

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. The level of database information which cannot be removed from the ECDIS display and consists of information which is required at all times in all geographic areas and under all circumstances is the _____.
- (A) system electronic nautical chart
 - (B) chart display information
 - (C) standard display information
 - (D) display base information

If choice D is selected set score to 1.

2. If the current and wind are in opposite directions, the sea surface represents _____.
- (A) more turbulent winds
 - (B) a greatly reduced wind speed
 - (C) a lower wind speed than what really exists
 - (D) a higher wind speed than what really exists

If choice D is selected set score to 1.

3. When the declination of the Moon is $0^{\circ}12.5'S$, you can expect some tidal currents in Gulf Coast ports to _____.
- (A) become weak and variable
 - (B) exceed the predicted velocities
 - (C) become reversing currents
 - (D) have either a double ebb or a double flood

If choice A is selected set score to 1.

4. As the South Equatorial Current approaches the east coast of Africa, it divides with the main part flowing south to form the warm _____.
- (A) Madagascar Current
 - (B) Benguela Current
 - (C) Agulhas Current
 - (D) Canary Current

If choice C is selected set score to 1.

5. At the establishment of Naval Control of Shipping (NCS), ships at sea will _____.
- (A) attempt to make their way to the nearest port of a friendly nation and await further instructions
 - (B) keep radio silence
 - (C) continue voyages unless in danger areas defined in the advisory or supplemental message
 - (D) stop and await further orders

If choice C is selected set score to 1.

6. 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.

7. Which of the following statements is TRUE regarding automatic identification systems (AIS)?
- (A) AIS is designed to replace ARPA, maneuvering boards, and visual bearings as a means to ascertain the risk of collision.
 - (B) AIS will not provide information on another vessel if that vessel is indistinguishable in radar sea clutter.
 - (C) AIS can be relied upon as the sole means to determine course changes due to other AIS equipped traffic.
 - (D) AIS provides near real-time information regarding another vessel's speed over ground and heading regardless of visibility.

If choice D is selected set score to 1.

8. Mean high water is the reference datum used to measure _____.
- (A) heights of topographical features in the United States
 - (B) soundings on the east coast of the United States
 - (C) soundings in European waters
 - (D) both heights and soundings worldwide

If choice A is selected set score to 1.

9. You take a bearing of 264° of a lighthouse. What bearing of another object would give the best fix?
- (A) 350°
 - (B) 289°
 - (C) 081°
 - (D) 120°

If choice A is selected set score to 1.

10. You sight a spar buoy with the top mark shown in illustration D027NG below. You must take which of the following actions?

- (A) pass to the east of the buoy
- (B) pass to the south of the buoy
- (C) pass to the north of the buoy
- (D) keep well clear of the buoy and pass on either side

If choice D is selected set score to 1.

11. What is NOT true concerning color sectors of lights?

- (A) Color sectors may indicate dangerous waters.
- (B) Color sectors are expressed in degrees from the light toward the vessel.
- (C) Color sectors may indicate the best water across a shoal.
- (D) Color sectors may indicate a turning point in a channel.

If choice B is selected set score to 1.

12. Which compensates for errors introduced when the vessel heels over?

- (A) The Flinders bar
- (B) The soft iron spheres on the arms of the binnacle
- (C) Magnets placed in trays inside the binnacle
- (D) A single vertical magnet beneath the compass

If choice D is selected set score to 1.

13. Which statement about an estimated position is TRUE?

- (A) It may be based on a single LOP or questionable data.
- (B) It is usually based on soundings.
- (C) When a 3-LOP fix plots in a triangle, the center of the triangle is the estimated position.
- (D) It is more reliable than a fix based on radar bearings.

If choice A is selected set score to 1.

14. Under the IALA Buoyage Systems, a cardinal mark may NOT be used to _____.

- (A) indicate the safe side on which to pass a danger
- (B) draw attention to a feature in the channel such as a bend, junction, bifurcation, or end of a shoal
- (C) indicate the port and starboard sides of well-defined channels
- (D) indicate that the deepest water in an area is on the named side of the mark

If choice C is selected set score to 1.

