

U.S.C.G. Merchant Marine Exam
Mate Less than 500-1600 Gross Registered Tons
Q139 Navigation General - Oceans
(Sample Examination)

Choose the best answer to the following Multiple Choice questions.

1. What kind of pressure systems travel in tropical waves?

- (A) Subsurface pressure
- (B) Terrastatic pressure
- (C) Low pressure
- (D) High pressure

If choice C is selected set score to 1.

2. As the temperature for a given mass of air increases, the _____.

- (A) dew point decreases
- (B) relative humidity decreases
- (C) dew point increases
- (D) relative humidity increases

If choice B is selected set score to 1.

3. You take a bearing of 043° and 169° of two objects. What bearing of a third object will give the best fix?

- (A) 356°
- (B) 201°
- (C) 144°
- (D) 102°

If choice D is selected set score to 1.

4. The survey information upon which a chart is based is found _____.

- (A) at the lower left corner
- (B) at any convenient location
- (C) near the chart title
- (D) at the top center of the next line

If choice C is selected set score to 1.

5. When daylight savings time is kept, the times of tide and current calculations must be adjusted. One way of doing this is to _____.

- (A) add one hour to the times listed for the reference stations
- (B) add 15° to the standard meridian when calculating the time differences
- (C) apply no correction as the times at the reference stations are adjusted for daylight savings time
- (D) subtract one hour from the times listed for the subordinate stations

If choice A is selected set score to 1.

6. The greater the pressure difference between a high and a low pressure center, the _____.

- (A) warmer the temperature will be
- (B) greater the force of the wind will be
- (C) dryer the air mass will be
- (D) cooler the temperature will be

If choice B is selected set score to 1.

7. Time signals broadcast by WWV and WWVH are transmitted _____.

- (A) every hour
- (B) continuously throughout day
- (C) every 30 minutes
- (D) every 15 minutes

If choice B is selected set score to 1.

8. What is the primary source of the earth's weather?

- (A) The sun
- (B) The moon
- (C) The oceans
- (D) The solar system

If choice A is selected set score to 1.

9. Swell is the rise and fall of the ocean's surface due to _____.

- (A) the pull of the moon
- (B) distant winds
- (C) local storms
- (D) fetch

If choice B is selected set score to 1.

10. What characteristics can be used to identify a lighthouse?

- (A) type of structure
- (B) light color and phase characteristic
- (C) painted color
- (D) All of the above

If choice D is selected set score to 1.

11. In low latitudes the range of the diurnal variation of pressure is up to _____.

- (A) 0.5 millibar
- (B) 3.0 millibars
- (C) 6.0 millibars
- (D) 10.0 millibars

If choice B is selected set score to 1.

12. You are using a radar in which your own ship is shown at the center, and the heading flash always points to 0°. If bearings are measured in relation to the flash, what type of bearings are produced?

- (A) Magnetic
- (B) Relative
- (C) Compass
- (D) True

If choice B is selected set score to 1.

13. Your vessel is proceeding up a channel, and you see a pair of range lights that are in line ahead. The chart indicates that the direction of this pair of lights is 311°T, and the variation is 8°E. If the heading of your vessel at the time of the sighting is 305° per standard magnetic compass, what is the correct deviation?

- (A) 6°W
- (B) 2°E
- (C) 2°W
- (D) 6°E

If choice C is selected set score to 1.

14. Which describes privately maintained aids to navigation included in the Light List?

- (A) are not permitted in or along first-class waterways and may be authorized for second- and third-class waterways
- (B) are painted white and must use a white light if lighted
- (C) must conform to the standards of the U.S. Aids to Navigation System
- (D) must be conspicuously marked by a signboard with the words "PRIVATE AID"

If choice C is selected set score to 1.

15. While proceeding along the Mediterranean coast of Spain, you sight the black and yellow buoy shown in illustration D020NG below. Your course is 039°T , and the buoy bears 053°T . What action should you take?

- (A) Alter course towards the buoy and leave the buoy well clear on either side
- (B) Alter course to 053°T and pass the buoy close aboard on either side
- (C) Alter course to 060° and ensure that the bearings decrease
- (D) Maintain course and ensure that the bearings increase

If choice D is selected set score to 1.

16. Steam smoke will occur when _____.

- (A) cold ocean water evaporates into warm air
- (B) warm dry air from shore passes over cooler water
- (C) extremely cold air from shore passes over warmer water
- (D) cool rain passes through a warm air mass

If choice C is selected set score to 1.

