. Heeling magnets

Correct answer: D

2. In modern fathometers, what produces the sonic or ultrasonic sound waves?

A. A transducer
B. A generator
C. A transceiver
D. An amplifier

Correct answer: A

3. The Light List indicates that a light has a nominal range of 14 miles and is 42 feet (12.7 m) high. If the visibility is 16 miles and your height of eye is 20 feet (6.1 m), at which approximate distance will you sight the light?

A. 20.1 miles
B. 16.0 miles
C. 12.8 miles
D. 7.6 miles

Correct answer: C

4. While proceeding downriver, you sight a red triangular-shaped daymark on the left bank. What does this daymark represent under the U.S. Aids to Navigation System on the Western Rivers?

A. It is a crossing daymark
B. It is a passing daymark
C. It is a special purpose signal
D. It has no lateral significance

Correct answer: B

5. Chart information details to be used in ECDIS should be the latest edition of information originated by a government-authorized hydrographic office and conform to the standards of which organization?

A. International Hydrographic Organization
B. NASA
C. US Coast Guard
D. International Maritime Organization

Correct answer: A

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

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

Correct answer: D

7. Which type of projection is used to make a Mercator chart?

- A. Simple conic projection
- B. Cylindrical projection
- C. Rectangular projection
- D. Polyconic projection

Correct answer: B

8. Which describes the result when you turn on the fast time constant (differentiator) control of a radar?

- A. Only suppresses weak targets to a limited distance from the ship (sea clutter)
- B. Enhanced weak target echoes and brighten them on the PPI
- C. Reduces the beam width to provide a map-like presentation for navigation
- D. Reduced clutter over the entire PPI by shortening the echoes

Correct answer: D

9. What do the magnets placed in horizontal trays in the compass binnacle compensate for?

- A. Induced magnetism in the vessel's horizontal soft iron
- B. Permanent magnetism of the vessel
- C. Magnetic fields caused by electrical currents in the vicinity
- D. Change in the magnetic field when the vessel inclines from vertical

Correct answer: B

10. Which characteristic and color will a preferred-channel buoy show?

- A. A composite group-flashing (2 + 1) red or green light
- B. A composite group-flashing (2 + 1) white light
- C. A white light whose characteristic is Morse (A)
- D. A group-occluding white light

Correct answer: A

11. Which item in illustration D034NG below shows a Morse (A) light?

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

Correct answer: D

12. Which publication contains information on Naval Cooperation and Guidance for Shipping (NCAGS) in time of emergency or war?

- A. Pub. 102, International Code of Signals
- B. Appropriate volume of the Sailing Directions
- C. Light List
- D. Pub. 117, Radio Navigational Aids

Correct answer: D

13. A green buoy has a yellow triangle on it. What type of buoy is this?

- A. It is a dual-purpose marker used where the ICW and other waterways coincide
- B. It is a buoy that was set in error and will be replaced with a red nun buoy
- C. This buoy that is off-station and is marked to warn mariners of its wrong position
- D. This is an information or regulatory buoy that has lateral significance

Correct answer: A

14. Your present weather is sunny with a steady barometer. A low swell approaches your vessel from the south with crests passing at relatively long periods of about four per minute. What does this usually indicate?

- A. A hurricane about 100 miles south of your vessel and heading in your direction
- B. A warm front from the south
- C. A tropical cyclone south of your vessel
- D. An extra-tropical cyclone

Correct answer: C

15. 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

Correct answer: A

16. Which theoretical minimum number of measurements from satellites does a GPS receiver need in order to provide an exact three-dimensional position?

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

Correct answer: B

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

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

Correct answer: C

18. When using a recording depth finder in the open ocean, what phenomena is most likely to produce a continuous trace that may not be from the actual ocean bottom?

- A. Poor placement of the transducer on the hull
- B. Echoes from a deep scattering layer
- C. Echoes from schools of fish
- D. Multiple returns reflected from the bottom to the surface and to the bottom again

Correct answer: B

19. If within 500 yards (460m) of a Northern Right Whale you are lawfully obligated to take which actions?

- A. Slow to bare steerageway until the whale swims away
- B. Stop the vessel and sound repeated blasts on the ship's whistle to scare the whale away
- C. Turn away from the whale and leave at slow speed
- D. Turn away from the whale and leave at full speed

Correct answer: C

20. 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

Correct answer: C

21. After an item of required safety equipment on a towing vessel fails, the owner or Master must consider all of these factors before continuing the voyage, EXCEPT the _____.

- A. weather conditions, including visibility
- B. dictates of good seamanship
- C. estimated time of arrival promised to the customer
- D. safety of the vessel, considering the other traffic in the area

Correct answer: C

22. As a high-pressure system approaches, which is TRUE concerning the barometer reading?

- A. The reading falls
- B. The reading falls rapidly
- C. The reading stays the same
- D. The reading rises

Correct answer: D

23. The world is divided into NAVAREAS for the dissemination of important marine information. Which NAVAREAS include the U.S. coasts?

- A. I and II
- B. IV and XII
- C. V and X
- D. VI and VII

Correct answer: B

24. General information about the location, characteristics, facilities, and services for U.S. and foreign ports may be obtained from which publication?

