

U.S.C.G. Merchant Marine Exam
Mate Offshore Supply Vessels
Q211 Navigation General - Near Coastal
(Sample Examination)

Choose the best answer to the following Multiple Choice questions.

1. The symbol which appears beside a light on a chart reads "Gp Fl R (2) 10 sec 160 ft 19M". Which characteristic describes the light?
- (A) It is visible 10 miles.
 - (B) Its distinguishing number is "19M".
 - (C) It has a radar reflector.
 - (D) None of the above

If choice D is selected set score to 1.

2. With respect to automatic identification systems (AIS), which information is expected to be broadcast every 1 to 10 seconds?
- (A) Latitude and longitude
 - (B) Navigational status
 - (C) Rate of turn
 - (D) All of the above

If choice D is selected set score to 1.

3. A position obtained by applying ONLY your vessel's course and speed to a known position is a _____.
- (A) probable position
 - (B) running fix
 - (C) dead-reckoning position
 - (D) fix

If choice C is selected set score to 1.

4. When the moon is new or full, which type of tides occur?
- (A) Apogean
 - (B) Neap
 - (C) Spring
 - (D) Diurnal

If choice C is selected set score to 1.

5. The Light List shows that a navigational light has a nominal range of 5 miles and a height above water of 21 feet (6.4 meters). Your height of eye is 32 feet (9.8 meters) and the visibility is 1.0 mile. At what approximate range will you first sight the light?
- (A) 1.0 mile
 - (B) 1.5 miles
 - (C) 5.0 miles
 - (D) 11.7 miles

If choice B is selected set score to 1.

6. The pressure gradient between the horse latitudes and doldrums runs _____.
- (A) north to south
 - (B) east to west
 - (C) northeast to southwest
 - (D) northwest to southeast

If choice A is selected set score to 1.

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

If choice D is selected set score to 1.

8. Yellow lights may appear on _____.
- (A) vertically-striped buoys
 - (B) special purpose buoys
 - (C) spherical buoys
 - (D) horizontally-banded buoys

If choice B is selected set score to 1.

9. Which wind results from a land mass cooling more quickly at night than an adjacent water area?
- (A) Mistral
 - (B) Coastal breeze
 - (C) Sea breeze
 - (D) Land breeze

If choice D is selected set score to 1.

10. What is NOT a characteristic of cardinal marks?

- (A) Yellow and black bands
- (B) White lights
- (C) Square or triangular topmarks
- (D) Directional orientation to a hazard

If choice C is selected set score to 1.

11. When approaching a preferred-channel buoy, the best channel is NOT indicated by the _____.

- (A) color of the uppermost band
- (B) shape of an unlighted buoy
- (C) light characteristic
- (D) color of the light

If choice C is selected set score to 1.

12. Charted depth is the _____.

- (A) average height of water over a specified period of time
- (B) vertical distance from the chart sounding datum to the ocean bottom, plus the height of tide
- (C) vertical distance from the chart sounding datum to the ocean bottom
- (D) average height of all low waters at a place

If choice C is selected set score to 1.

13. According to Buys Ballot's law, when an observer in the Northern Hemisphere experiences a northeast wind the center of low pressure is located to the _____.

- (A) northeast
- (B) west-southwest
- (C) northwest
- (D) south-southeast

If choice D is selected set score to 1.

14. While your vessel is proceeding down a channel you notice a range of lights in line with your vessel's mast. If your vessel is on course 001° per gyro compass and the charted value of the range of lights is 359°T, what is the gyro compass error?

- (A) 1°E
- (B) 1°W
- (C) 2°E
- (D) 2°W

If choice D is selected set score to 1.

15. That half of the hurricane to the right hand side of its track (as you face the same direction that the storm is moving) in the Northern Hemisphere is called the _____.

- (A) safe semicircle
- (B) dangerous semicircle
- (C) leeward side
- (D) windward side

If choice B is selected set score to 1.

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

- (A) Vessel's draft
- (B) Call sign
- (C) Route plan
- (D) None of the above

If choice D is selected set score to 1.

17. 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 you should set the points of the dividers at _____.

- (A) $41^{\circ}45'$ and $42^{\circ}15'$
- (B) $42^{\circ}15'$ and $42^{\circ}45'$
- (C) $41^{\circ}15'$ and $41^{\circ}45'$
- (D) $42^{\circ}00'$ and $42^{\circ}30'$

If choice C is selected set score to 1.

18. An occluded front is caused by a(n) _____.

- (A) low pressure area
- (B) cold front overtaking a warm front
- (C) area of calm air
- (D) high pressure area

If choice B is selected set score to 1.