15. Clouds with the prefix "nimbo" in their name _____.

- (A) are middle or high altitude clouds
- (B) are sheet or layer clouds
- (C) have undergone great vertical development
- (D) are rain clouds

If choice D is selected set score to 1.

16. Swells that have outrun the storm are produced in the _____.

- (A) left front quadrant
- (B) rear
- (C) directly ahead on the storms projected track
- (D) right front quadrant

If choice D is selected set score to 1.

17. 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.

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

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

If choice D is selected set score to 1.

19. A vertically-striped buoy may be _____.

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

If choice C is selected set score to 1.

20. The horizontal angle between the magnetic meridian and the north-south line of the magnetic compass is _____.

- (A) dip
- (B) variation
- (C) compass error
- (D) deviation

If choice D is selected set score to 1.

21. In the U.S. Aids to Navigation System, lateral aids as seen entering from seaward will display lights with which characteristic?

- (A) Occulting
- (B) Quick Flashing
- (C) Flashing
- (D) All of the above

If choice D is selected set score to 1.

22. Spoil grounds, anchorage areas, cable areas, and military exercise areas are all marked by yellow buoys. Which special mark on the buoy will indicate the specific area you are in?

- (A) Lettering on the buoy
- (B) A topmark spherical in shape
- (C) A topmark triangular in shape
- (D) A topmark consisting of two cones with the points up

If choice A is selected set score to 1.

23. Which of the following statements is TRUE regarding automatic identification systems (AIS)?

- (A) AIS cannot be used to make passing arrangements because the ship-to-ship text messaging feature is for emergency use only.
- (B) AIS can be used to make passing arrangements via ship-to-ship text messaging but a vessel operator is not relieved from the requirement to sound whistle signals or make arrangements via bridge-to-bridge radiotelephone.
- (C) AIS cannot be used to make passing arrangements because the system is not capable of this type of ship-to-ship communications.
- (D) AIS can be used to make passing arrangements via ship-to-ship text messaging thus relieving a vessel operator from making such arrangements via bridge-to-bridge radiotelephone or signaling intent to pass via whistle signals.

If choice B is selected set score to 1.

24. All of the following can be found on a Pilot Chart EXCEPT information concerning the _____.

- (A) percentage of poor visibility conditions
- (B) sea surface temperatures
- (C) percentage of frequency of wave heights
- (D) amounts of precipitation

If choice D is selected set score to 1.

25. A pilot chart does NOT contain information about _____.

- (A) tidal currents
- (B) average wind conditions
- (C) average limits of field ice
- (D) magnetic variation

If choice A is selected set score to 1.

26. The shoreline on charts generally represents the mean _____.

- (A) low water spring line
- (B) tide level
- (C) low water line
- (D) high water line

If choice D is selected set score to 1.

27. An occulting light is one in which _____.

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

If choice C is selected set score to 1.

28. You wish to measure the distance on a Mercator chart between a point in latitude $43^{\circ}30'N$ 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) $41^{\circ}30'$ and $42^{\circ}00'$
- (B) $41^{\circ}45'$ and $42^{\circ}15'$
- (C) $42^{\circ}00'$ and $42^{\circ}30'$
- (D) $42^{\circ}15'$ and $42^{\circ}45'$

If choice B is selected set score to 1.

29. The process by which the temperature and/or moisture characteristics of an air mass changes is called _____.

- (A) modification
- (B) consolidation
- (C) association
- (D) sublimation or condensation

If choice A is selected set score to 1.

30. When using a Lambert conformal chart in high latitudes, angles such as bearings are measured in reference to _____.

- (A) the meridian through the ship's position
- (B) the meridian midway between the ship and the object
- (C) the meridian through the object of the bearing
- (D) any meridian

If choice A is selected set score to 1.

31. A syphon cell is a part of a _____.

- (A) maximum thermometer
- (B) hygrometer
- (C) barograph
- (D) thermograph

If choice C is selected set score to 1.

32. Chart legends printed in capital letters show that the associated landmark is _____.

- (A) inconspicuous
- (B) a radio transmitter
- (C) conspicuous
- (D) a government facility or station

If choice C is selected set score to 1.

33. Entering from sea, a daymark on the port side of the channel would be indicated on a chart by a _____.

- (A) red triangle with the letter R
- (B) white triangle with the letters RG
- (C) green square with the letter G
- (D) white square with the letters GR

If choice C is selected set score to 1.