- A. Coast Pilot
- B. Sailing Directions
- C. World Port Index
- D. Distances Between Ports

Correct answer: C

25. Which of the following is associated with consistently high barometric pressure?

- A. The prevailing westerlies
- B. The horse latitudes
- C. The trade winds
- D. The doldrums

Correct answer: B

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

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

Correct answer: A

27. Steam fog is most likely to occur on the Mississippi and Ohio Rivers in _____.

- A. fall, around midday
- B. spring, around early evening
- C. spring, around late evening
- D. summer, around early morning

Correct answer: D

28. Which is the most commonly encountered fog at sea?

- A. Conduction fog
- B. Frontal fog
- C. Advection fog
- D. Radiation fog

Correct answer: C

29. Which may cause above-normal tides near the center of a hurricane?

- A. The jet stream
- B. High barometric pressure
- C. Torrential rains
- D. Storm surge

Correct answer: D

30. Where can information for updating paper nautical charts primarily be found?

- A. Sailing Directions
- B. Notice to Mariners
- C. Coast Pilots
- D. Nautical chart catalogs

Correct answer: B

31. What do the numbers on isobars indicate?

- A. Barometric pressure
- B. Rain in inches
- C. Wind speed
- D. Temperature

Correct answer: A

32. If you are the Master of a towing vessel who's 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.

Correct answer: C

33. When should your dead reckoning position should be plotted?

- A. When coming on or going off soundings
- B. At least every hour on the hour in the open waters of the sea
- C. When it agrees with your GPS position
- D. Whenever an estimated position is plotted

Correct answer: B

34. When does a current perpendicular to a vessel's track have the greatest effect on the vessel's course made good?

- A. At high vessel speeds
- B. At low vessel speeds
- C. In shallow water
- D. In deep water

Correct answer: B

35. You are enroute to assist vessel A. Vessel A is underway at 5.5 knots on course 033°T, and bears 284°T, 43 miles from you. What is the time to intercept if you make 16 knots?

- A. 2h 16m
- B. 2h 22m
- C. 2h 32m
- D. 2h 42m

Correct answer: C

36. Which clouds are described as uniform, grayish-white cloud sheets that cover large portions of the sky, and are responsible for a large percentage of the precipitation in the temperate latitudes?

- A. cirrostratus
- B. altostratus
- C. altocumulus
- D. cirrocumulus

Correct answer: B

37. A line of position from a celestial observation is a segment of which choice?

- A. A vertical circle
- B. A circle of equal altitude
- C. A parallel of declination
- D. A parallel of altitude

Correct answer: B

38. Some lights used as aids to marine navigation have a red sector to indicate a danger area. The limits of a colored sector of a light are listed in the Light List in which of the following manners?

- A. Geographical positions outlining the area of the sector
- B. True bearings as observed from the light toward the ship
- C. An outline of the area of the sector
- D. True bearings as observed from the ship toward the light

Correct answer: D

39. Prior to reading an aneroid barometer, why should you tap the face lightly with your finger?

- A. To demagnetize the metal elements
- B. To expose any loose connections
- C. To contract and expand the glass face
- D. To bring the pointer to its true position

Correct answer: D

40. Which type of daymark is used to mark the port side of the channel when entering from sea?

- A. Red triangle
- B. Green square
- C. Black and white diamond
- D. Red and white octagon

Correct answer: B

41. How can you estimate the position of a tropical storm's center?

- A. With a radio weather bulletin or weather fax
- B. Using shipboard radar
- C. Observe the wind direction and apply Buys Ballot's law
- D. All of the above

Correct answer: D

42. What does the Flinders bar on a magnetic compass compensate for?

- A. Induced magnetism in horizontal soft iron
- B. Permanent magnetism in ship's steel
- C. Vessel's inclination from the vertical
- D. Induced magnetism in vertical soft iron

Correct answer: D

43. When trying to sight a lighthouse you notice a glare from a town in the background. How does this affect the range at which the light may be sighted?

- A. Increased if the light is red or green due to contrast with the glare
- B. Considerably reduced and difficult to distinguish
- C. Unchanged
- D. Increased slightly due to extra lighting

Correct answer: B

44. A rotary current sets through all directions of the compass. How much time does it take to complete one of these cycles, in a locale off the East coast of the U.S.?

- A. 2 1/2 hours
- B. 3 1/2 hours
- C. 6 1/4 hours
- D. 12 1/2 hours

Correct answer: D

45. How is an occluded front represented on a weather map?

- A. A blue line
- B. A dashed blue line
- C. A purple line
- D. An alternate red and blue line

Correct answer: C

46. What does the symbol shown in illustration D033NG below indicate on a chart?

- A. A can buoy with a rotating white light
- B. A safe water beacon
- C. A sunken vessel marked by a buoy
- D. A red and white can buoy

Correct answer: B

47. The largest waves (heaviest chop) will usually develop where the wind blows _____.
- A. against the flow of the current
 - B. at right angles to the flow of the current
 - C. over slack water
 - D. in the same direction as the flow of the current

Correct answer: A

48. You are underway in the North Sea on course 216°T when you sight a buoy bearing 021° relative. Under the IALA Buoyage System, you are in the best navigable water if the buoy has which of the following characteristics?
- A. Has a double cone topmark with both points up
 - B. Has a continuous very quick light
 - C. Is horizontally banded yellow, black, yellow
 - D. Has a light characteristic of Q(6) + L Fl 15s

Correct answer: D

49. In IALA Region B, entering from sea, how would a daymark on the port side of the channel be indicated on a chart?
- A. A white square with the letters GR
 - B. A white triangle with the letters RG
 - C. A green square with the letter G
 - D. A red triangle with the letter R

Correct answer: C

50. Where can information about the direction and velocity of rotary tidal currents be found?
- A. Nautical Almanac
 - B. Mariner's Guide
 - C. Tidal Current Tables
 - D. Tide Tables

Correct answer: C

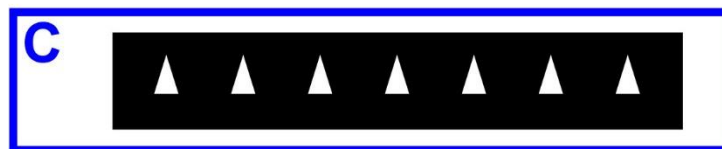
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