19. You are steaming on a course of 208°T at 21 knots. At 2019 you observe a lighthouse bearing 129°T. At 2030 the lighthouse bears 103°T. What is your distance off at the second bearing?

- (A) 8.2 miles
- (B) 8.9 miles
- (C) 9.3 miles
- (D) 8.6 miles

If choice D is selected set score to 1.

20. Mean lower low water is the reference plane used for _____.

- (A) soundings on the U.S. east and west coasts
- (B) heights above water for lights, mountains, etc.
- (C) water depths on the U.S. east coast only
- (D) all vertical measurements

If choice A is selected set score to 1.

21. Your vessel is steering 157°T at 18 knots. At 2018 a light bears 208°T. At 2044 the same light bears 232°T. What will be your distance off when abeam?

- (A) 15.2 miles
- (B) 16.7 miles
- (C) 12.8 miles
- (D) 14.4 miles

If choice D is selected set score to 1.

22. In illustration D044NG below, what type of buoy is indicated by the letter A?

- (A) can
- (B) spar
- (C) pillar
- (D) nun

If choice A is selected set score to 1.

23. The maritime radio system consisting of a series of coast stations transmitting coastal warnings is called _____.

- (A) NAVAREA
- (B) HYDROLANT/HYDROPAC
- (C) NAVTEX
- (D) SAFESEA

If choice C is selected set score to 1.

24. Which item in illustration D034NG below shows an occulting light?

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

If choice B is selected set score to 1.

25. A List of Lights entry (L Fl) is a single flashing light which shows a long flash of not less than _____.

- (A) 1.0 second duration
- (B) 1.5 seconds duration
- (C) 2.0 seconds duration
- (D) 3.0 seconds duration

If choice C is selected set score to 1.

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

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

If choice B is selected set score to 1.

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

- (A) Poland
- (B) Peru
- (C) Morocco
- (D) Saudi Arabia

If choice B is selected set score to 1.

28. When entering from seaward, a buoy displaying a single-flashing red light indicates _____.

- (A) a wreck to be left on the vessel's port side
- (B) the starboard side of the channel
- (C) a sharp turn in the channel to the right
- (D) a junction with the preferred channel to the left

If choice B is selected set score to 1.

29. Tropical cyclones are classified by form and intensity. Which system does not have closed isobars?

- (A) Cyclone
- (B) Tropical depression
- (C) Tropical disturbance
- (D) Hurricane

If choice C is selected set score to 1.

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

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

If choice B is selected set score to 1.

31. The largest waves (heaviest chop) will usually develop where the wind blows _____.

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

If choice B is selected set score to 1.

32. You are sailing south on the Intracoastal Waterway (ICW) when you sight a green can buoy with a yellow square painted on it. Which of the following is TRUE?

- (A) The buoy marks the end of the ICW in that area.
- (B) You should pass the buoy close aboard on either side.
- (C) The yellow square is retro-reflective material used to assist in sighting the buoy at night.
- (D) You should leave the buoy to port.

If choice D is selected set score to 1.

33. Red sectors of navigation lights warn mariners of _____.

- (A) floating debris
- (B) recently sunken vessels
- (C) shoals or nearby land
- (D) heavily trafficked areas

If choice C is selected set score to 1.

34. Which statement about the gyrocompass is FALSE?

- (A) It seeks the true meridian.
- (B) Its accuracy remains the same at all latitudes.
- (C) If an error exists, it is the same on all headings.
- (D) It can be used near the Earth's magnetic poles.

If choice B is selected set score to 1.

35. The Light List shows that a navigational light has a nominal range of 19 miles and a height above water of 52 feet (15.8 meters). Your height of eye is 42 feet (12.8 meters) and the visibility is 10.0 miles. At what approximate range will you first sight the light?

- (A) 17.3 miles
- (B) 19.0 miles
- (C) 16.0 miles
- (D) 10.0 miles

If choice C is selected set score to 1.

36. Which information does the outer ring of a compass rose on a nautical chart provide?

- (A) Annual rate of variation change
- (B) True directions
- (C) Variation
- (D) Magnetic directions

If choice B is selected set score to 1.

37. On charts of U.S. waters, a magenta marking is NOT used for marking a _____.

- (A) lighted buoy
- (B) radio beacon
- (C) 5-fathom curve
- (D) prohibited area

If choice C is selected set score to 1.

38. The principal advantage of NAVTEX radio warnings is that _____.

- (A) only an ordinary FM radio is necessary to receive these warnings
- (B) they cover a broad spectrum of the radio band allowing reception on almost any type of receiver
- (C) they can be used by mariners who do not know Morse code
- (D) information on a given topic is only broadcast at specified times

If choice C is selected set score to 1.