34. While navigating in fog off a coastline of steep cliffs, you hear the echo of the ship's fog horn 4 seconds after the signal was sounded. What is the distance to the shore?

- (A) 209 yards
- (B) 363 yards
- (C) 480 yards
- (D) 730 yards

If choice D is selected set score to 1.

35. In a national emergency, when communicating via the Navy, messages are sent by precedence. A message designated FLASH will be delivered within _____.

- (A) 6 hours
- (B) 30 minutes
- (C) 10 minutes
- (D) 3 hours

If choice C is selected set score to 1.

36. 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.

37. 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 2 seconds
- (B) Gaining 2 seconds
- (C) Losing 2 seconds
- (D) Fast 1 second

If choice D is selected set score to 1.

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

- (A) 303°, 3h 13m
- (B) 265°, 2h 32m
- (C) 303°, 2h 32m
- (D) 265°, 3h 13m

If choice C is selected set score to 1.

39. The climate of the northern Gulf coast _____.

- (A) has an east coast marine type of climate
- (B) is a warm marine type of climate
- (C) varies from warm to subtropical
- (D) is humid and subtropical throughout the year

If choice B is selected set score to 1.

40. Weather patterns in the Gulf Coast area of the United States are _____.

- (A) those of a tropical region
- (B) extremely hot in summer
- (C) those of a transition zone between tropical and a temperate area
- (D) tropical over Florida and subtropical over the rest of the Gulf Coast area

If choice C is selected set score to 1.

41. Isobars on a weather map are useful in predicting _____.

- (A) dew point
- (B) relative humidity
- (C) temperature
- (D) wind velocity

If choice D is selected set score to 1.

42. In reading a weather map, closely spaced pressure gradient lines would indicate _____.

- (A) fog or steady rain
- (B) high winds
- (C) calm or light winds
- (D) high overcast clouds

If choice B is selected set score to 1.

43. Tropical cyclones do not form within 5° of the Equator because _____.

- (A) it is too hot
- (B) of negligible Coriolis force
- (C) it is too humid
- (D) there are no fronts in that area

If choice B is selected set score to 1.

44. What is the FIRST sign of the existence of a well developed tropical cyclone?

- (A) Gale force winds from the north
- (B) Steep, short-period waves and light wind
- (C) Thunderstorms and higher than usual humidity
- (D) An unusually long ocean swell

If choice D is selected set score to 1.

45. Where is the dangerous semicircle located on a hurricane in the Southern Hemisphere?

- (A) In the high pressure area
- (B) To the right of the storm's track
- (C) To the left of the storm's track
- (D) On the south side

If choice C is selected set score to 1.

46. The approximate distance to a storm center can be determined by noting the hourly rate of fall of the barometer. If the rate of fall is 0.08 - 0.12 inches, what is the approximate distance to the storm center?

- (A) 50 to 80 miles
- (B) 80 to 100 miles
- (C) 100 to 150 miles
- (D) 150 to 250 miles

If choice B is selected set score to 1.

47. Atmospheric pressure may be measured with a(n) _____.

- (A) barograph
- (B) mercurial barometer
- (C) aneroid barometer
- (D) All of the above

If choice D is selected set score to 1.

48. Small, visible mound-like protuberances on the bottom of cumulonimbus clouds, that are potential breeding grounds for waterspouts and tornadoes, are called _____.

- (A) rime
- (B) ice prisms
- (C) thunderheads
- (D) mamma

If choice D is selected set score to 1.

49. What will act to dissipate fog?

- (A) Downslope motion of an air mass along a coast
- (B) Rain that is warmer than air
- (C) Advection of warm air over a colder surface
- (D) Upwelling cold water

If choice A is selected set score to 1.

50. The steepness of a cold front depends on _____.

- (A) the direction of wind around the front
- (B) the precipitation generated by the front
- (C) its velocity
- (D) the temperature of the air behind the front

If choice C is selected set score to 1.

51. Which of the following statements concerning frontal movements is TRUE?

- (A) A warm front usually has more violent weather associated with it than a cold front.
- (B) The temperature rises after a cold front passes.
- (C) The barometric pressure rises when a warm front passes.
- (D) A cold front generally passes faster than a warm front.

