

U.S.C.G. Merchant Marine Exam
Deck Officer Endorsements
Q371 Navigation General
(Sample Examination)

Choose the best answer to the following Multiple Choice Questions.

1. Which statement is TRUE concerning apogean tides?

- (A) They cause diurnal tides to become mixed.
- (B) They occur when the Moon is nearest the Earth.
- (C) They occur only at quadrature.
- (D) They have a decreased range from normal.

If choice D is selected set score to 1.

2. On 26 February 1983, at 1750 EST (ZD +5) what will be the predicted height of tide at New Haven (city dock), CT?

- (A) -.6 foot (-0.2 meter)
- (B) -.3 foot (-0.1 meter)
- (C) 1.3 feet (0.4 meter)
- (D) 1.6 feet (0.5 meter)

If choice A is selected set score to 1.

3. The depth of water on a chart is indicated as 23 meters. This is equal to _____.

- (A) 11.5 fathoms
- (B) 12.6 fathoms
- (C) 69.0 feet
- (D) 78.6 feet

If choice B is selected set score to 1.

4. The radar control that shortens all echoes on the display and reduces clutter caused by rain or snow is the _____.

- (A) sensitivity time control (sea clutter control)
- (B) fast time constant (differentiator)
- (C) brilliance control
- (D) receiver gain control

If choice B is selected set score to 1.

5. You are underway on course 059°T at a speed of 13.8 knots. You sight a light bearing 064°T at a radar range of 5.1 miles at 1839. If you change course at 1845, what is the course to steer to leave the light abeam to starboard at 1.0 mile?

- (A) 050°T
- (B) 047°T
- (C) 058°T
- (D) 053°T

If choice A is selected set score to 1.

6. Which government agency publishes the U.S. Coast Pilot?

- (A) Army Corps of Engineers
- (B) National Geospatial-Intelligence Agency
- (C) National Ocean Service
- (D) U.S. Coast Guard

If choice C is selected set score to 1.

7. In the U.S. Aids to Navigation System, red and green horizontally-banded buoys mark _____.

- (A) general anchorage areas
- (B) fishing grounds
- (C) junctions or bifurcations
- (D) channels for shallow draft vessels

If choice C is selected set score to 1.

8. Port side daymarks may be _____.

- (A) black and white
- (B) numbered
- (C) of any shape
- (D) octagonal

If choice B is selected set score to 1.

9. You are steering $163^{\circ}T$, and a light is picked up dead ahead at a distance of 11 miles at 0142. You change course to pass the light 2 miles off abeam to starboard. If you are making 13 knots, what is your ETA at the position 2 miles off the light?

- (A) 0226
- (B) 0235
- (C) 0232
- (D) 0229

If choice C is selected set score to 1.

10. You are approaching Chatham Strait from the south in foggy weather. You have Coronation Island and Hazy Islands on the radar. Suddenly the radar malfunctions. You then resort to using whistle echoes to determine your distance off Coronation Island. Your stopwatch reads 16.3 seconds for the echo to be heard. How far are you off Coronation Island?

- (A) 1.0 mile
- (B) 1.5 miles
- (C) 2.0 miles
- (D) 2.5 miles

If choice B is selected set score to 1.

11. The Light List Does NOT contain information on _____.

- (A) radio beacon systems
- (B) radio direction finder calibration stations
- (C) aeronautical lights useful for marine navigation
- (D) the Global Positioning System (GPS)

If choice C is selected set score to 1.

12. With respect to automatic identification systems (AIS), which information is required to be broadcast every 1 to 10 seconds?

- (A) Time stamp
- (B) Location of antenna
- (C) Destination
- (D) None of the above

If choice A is selected set score to 1.

13. 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) 169°T
- (B) 160°T
- (C) 156°T
- (D) 164°T

If choice D is selected set score to 1.

14. 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 (the) _____.

- (A) US Coast Guard
- (B) NASA
- (C) International Hydrographic Organization
- (D) International Maritime Organization

If choice C is selected set score to 1.