17. Which statement about the gyrocompass is FALSE?

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

If choice B is selected set score to 1.

18. While underway you sight a light 11° on your port bow at a distance of 12 miles. Assuming you make good your course, what will be your distance off the light when abeam?

- (A) 4.5 miles
- (B) 2.3 miles
- (C) 3.9 miles
- (D) 3.1 miles

If choice B is selected set score to 1.

19. 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.

20. Under the IALA cardinal system, a mark with a quick light showing 9 flashes every 15 seconds indicates that the safest water is on the _____.

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

If choice A is selected set score to 1.

21. Under the IALA-A Buoyage System, a buoy indicating the preferred channel is to port would have _____.

- (A) a pillar shape
- (B) an odd number
- (C) horizontal bands
- (D) an even number

If choice C is selected set score to 1.

22. Where would you expect to find channels marked with the IALA-A Buoyage System?

- (A) Canada
- (B) Japan
- (C) Argentina
- (D) India

If choice D is selected set score to 1.

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

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

If choice C is selected set score to 1.

24. Which buoy may be even numbered?

- (A) Mid-channel buoy
- (B) Unlighted nun buoy
- (C) Lighted green buoy
- (D) All of the above

If choice B is selected set score to 1.

25. An orange and white buoy indicating a vessel-exclusion area will be marked with what symbol?

- (A) Circle
- (B) Square
- (C) Open-faced diamond
- (D) Diamond with a cross

If choice D is selected set score to 1.

26. ECDIS units incorporate Digital Chart Data Formats, which include _____.

- (A) vector and raster
- (B) vector only
- (C) raster only
- (D) imposed viewing

If choice A is selected set score to 1.

27. Variation is a compass error that you _____.

- (A) can correct by changing the vessel's heading
- (B) cannot correct
- (C) can correct by adjusting the compensating magnets
- (D) can correct by adjusting the compass card

If choice B is selected set score to 1.

28. While navigating in fog off a coastline of steep cliffs, you hear the echo of the ship's fog horn 3 seconds after the signal was sounded. What is the distance to the shore?

- (A) 550 yards
- (B) 1100 yards
- (C) 792 yards
- (D) 872 yards

If choice A is selected set score to 1.

29. Which factor(s) is/are used to develop the charted information of a lighthouse?

- (A) Height of the light and the observer
- (B) Height of the light only
- (C) Height of the observer and the intensity of the light
- (D) Height and intensity of the light

If choice D is selected set score to 1.

30. Buoys which mark isolated dangers are painted with alternating _____.

- (A) green and black bands
- (B) red and white stripes
- (C) green and white bands
- (D) red and black bands

If choice D is selected set score to 1.

31. Yesterday your chronometer read 11h 59m 58s at the 1200 GMT time tick. Today your chronometer reads 12h 00m 00s at the 1200 time tick. What is the chronometer rate?

- (A) -2s
- (B) Nil
- (C) +2s
- (D) 12h

If choice C is selected set score to 1.

32. Indications of the master gyrocompass are sent to remote repeaters by the _____.

- (A) phantom element
- (B) transmitter
- (C) follow-up system
- (D) azimuth motor

If choice B is selected set score to 1.

33. The Light List indicates that a dayboard is a type TR-SY. You should _____.

- (A) expect a daymark with no lateral significance
- (B) leave it to port when southbound on the Atlantic portions of the ICW
- (C) look for a dayboard of type TR-TY to form a range
- (D) pass it close aboard on either side

If choice B is selected set score to 1.

34. What indicates a dual purpose buoy?

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

If choice A is selected set score to 1.

35. A chart has extensive corrections to be made to it. When these are made and the chart is again printed, the chart issue is a _____.

- (A) reprint
- (B) revised edition
- (C) new edition
- (D) first edition

If choice C is selected set score to 1.

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

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

If choice A is selected set score to 1.

37. Isogonic lines are lines on a chart indicating _____.

- (A) the magnetic latitude
- (B) points of zero variation
- (C) magnetic dip
- (D) points of equal variation

If choice D is selected set score to 1.

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

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

If choice B is selected set score to 1.

39. Which publication would describe the explosive anchorages in the ports on the east coast of the United States?

- (A) Notice to Mariners
- (B) Sailing Directions
- (C) Pilot Rules for Inland Waters
- (D) Coast Pilot

If choice D is selected set score to 1.

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

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

If choice B is selected set score to 1.

41. 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.

42. The short text messaging feature of the automatic identification system (AIS) allows for messages of up to _____.

- (A) 56 characters
- (B) 64 characters
- (C) 128 characters
- (D) 158 characters

If choice D is selected set score to 1.