If choice D is selected set score to 1.

52. 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.

53. When observing a rapid rise in barometric pressure, you may expect _____.

- (A) clearing weather, possibly accompanied by high winds
- (B) heavy rain or severe thundershowers
- (C) clear weather with no wind, but the possibility of rain or snow within 24 hours
- (D) deteriorating weather with rain or snow

If choice A is selected set score to 1.

54. In low latitudes, the high(s) of the diurnal variation of pressure occur(s) at _____.

- (A) noon and midnight
- (B) 1600
- (C) noon
- (D) 1000 and 2200

If choice D is selected set score to 1.

55. 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.

56. On the pole side of the high pressure belt in each hemisphere, the pressure diminishes. The winds along these gradients are diverted by the Earth's rotation toward the east and are known as the _____.

- (A) horse latitudes
- (B) prevailing westerlies
- (C) geostrophic winds
- (D) doldrums

If choice B is selected set score to 1.

57. The paths of intended travel between three or more points is the _____.

- (A) track
- (B) course
- (C) course over the ground
- (D) bearing

If choice A is selected set score to 1.

58. 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.

59. You are steering 154° per gyrocompass. The wind is northeast by east, causing 4° leeway. The gyro error is 3° east, variation is 11° west, and deviation is 7°E . What is the true course made good?

- (A) 164°T
- (B) 161°T
- (C) 158°T
- (D) 151°T

If choice B is selected set score to 1.

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

- (A) 197°psc
- (B) 195°psc
- (C) 203°psc
- (D) 199°psc

If choice D is selected set score to 1.

61. You are on course 222°T and take a relative bearing of a lighthouse of 025° . What is the true bearing to the lighthouse?

- (A) 197°
- (B) 247°
- (C) 315°
- (D) 335°

If choice B is selected set score to 1.

- 62.** 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) 57 feet (17.4 meters)
 - (D) 47 feet (14.3 meters)

If choice A is selected set score to 1.

- 63.** You are on course 209°T. In order to check the longitude of your vessel, you should observe a celestial body on which bearing?
- (A) 000°
 - (B) 299°
 - (C) 270°
 - (D) 209°

If choice C is selected set score to 1.

- 64.** You are on course 238°T. To check the course of your vessel you should observe a celestial body on which bearing?
- (A) 238°
 - (B) 090°
 - (C) 180°
 - (D) 328°

If choice D is selected set score to 1.

- 65.** Which statement is TRUE concerning the current of the Gulf Stream?
- (A) It is slower at the time of neap tides than at spring tides.
 - (B) It reaches its daily maximum speed a few hours before the transit of the Moon.
 - (C) When the Moon is at its maximum declination the stream is narrower than when the Moon is on the equator.
 - (D) Variations in the trade winds affect the current.

If choice D is selected set score to 1.

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

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

If choice C is selected set score to 1.

67. An important lunar cycle affecting the tidal cycle is called the nodal period. How long is this cycle?

- (A) 18 days
- (B) 19 years
- (C) 16 days
- (D) 6 years

If choice B is selected set score to 1.

68. Which statement is TRUE concerning equatorial tides?

- (A) The difference in height between consecutive high or low tides is at a minimum.
- (B) They are used as the basis for the vulgar establishment of the port.
- (C) They occur when the Moon is at maximum declination north or south.
- (D) They occur when the Sun is at minimum declination north or south.

If choice A is selected set score to 1.

69. You swung ship and compared the magnetic compass against the gyro compass to find deviation. Gyro error is 2°E. The variation is 8°W. Find the deviation on a magnetic compass heading of 234°.

HEADING	HEADING	HEADING
<u>PSC-PGC</u>	<u>PSC-PGC</u>	<u>PSC-PGC</u>
358.5°-350°	122.5°-110°	239.5°-230°
030.5°-020°	152.0°-140°	269.0°-260°
061.5°-050°	181.0°-170°	298.0°-290°
092.0°-080°	210.0°-200°	327.5°-320°

- (A) 0.5°E
- (B) 1.0°W
- (C) 2.5°E
- (D) 2.5°W

If choice A is selected set score to 1.

- 70.** 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.

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