15. By convention, the Earth's south magnetic pole is colored _____.

- (A) red
- (B) blue
- (C) white
- (D) black

If choice A is selected set score to 1.

16. You have replaced the chart paper in the course recorder. What is NOT required to ensure that a correct trace is recorded?

- (A) Adjust the chart paper to indicate the correct time
- (B) Line the course pen up on the exact heading of the ship
- (C) Set the zone pen on the correct quadrant
- (D) Test the electrical gain to the thermograph pens

If choice D is selected set score to 1.

17. Which publication lists Class I and II private aids to navigation in or along navigable waters of the United States?

- (A) Light List
- (B) Sailing Directions
- (C) Aids to Navigation Manual
- (D) List of Private Aids

If choice A is selected set score to 1.

18. You are steering $202^{\circ}T$, and a light is picked up dead ahead at a distance of 14.6 miles at 2234. You change course to pass the light 5 miles off abeam to starboard. If you are making 21 knots, what is your ETA at the position 5 miles off the light?

- (A) 2310
- (B) 2313
- (C) 2316
- (D) 2319

If choice B is selected set score to 1.

19. You desire to make good a true course of 157° . The variation is $15^{\circ}E$, magnetic compass deviation is $9^{\circ}W$, and gyrocompass error is $3^{\circ}E$. A southwesterly wind produces a 2° leeway. What is the course to steer per standard magnetic compass to make the true course good?

- (A) $150^{\circ}psc$
- (B) $153^{\circ}psc$
- (C) $145^{\circ}psc$
- (D) $147^{\circ}psc$

If choice B is selected set score to 1.

20. When operated over a muddy bottom, a fathometer may indicate _____.

- (A) a zero depth reading
- (B) no depth reading
- (C) two depth readings
- (D) a shallow depth reading

If choice C is selected set score to 1.

21. You are underway on course 215°T at 12 knots. The current is 000°T at 2.3 knots. What is the course made good?

- (A) 232°T
- (B) 217°T
- (C) 222°T
- (D) 209°T

If choice C is selected set score to 1.

22. The compass rose on a nautical chart indicates both variation and _____.

- (A) deviation
- (B) annual rate of variation change
- (C) compass error
- (D) precession

If choice B is selected set score to 1.

23. You desire to make good a true course of 236°. The variation is 8°E, magnetic compass deviation is 1°E, and gyrocompass error is 3°W. A south-southeasterly wind produces a 1° leeway. What is the course to steer per standard magnetic compass (psc) to make the true course good?

- (A) 226°psc
- (B) 244°psc
- (C) 246°psc
- (D) 228°psc

If choice A is selected set score to 1.

24. Complete information on weather broadcasts throughout the world is contained in _____.

- (A) the Notice to Mariners
- (B) Selected Worldwide Marine Weather Broadcasts
- (C) your local newspaper
- (D) the daily weather map

If choice B is selected set score to 1.

25. Vessels required to have an Automatic Radar Plotting Aid must have a device to indicate the _____.

- (A) speed of the vessel over the ground or through the water
- (B) vessel's position
- (C) AIS information of vessels in the vicinity
- (D) ECDIS generated trackline

If choice A is selected set score to 1.

26. ECDIS must give an alarm for which of the following cases?

- (A) If the ship is going to reach a critical point on the planned route
- (B) When the speed of a dangerous target exceeds a set limit
- (C) If the ship's ETA has changed beyond the set limit
- (D) All of the above

If choice A is selected set score to 1.

27. What option does an Electronic Plotting Aid (EPA) not have?

- (A) Target Trails
- (B) Trial Maneuver
- (C) Dual VRMs/EBLs
- (D) Preset CPA/TCPA

If choice B is selected set score to 1.

28. In modern fathometers the sonic or ultrasonic sound waves are produced electrically by means of a(n) _____.

- (A) amplifier
- (B) transmitter
- (C) transceiver
- (D) transducer

If choice D is selected set score to 1.