43. On a weather map, a large letter "H" means _____.

- (A) horse latitudes, with rough seas and strong winds
- (B) a heavy squall line near the "H"
- (C) a high pressure area with warm, moist air, and inclement weather
- (D) a high pressure area with cool, dry air, and fair weather

If choice D is selected set score to 1.

44. Your vessel is participating in the Voluntary Observing Ship Program, you are preparing WS Form B-80 as seen in illustration D041NG below. The dry bulb thermometer reads 34°F and the wet bulb thermometer reads 31°F. How would you encode the air temperature groups in the report?

- (A) 10340, 2127/
- (B) 10111, 2104/
- (C) 10011, 2104/
- (D) 10340, 2031/

If choice C is selected set score to 1.

45. The time interval between successive wave crests is called the _____.

- (A) frequency
- (B) period
- (C) trough
- (D) epoch

If choice B is selected set score to 1.

46. You are underway on course 050°T and your maximum speed is 12 knots. The eye of a hurricane bears 080°T, 100 miles from your position. The hurricane is moving towards 265°T at 22 knots. If you maneuver at 12 knots to avoid the hurricane, what could be the maximum CPA?

- (A) 63 miles
- (B) 56 miles
- (C) 69 miles
- (D) 76 miles

If choice A is selected set score to 1.

47. In the Northern hemisphere which semicircle of a hurricane is the navigable semicircle?

- (A) Right
- (B) Back
- (C) Left
- (D) Front

If choice C is selected set score to 1.

48. Which indication on the barometer is most meaningful in forecasting weather?

- (A) The words "Fair -- Change -- Rain"
- (B) The actual barometric pressure
- (C) The direction and rate of change of barometric pressure
- (D) The relative humidity

If choice C is selected set score to 1.

49. The needle of an aneroid barometer points to 30.05 on the dial. This indicates that the barometric pressure is _____.

- (A) falling
- (B) 30.05 millimeters of mercury
- (C) 30.05 millibars
- (D) 30.05 inches of mercury

If choice D is selected set score to 1.

50. A source of an air mass labeled mTw is _____.

- (A) the equator
- (B) the Gulf of Mexico
- (C) Alaska
- (D) Canada

If choice B is selected set score to 1.

51. A thin, whitish, high cloud popularly known as "mares' tails" is _____.

- (A) cumulus
- (B) altostratus
- (C) stratus
- (D) cirrus

If choice D is selected set score to 1.

52. In the Northern Hemisphere, winds veering sharply to the west or northwest with increasing speed are indications that a _____.

- (A) stationary front exists
- (B) high pressure center has passed
- (C) cold front has passed
- (D) low pressure center is approaching

If choice C is selected set score to 1.

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

- (A) Sleet
- (B) Hail
- (C) Snow
- (D) Freezing Rain

If choice B is selected set score to 1.

54. In most cases, the direction of the apparent wind lies between the bow and _____.

- (A) the beam on the windward side
- (B) the direction of the true wind
- (C) true north
- (D) the beam on the lee side

If choice B is selected set score to 1.

55. You are steaming west in the North Atlantic in an extratropical cyclonic storm, and the wind is dead ahead. According to the law of Buys Ballot, the center of low pressure lies to the _____.

- (A) east
- (B) south
- (C) west
- (D) north

If choice D is selected set score to 1.

56. A "Norther" in the Gulf of Mexico is _____.

- (A) a strong northerly wind that generally occurs between November and March
- (B) a forcible northerly wind of at least 20 knots
- (C) a wind shift to the north accompanied by a drop in temperature
- (D) All of the above

If choice D is selected set score to 1.

57. 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.

58. Wind direction may be determined by observing all of the following EXCEPT _____.

- (A) low clouds
- (B) whitecaps
- (C) swells
- (D) waves

If choice C is selected set score to 1.

59. "Revolution" is the _____.

- (A) wobbling of the Earth about its axis
- (B) motion of a celestial body in its orbit
- (C) motion of bodies in the solar system relative to the stars
- (D) spinning of a celestial body about its axis

If choice B is selected set score to 1.

60. In the horizon system of coordinates what is equivalent to the declination of the equator system?

- (A) Zenith distance
- (B) Nadir
- (C) Altitude
- (D) Azimuth angle

If choice C is selected set score to 1.

61. Apparent altitude is sextant altitude corrected for _____.

- (A) visibility and magnitude
- (B) parallax and personal error
- (C) inaccuracies in the reading and reference level
- (D) All of the above are correct

If choice C is selected set score to 1.

