

U.S.C.G. Merchant Marine Exam

Mate Less than 500-1600 Gross Registered Tons

Q138 Navigation General - Near Coastal

(Sample Examination)

Choose the best answer to the following Multiple Choice questions.

1. 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.

2. 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.

3. You are underway in a vessel with a draft of 6.0 feet. You are in an area where the charted depth of the water is 4 fathoms. You would expect the depth of water beneath your keel to be approximately _____.
- (A) 24 feet
 - (B) 30 feet
 - (C) 18 feet
 - (D) 12 feet

If choice C is selected set score to 1.

4. To measure distance on a Mercator chart between the parallels of LAT 34°30'N and LAT 31°30'N, which 30 mile scale should be used?
- (A) 32°45'N to 33°15'N
 - (B) 32°15'N to 32°45'N
 - (C) 32°30'N to 33°00'N
 - (D) 33°00'N to 33°30'N

If choice A is selected set score to 1.

5. A vessel's position should be plotted using bearings of _____.

- (A) fixed objects
- (B) fixed known objects on shore
- (C) buoys close at hand
- (D) All of the above

If choice B is selected set score to 1.

6. 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.

7. 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.

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. 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.

10. 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.

11. 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.

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 symbol represents a 2-fathom curve?

- (A)
- (B) _____ . _____ . _____ .
- (C) - - - - -
- (D) .. _____ .. _____ .. _____

If choice A is selected set score to 1.

15. 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.

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. 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.

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. When trying to sight a lighthouse you notice a glare from a town in the background. The range at which the light may be sighted due to this glare is _____.

- (A) increased slightly due to extra lighting
- (B) increased if the light is red or green due to contrast with the glare
- (C) unchanged
- (D) considerably reduced

If choice D 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. You are in a buoyed channel at night and pass a lighted buoy with an irregular characteristic. You should report this to the _____.

- (A) Coast Guard
- (B) Corps of Engineers
- (C) harbor master
- (D) National Ocean Service

If choice A is selected set score to 1.

22. 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.

23. 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.

24. 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.

25. A buoy with a composite group-flashing light indicates a(n) _____.

- (A) anchorage area
- (B) dredging area
- (C) bifurcation
- (D) fish net area

If choice C 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. 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.

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. The Light List indicates that a light has a nominal range of 18 miles and is 38 feet high. If the visibility is 6 miles and your height of eye is 15 feet, at which distance will you sight the light?

- (A) 14.8 nm
- (B) 18.0 nm
- (C) 11.7 nm
- (D) 6.0 nm

If choice C is selected set score to 1.

30. 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.

31. 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.

32. Information about the pilotage available at Miami harbor may best be obtained from which publication?

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

If choice D is selected set score to 1.

33. 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.

34. The four standard light colors used for lighted aids to navigation are red, green, white, and _____.

- (A) purple
- (B) yellow
- (C) orange
- (D) blue

If choice B is selected set score to 1.

35. What is the approximate geographic range of Fenwick Island Light, Delaware, if your height of eye is 42 feet (12.8 meters)? Refer to "Reprints from the LIGHT LISTS AND COAST PILOTS".

- (A) 18.3 nm
- (B) 15.4 nm
- (C) 10.3 nm
- (D) 13.1 nm

If choice A is selected set score to 1.

36. 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.

37. Charted depth is the _____.

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

If choice D is selected set score to 1.

38. The shoreline shown on nautical charts of areas affected by large tidal fluctuations is usually the line of mean _____.

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

If choice D is selected set score to 1.

39. 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.

40. 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.

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. 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.

47. 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.

48. 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.

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

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

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 of the following is a boundary between two air masses?

- (A) front
- (B) lapse rate
- (C) continent
- (D) isobar

If choice A is selected set score to 1.

54. Two well-developed high pressure areas may be separated by a _____.

- (A) hill of low pressure
- (B) valley of low pressure
- (C) trough of low pressure
- (D) ridge of low pressure

If choice C is selected set score to 1.

55. 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.

56. A wind vane on a moving vessel shows _____.

- (A) dead reckoning wind direction
- (B) apparent wind direction
- (C) true wind direction
- (D) estimated wind direction

If choice B is selected set score to 1.

57. 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.

58. 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.

59. 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.

60. 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.

61. 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.

62. 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.

63. 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.

64. Discounting slip, if your vessel is turning RPM for 10 knots and making good a speed of 10 knots, the current could be _____.

- (A) slack
- (B) with you at 10 knots
- (C) against you at 10 knots
- (D) with you at 2 knots

If choice A is selected set score to 1.

65. A chart position enclosed by a square is a(n) _____.

- (A) fix
- (B) running fix
- (C) dead reckoning position
- (D) estimated position

If choice D is selected set score to 1.

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

- (A) 000°
- (B) 021°
- (C) 189°
- (D) 272°

If choice D is selected set score to 1.

67. You are on course 277°T and take a relative bearing of a lighthouse of 045° . What is the true bearing to the lighthouse?

- (A) 038°
- (B) 232°
- (C) 315°
- (D) 322°

If choice D is selected set score to 1.

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

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

If choice D 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.

Q138 Navigation General - Near Coastal
U.S.C.G. Merchant Marine Exam
Mate Less than 500-1600 Gross Registered Tons
Illustrations: 2

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.

D034NG



National Maritime Center

Providing Credentials to Mariners



D041NG

WS FORM B-80 (5-94) PRES. BY WMO DIRECTIVES		WEATHER REPORT FOR IMMEDIATE TRANSMISSION				U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE
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
8S _w T _b T _b T _b	ICE	C _i S _i b _i D _i Z _i	PLAIN LANGUAGE			TRANSMITTED BY
No Government Administration, or Company or person employed in the forwarding and delivery of this message shall be liable for any loss or damage arising from failure to transmit or to deliver the said message or from any neglect, delay, error or omission in the transmission thereof.						

Supersedes NOAA Form 72-4A (1-82) which should be destroyed.

Adapted for testing purposes only

Further reproduction prohibited without permission