29. With respect to failure warnings and status indications, GPS receivers should provide, at a minimum, _____.

- (A) a cross-track error alarm
- (B) an alarm if engine speed is suddenly reduced
- (C) a warning of loss of position
- (D) an indication of a change in satellite configuration

If choice C is selected set score to 1.

30. What will NOT induce errors into a Doppler sonar log?

- (A) Roll
- (B) Change in trim
- (C) Pitch
- (D) Increased draft

If choice D is selected set score to 1.

31. Under the IALA cardinal system, a mark with quick white light showing 3 flashes every 10 seconds indicates that the safest water in the area is on the _____.

- (A) north side of the mark
- (B) east side of the mark
- (C) south side of the mark
- (D) west side of the mark

If choice B is selected set score to 1.

32. You are steaming in a westerly direction along the Gulf Coast. You see ahead of you a lighted buoy showing a red isophase light. Which action should you take?

- (A) Alter course and leave the buoy near by on either side.
- (B) Alter course and pass the buoy well-off on either side.
- (C) Alter course to port and leave the buoy to starboard.
- (D) Alter course to starboard and leave the buoy to port.

If choice C is selected set score to 1.

33. You are underway on course 106°T at a speed of 15.3 knots. You sight a buoy bearing 109°T at a radar range of 3.6 miles at 1725. If you change course at 1728, what is the course to steer to leave the buoy abeam to port at 0.5 mile?

- (A) 125°T
- (B) 120°T
- (C) 100°T
- (D) 117°T

If choice B is selected set score to 1.

34. In which country would you expect the channels to be marked with the IALA-B Buoyage System?

- (A) Tanzania
- (B) Norway
- (C) New Zealand
- (D) Brazil

If choice D is selected set score to 1.

35. A vertically-striped buoy may be _____.

- (A) striped black and green
- (B) striped black and yellow
- (C) lighted with a white light
- (D) lighted with a red light

If choice C is selected set score to 1.

36. A special mark (yellow buoy), if lighted, may exhibit which light rhythm?

- (A) Morse "A"
- (B) Equal interval
- (C) Flashing
- (D) Occulting

If choice C is selected set score to 1.

37. Under the IALA Buoyage System, which topmark shown in illustration D023Ng below will be displayed on a safe water mark?

- (A) A
- (B) B
- (C) C
- (D) D

If choice A is selected set score to 1.

38. 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, you should leave the buoy _____.

- (A) well clear on either side
- (B) to port
- (C) to starboard
- (D) about 50 yards off on either side

If choice C is selected set score to 1.

39. A buoy marking a wreck will show a(n) _____.

- (A) white light FL (2) and a topmark of 2 black spheres
- (B) yellow light and will be numbered
- (C) continuous quick white light and may be numbered
- (D) occulting green light and may be lettered

If choice A is selected set score to 1.

40. Which of the following traits possessed by an articulated light makes it superior to other types of buoys?

- (A) The fog horn signal travels farther to sea
- (B) The radar reflectors return better signals
- (C) It is equipped with strobe lights
- (D) It has a reduced watch circle

If choice D is selected set score to 1.

41. An occulting light is one in which _____.

- (A) the periods of light and darkness are equal
- (B) the period of light exceeds the period of darkness
- (C) the period of darkness exceeds the period of light
- (D) there is only a partial eclipse of the light

If choice B is selected set score to 1.

42. When a light is first seen on the horizon it will disappear again if the height of eye is immediately lowered several feet. When the eye is raised to its former height the light will again be visible. This process is called _____.

- (A) obscuring a light
- (B) checking a light
- (C) bobbing a light
- (D) raising a light

If choice C is selected set score to 1.

43. Geographic range is the maximum distance at which a light may be seen under _____.

- (A) perfect visibility conditions, limited only by interference from background lighting
- (B) perfect visibility conditions, limited only by the curvature of the Earth
- (C) existing visibility conditions, limited only by the intensity of the light
- (D) existing visibility conditions, limited only by the curvature of the Earth

If choice B is selected set score to 1.