39. Compass deviation is caused by _____.

- (A) a dirty compass housing
- (B) magnetism from the earth's magnetic field
- (C) magnetism within the vessel
- (D) misalignment of the compass

If choice C is selected set score to 1.

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

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

If choice B is selected set score to 1.

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

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

If choice B is selected set score to 1.

42. In order to insure that the racon signal is visible on your 3 cm radar, the _____.

- (A) rain clutter control should be off but, if necessary, may be on low
- (B) gain control should be turned to maximum
- (C) 10 cm radar should be placed on standby or turned off
- (D) radar should be stabilized, head up

If choice A is selected set score to 1.

43. 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.

44. The Earth's irregular heating is caused by _____.

- (A) the time of day
- (B) the seasons
- (C) geography
- (D) All of the above

If choice D is selected set score to 1.

45. Plain language is usually used on marine weather _____.

- (A) observations
- (B) synoptic chart
- (C) analyses
- (D) forecasts

If choice D is selected set score to 1.

46. What do the numbers on isobars indicate?

- (A) temperature
- (B) barometric pressure
- (C) wind speed
- (D) rain in inches

If choice B is selected set score to 1.

47. Fetch is the _____.

- (A) measurement of a wave's steepness
- (B) stretch of water over which a wave-forming wind blows
- (C) time in seconds required for two crests to pass a given point
- (D) distance a wave travels between formation and decay

If choice B is selected set score to 1.

48. You are underway on course 120°T and your maximum speed is 12 knots. The eye of a hurricane bears 150°T, 120 miles from your position. The hurricane is moving towards 295°T at 20 knots. If you maneuver at 12 knots to avoid the hurricane, what could be the maximum CPA?

- (A) 89 miles
- (B) 96 miles
- (C) 105 miles
- (D) 117 miles

If choice D is selected set score to 1.

49. Which of the following statements is FALSE?

- (A) An anemometer measures wind speed.
- (B) A thermometer measures temperature.
- (C) A psychrometer measures wind pressure.
- (D) A barometer measures atmospheric pressure.

If choice C is selected set score to 1.

50. Prior to reading an aneroid barometer, you should tap the face lightly with your finger to _____.

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

If choice B is selected set score to 1.

51. You should log all barometer readings taken at sea _____.

- (A) at least once during each watch
- (B) regularly
- (C) more often under changeable weather conditions
- (D) All of the above

If choice D is selected set score to 1.

52. An air mass is termed "warm" if _____.

- (A) the ground over which it moves is cooler than the air
- (B) it originated in a low pressure area
- (C) it originated in a high pressure area
- (D) it is above 70°F

If choice A is selected set score to 1.

53. A sign of thunderstorm development is a cumulus cloud _____.

- (A) creating cold downdrafts that are felt on the ground
- (B) darkening, growing in size and forming an anvil top
- (C) that shows extensive vertical development
- (D) All of the above

If choice D is selected set score to 1.

54. As the temperature of the air reaches the dew point, _____.

- (A) it begins to snow
- (B) water freezes
- (C) fog may form
- (D) rain must develop

If choice C is selected set score to 1.

55. Which statement is TRUE when comparing cold and warm fronts?

- (A) They are very similar with the exception of wind direction.
- (B) Cold fronts are more violent and of shorter duration.
- (C) Warm fronts are more violent and of longer duration.
- (D) Cold fronts are milder and last longer.

If choice B is selected set score to 1.

56. A type of precipitation that occurs only in thunderstorms with strong convection currents that convey raindrops above and below the freezing level is known as _____.

- (A) freezing rain
- (B) rime
- (C) sleet
- (D) hail

If choice D is selected set score to 1.

57. Pressure gradient is a measure of _____.

- (A) vertical pressure variation
- (B) a high-pressure area
- (C) pressure difference over time
- (D) pressure difference over horizontal distance

If choice D is selected set score to 1.

58. Relative humidity is defined as _____.

- (A) the maximum vapor content the air is capable of holding
- (B) the ratio of the actual vapor content at the current temperature to the air's vapor holding capability
- (C) the minimum vapor content the air is capable of holding
- (D) the relation of the moisture content of the air to barometric pressure

If choice B is selected set score to 1.

59. The velocity of the apparent wind can be less than the true wind and from the same direction, if certain conditions are present. One condition is that the _____.

- (A) true wind is from dead astern
- (B) true wind is on the beam
- (C) true wind is from dead ahead
- (D) ship's speed is more than the true wind velocity

If choice A is selected set score to 1.

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

- (A) Visibility
- (B) Atmospheric pressure
- (C) Temperature
- (D) Wind direction

If choice A is selected set score to 1.

61. The direction of the southeast trade winds is a result of the _____.

- (A) change of seasons
- (B) humidity
- (C) rotation of the earth
- (D) equatorial current

If choice C is selected set score to 1.