62. During daylight savings time the meridian used for determining the time is located farther _____.

- (A) east
- (B) west
- (C) west in west longitude and east in east longitude
- (D) east in west longitude and west in east longitude

If choice A is selected set score to 1.

63. Some locations maintain a zone time of -13. What are the zone time and date if the Greenwich time and date are 0152, 10 January?

- (A) 0052, 9 January
- (B) 0258, 9 January
- (C) 1452, 10 January
- (D) 0052, 11 January

If choice C is selected set score to 1.

64. You are on a vessel at 0400 ZT on 3 July, and the ZD for your position is -8. What is the GMT?

- (A) 1200, 2 July
- (B) 1200, 3 July
- (C) 2000, 2 July
- (D) 2000, 3 July

If choice C is selected set score to 1.

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

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

If choice D is selected set score to 1.

66. When making landfall at night, you can determine if a light is a major light or an offshore buoy by _____.

- (A) the color, because the buoy will have only a red or a green light
- (B) the intensity of the light
- (C) checking the period and characteristics against the Light List
- (D) All of the above can be used to identify the light.

If choice C is selected set score to 1.

67. You are taking bearings on two known objects ashore. The BEST fix is obtained when the angle between the lines of position is _____.

- (A) 90°
- (B) 60°
- (C) 30°
- (D) 45°

If choice A is selected set score to 1.

68. What is the geographic longitude of a body whose GHA is 215°15'?

- (A) 35°15'W
- (B) 144°45'E
- (C) 35°15'E
- (D) 144°45'W

If choice B is selected set score to 1.

69. What must the owner or Master do if any of the towing vessel's required navigational safety equipment fails during a voyage?

- (A) Consider the state of the equipment in deciding whether it is safe for the vessel to proceed
- (B) Enter its failure in the log or other on board record
- (C) Repair it at the earliest practicable time
- (D) All of the above

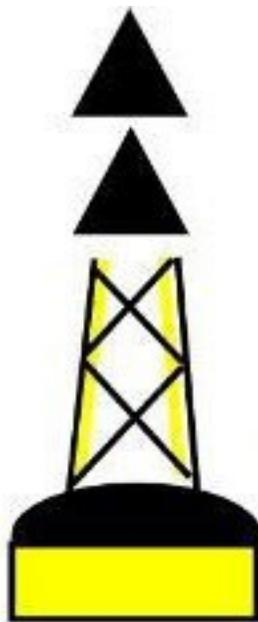
If choice D is selected set score to 1.

70. Which installed equipment must be tested and logged when a new Master assumes command?

- (A) Internal communications, including sound-powered telephones
- (B) Navigational lights and search lights
- (C) Vessel control alarms
- (D) All of the above must be tested

If choice D is selected set score to 1.

D020NG



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D041NG

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NO.	SHIP NAME	DATE SENT (UTC)	TIME SENT (UTC)	STA. CALLED	FREQUENCY	
ADDRESSES						
U.S. Coast Guard: No address needed, start with BBXX indicator and ship's call sign.						
INMARSAT Standard A: Select—Coast Earth Station (CES), routine priority, duplex telex channel, and initiate call. When GA + is received, select 41 +. Upon receipt of answerback, NWS OBS MHTS, send the weather report starting with the BBXX indicator and ship's call sign. End the report with 5 periods. Try to limit INMARSAT call time to 30 seconds. Standard C: To establish special access code 41, see manufacturers recommended instructions for set-up, or the Mariners Weather' Log Summer, 1994, or later editions.						
U.S. commercial and foreign radio stations: To: OBS METEO _____ (get address from "Radio Stations Accepting. . . ."). Start with BBXX indicator and ship's call sign and combine the remaining numbers into 10-character groups.						
INDICATOR	CALL SIGN	YYGGi _w	99L _a L _a L _a	Q _c L _o L _o L _o	i _R i _x hVV	Nddff
BBXX			99		4	
ØØff	1S _n TTT	2S _n T _d T _d T _d	4PPPP	5appp	7 _{ww} W ₁ W ₂	8N _r C _L C _M C _H
222D _s V _s	ØS _s T _w T _w T _w	2P _w P _w H _w H _w	3d _{w1} d _{w1} d _{w2} d _{w2}	4P _{w1} P _{w1} H _{w1} H _{w1}	5P _{w2} P _{w2} H _{w2} H _{w2}	6I ₂ E _s E _s R _s
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