44. The Light List shows a lighted aid to navigation on the left bank. This means that the light can be seen on the port side of a vessel _____.

- (A) crossing the river
- (B) descending the river
- (C) proceeding from seaward
- (D) ascending the river

If choice B is selected set score to 1.

45. The buoy symbol printed on your chart is leaning to the northeast. This indicates _____.

- (A) nothing special for navigational purposes
- (B) you should stay to the north or east of the buoy
- (C) the buoy is a major lighted buoy
- (D) you should stay to the west or south of the buoy

If choice A is selected set score to 1.

46. What agency of the U.S. Government issues charts of U.S. waters and Coast Pilots?

- (A) U.S. Naval Observatory
- (B) National Ocean Service
- (C) U.S. Coast Guard
- (D) National Imagery and Mapping Agency

If choice B is selected set score to 1.

47. Charts should be corrected by using information published in the _____.

- (A) Notice to Mariners
- (B) Light List
- (C) American Practical Navigator
- (D) Coast Pilot

If choice A is selected set score to 1.

48. Allied Naval Control of Shipping (NCS) has been established. Which statement is TRUE?

- (A) The Naval Control of Shipping Organization of each nation will serve their own ships only.
- (B) The conduct of US-flag ships in an allied port will be controlled by US NCS authorities.
- (C) Allied ships, which are at sea when an emergency is declared, will all be controlled by a central authority.
- (D) After Naval Control of Shipping has been established, permission to sail must come from local naval authorities or consular officers.

If choice D is selected set score to 1.

49. What publication contains information about the port facilities in Cadiz, Spain?

- (A) Sailing Directions
- (B) World Port Index
- (C) Nautical Index
- (D) United States Coast Pilot

If choice B is selected set score to 1.

50. The Light List indicates that a dayboard is a type MR. You should _____.

- (A) check to enter the correct channel at this junction daymark
- (B) look for an all red daymark
- (C) leave it on either side
- (D) look for the other dayboard forming the range

If choice C is selected set score to 1.

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

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

If choice D is selected set score to 1.

52. Entering from seaward, triangular-shaped daymarks are used to mark _____.

- (A) an obstruction where the preferred channel is to starboard
- (B) the centerline of the channel
- (C) special purpose areas
- (D) the starboard side of the channel

If choice D is selected set score to 1.

53. What indicates a dual purpose buoy?

- (A) Red buoy with a horizontal yellow band
- (B) Red and white vertically-striped buoy with a vertical yellow stripe
- (C) Red and white vertically-striped buoy with a red spherical topmark
- (D) Green buoy with a yellow square

If choice D is selected set score to 1.

54. When a dual purpose marking is used, the mariner following the Intracoastal Waterway should be guided by the _____.

- (A) color of the top band
- (B) shape of the aid
- (C) color of the aid
- (D) shape of the yellow mark

If choice D is selected set score to 1.

55. What does the helm command "shift the rudder" mean?

- (A) Stop the swing of the ship.
- (B) Put the rudder over to the opposite side, the same number of degrees it is now.
- (C) Shift the rudder control to the alternate steering method.
- (D) Put the rudder amidships and hold the heading steady as she goes.

If choice B is selected set score to 1.

56. You have the "conn" at the time the helmsman who is steering by hand reports that the rudder is not responding to the wheel. Your FIRST action should be to _____.

- (A) signal the engineroom to stop the engines
- (B) call the engineroom
- (C) call the Master
- (D) shift the selector switch to the other steering pump

If choice D is selected set score to 1.

57. You are a watchstanding mate and have come to the bridge to relieve the watch. After reviewing the chart and having been briefed by the off-going mate, you are now ready to effect the relief. The watch is officially transferred to you after _____.

- (A) the mate being relieved says, "You have the conn" and you state the ship's course
- (B) you say, "I relieve you" and you state the course per gyro and magnetic compasses
- (C) the mate being relieved tells you the vessel's course and speed and states that you have the watch
- (D) you state the vessel's charted position, present course and port of destination

If choice B is selected set score to 1.