62. Your ship is proceeding on course $320^{\circ}T$ at a speed of 25 knots. The apparent wind is from 30° off the starboard bow, speed 32 knots. What is the relative direction, true direction and speed of the true wind?

- (A) Relative 80° , true $040^{\circ}T$, 16.2 knots
- (B) Relative 60° , true $040^{\circ}T$, 18.6 knots
- (C) Relative 40° , true $080^{\circ}T$, 16.4 knots
- (D) Relative 80° , true $060^{\circ}T$, 15.2 knots

If choice A is selected set score to 1.

63. While taking weather observations, you determine that the wind is blowing from the northeast. You would record the wind direction in the weather log as _____.

- (A) 045°
- (B) 090°
- (C) 135°
- (D) 225°

If choice A is selected set score to 1.

64. A dead reckoning (DR) plot _____.

- (A) should be replotted hourly
- (B) should be started each time the vessel's position is fixed
- (C) must utilize magnetic courses
- (D) must take set and drift into account

If choice B is selected set score to 1.

65. Information about direction and velocity of rotary tidal currents is found in the _____.

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

If choice A is selected set score to 1.

66.) A position that is obtained by applying estimated current and wind to your vessel's course and speed is a(n) _____.

- (A) fix
- (B) dead reckoning position
- (C) estimated position
- (D) None of the above

If choice C is selected set score to 1.

67. You take a bearing of 176° of a lighthouse. Which bearing of another object would give the best fix?

- (A) 079°
- (B) 151°
- (C) 176°
- (D) 292°

If choice A is selected set score to 1.

68. Your vessel is entering port and you have steadied up on a range, dead ahead, in line with your keel. After a few minutes the range, still dead ahead, appears as shown in illustration D047NG below. Which action should you take?

- (A) Maintain heading, keeping the range dead ahead
- (B) Increase speed
- (C) Alter heading to the left
- (D) Alter heading to the right

If choice C is selected set score to 1.

69. You are on course $344^{\circ}T$ and take a relative bearing of a lighthouse of 270° . What is the true bearing to the lighthouse?

- (A) 254°
- (B) 090°
- (C) 016°
- (D) 074°

If choice A is selected set score to 1.

70. When you are steering on a pair of range lights and find the upper light is above the lower light you should _____.

- (A) wait until the lights are no longer in a vertical line
- (B) come left
- (C) come right
- (D) continue on the present course

If choice D is selected set score to 1.

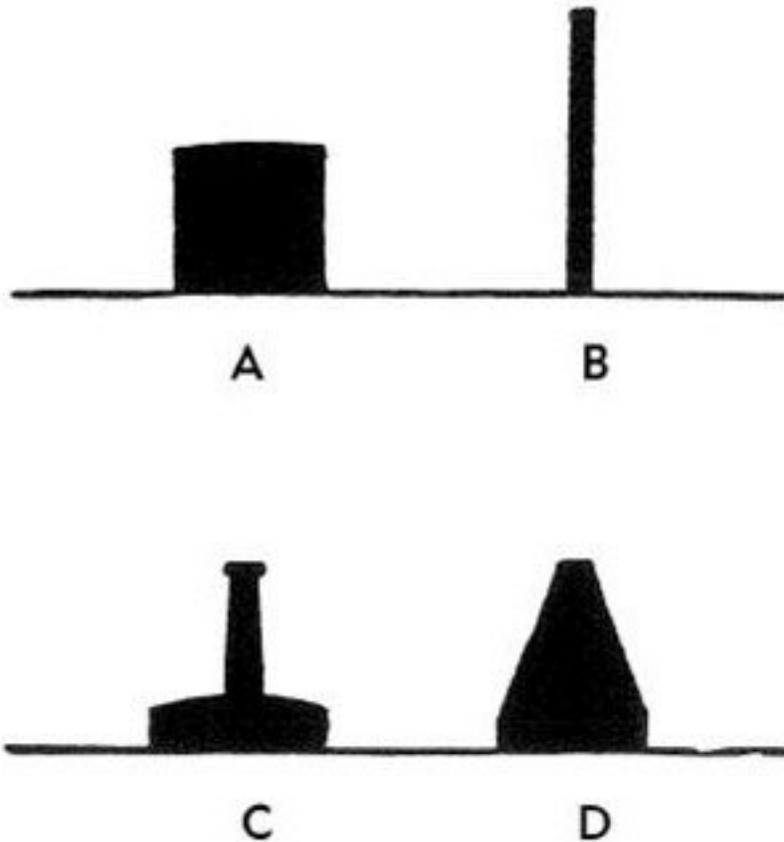
D023NG



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