58. Magnets in the binnacles of magnetic compasses are used to reduce the effect of _____.

- (A) local attraction
- (B) deviation
- (C) variation
- (D) All of the above

If choice B is selected set score to 1.

59. Which statement about gyrocompass error is TRUE?

- (A) The amount of the error and the sign will generally be the same on all headings.
- (B) The sign (E or W) of the error will change with different headings of the ship.
- (C) Any error will remain constant unless the compass is stopped and restarted.
- (D) Any error shown by a gyro repeater will be the same as the error of the master compass.

If choice A is selected set score to 1.

60. What is the gyrocompass error resulting from your vessel's movement in OTHER than an east-west direction?

- (A) quadrantal error
- (B) damping error
- (C) speed error
- (D) ballistic deflection

If choice C is selected set score to 1.

61. 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 $093^{\circ}T$, and the variation is $6^{\circ}E$. If the heading of your vessel at the time of the sighting is 097° per standard magnetic compass, what is the correct deviation?

- (A) $5^{\circ}E$
- (B) $10^{\circ}E$
- (C) $5^{\circ}W$
- (D) $10^{\circ}W$

If choice D is selected set score to 1.

62. You are at anchor in the anchorage at the entrance to Delaware Bay. If you weigh anchor at 1445 DST (ZD +4) on 24 July 1983 and proceed northbound enroute to Philadelphia at a speed of 10 knots, you will have _____.

- (A) an ebb current north of New Castle, DE
- (B) a weak flood between Reedy Island and Edgemoor
- (C) a flood current from Ship John Shoal Lt. to Philadelphia
- (D) a flood current the entire trip

If choice B is selected set score to 1.

63. The wind at Frying Pan shoals has been south-southwesterly at an average velocity of 30 knots. The predicted set and drift of the rotary current are 232° at 0.8 knot. What current should you expect?

- (A) 092° at 1.3 knots
- (B) 224° at 0.4 knot
- (C) 139° at 0.6 knot
- (D) 065° at 1.2 knots

If choice B is selected set score to 1.

64. Off Barnegat, NJ, with the wind coming out of the east, the wind-driven current will be flowing approximately _____.

- (A) 106°
- (B) 254°
- (C) 016°
- (D) 286°

If choice B is selected set score to 1.

65. On 6 July 1983, at 1830 DST (ZD +4), what will be the predicted height of tide at Newburgh, NY?

- (A) 2.0 feet
- (B) 3.3 feet
- (C) 2.4 feet
- (D) 2.6 feet

If choice A is selected set score to 1.

66. Your vessel will be docking at Chester, PA, during the evening of 22 April 1983. The chart shows a depth of 20 feet (6.1 meters) at the pier. What will be the depth of water available at 1856 EST (ZD +5)?

- (A) 22.4 feet (6.8 meters)
- (B) 24.9 feet (7.6 meters)
- (C) 25.7 feet (7.8 meters)
- (D) 23.4 feet (7.2 meters)

If choice D is selected set score to 1.

67. The velocity of a rotary tidal current will be decreased when the Moon is _____.

- (A) full
- (B) new
- (C) at apogee
- (D) All of the above

If choice C is selected set score to 1.

68. The tides in Boston Harbor generally _____.

- (A) are diurnal in nature
- (B) have their variations caused by the changing declination of the Moon
- (C) have a greater range than the tides in Gulf Coast ports
- (D) All of the above

If choice C is selected set score to 1.

69. A tide is called diurnal when _____.

- (A) the high tide and low tide are exactly six hours apart
- (B) the high tide is higher and the low tide is lower than usual
- (C) two high tides occur during a lunar day
- (D) only one high and one low water occur during a lunar day

If choice D is selected set score to 1.

70. The range of tide is the _____.

- (A) maximum depth of the water at high tide
- (B) difference between the heights of high and low tide
- (C) duration of time between high and low tide
- (D) distance the tide moves out from the shore

If choice B is selected set score to 1.

D023NG

