

U.S.C.G. Merchant Marine Exam
Apprentice Mate Steersman
Q413 Navigation General - Oceans
(Sample Examination)

Choose the best answer to the following Multiple Choice Questions.

1. Your dead reckoning position should be plotted _____.
- (A) at least every hour on the hour in the open waters of the sea
 - (B) whenever an estimated position is plotted
 - (C) when coming on or going off soundings
 - (D) when it agrees with your GPS position

If choice A is selected set score to 1.

2. Which navigational equipment is required to be tested and logged before a towing vessel embarks on a voyage of more than 24 hours?
- (A) GPS receiver(s)
 - (B) All required navigational equipment, without exception
 - (C) Radar(s) and VHF radio(s)
 - (D) Compass and/or swing meter

If choice B is selected set score to 1.

3. 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.

4. You are in a channel inbound from sea. A daymark used to mark a channel junction when the preferred channel is to starboard will have the shape indicated by what letter in illustration D045NG below?
- (A) A
 - (B) B
 - (C) C
 - (D) D

If choice A is selected set score to 1.

5. 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.

6. 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.

7. Mean lower low water is the reference plane used for _____.
- (A) all vertical measurements
 - (B) water depths on the U.S. east coast only
 - (C) soundings on the U.S. east and west coasts
 - (D) heights above water for lights, mountains, etc.

If choice C is selected set score to 1.

8. What is the average speed of the movement of a hurricane following the recurvature of its track?
- (A) 40 to 50 knots
 - (B) 5 to 10 knots
 - (C) 20 to 30 knots
 - (D) Over 60 knots

If choice C is selected set score to 1.

9. 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.

10. 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.

11. IN REGION A of the IALA Buoyage System, when entering from seaward, the starboard side of a channel would be marked by a _____.

- (A) red can buoy
- (B) red conical buoy
- (C) green conical buoy
- (D) green can buoy

If choice C is selected set score to 1.

12. 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.

13. 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.

14. 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.

15. The region containing 3/4 of the mass of the atmosphere and the region to which are confined such phenomena as clouds, storms, precipitation and changing weather conditions is called _____.

- (A) troposphere
- (B) stratosphere
- (C) stratopause
- (D) tropopause

If choice A is selected set score to 1.

16. 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.

17. 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 nearby 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.

18. 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.

19. 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.

20. 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.

21. 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.

22. The directive force of a gyrocompass _____.

- (A) remains the same at all latitudes
- (B) increases with latitude, being maximum at the geographic poles
- (C) decreases with latitude, being maximum at the geographic equator
- (D) is greatest when a vessel is near the Earth's magnetic equator

If choice C is selected set score to 1.

23. 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.

24. Yesterday your chronometer read 03h 01m 56s at the 1500 GMT time tick. Today your chronometer read 03h 01m 58s at the 1500 GMT time tick. What is the chronometer error?

- (A) +2s
- (B) 03h 01m 58s fast
- (C) 01m 58s fast
- (D) -2s

If choice C is selected set score to 1.

25. A system of reservoirs and connecting tubes in a gyro compass is called a _____.

- (A) gyrotron
- (B) mercury ballistic
- (C) rotor
- (D) spider element

If choice B is selected set score to 1.

26. A harbor chart could have a scale of _____.

- (A) not more than 1:25,000
- (B) 1:150,000
- (C) not less than 1:500,000
- (D) 1:35,000

If choice D is selected set score to 1.

27. 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.

28. Solid green arrows on the main body of a pilot chart indicate _____.

- (A) probable surface current flow
- (B) prevailing wind directions
- (C) shortest great circle routes
- (D) prevailing ocean current directions

If choice D is selected set score to 1.

29. 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.

30. 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.

31. Yesterday your chronometer read 02h 59m 58s at the 1500 GMT time tick. Today the chronometer reads 03h 00m 02s at the 1500 GMT time tick. What is the chronometer error?

- (A) 02s fast
- (B) -3s
- (C) 03h 00m 02s fast
- (D) +3s

If choice A is selected set score to 1.

32. Automatic identification systems (AIS) are expected to broadcast all of the following information EXCEPT _____.

- (A) navigation status
- (B) ship's heading
- (C) port of origin
- (D) time stamp

If choice C is selected set score to 1.

33. 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.

34. 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.

35. 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.

36. During the winter months, the southeast trade winds are _____.

- (A) weaker than during the summer months
- (B) drier than during the summer months
- (C) wetter than during the summer months
- (D) stronger than during the summer months

If choice D is selected set score to 1.

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

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

If choice C is selected set score to 1.

38. On the approach of a warm front, barometric pressure usually _____.

- (A) is uncertain
- (B) rises
- (C) falls
- (D) is steady

If choice C is selected set score to 1.

39. Anticyclones are usually characterized by _____.

- (A) dry, fair weather
- (B) high winds and cloudiness
- (C) overcast skies
- (D) gustiness and continuous precipitation

If choice A is selected set score to 1.

40. You are underway on course 120°T and can make 12 knots. The eye of a hurricane bears 150°T at 120 miles. The hurricane is on course 295° at 20 knots. What course should you steer at 12 knots to have the maximum CPA?

- (A) 330°
- (B) 348°
- (C) 312°
- (D) 001°

If choice B is selected set score to 1.

41. 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.

42. The cold ocean current which meets the warm Gulf Stream between latitudes 40° and 43°N to form the "cold wall" is called the _____.

- (A) North Atlantic Current
- (B) North Cape Current
- (C) Labrador Current
- (D) Greenland Current

If choice C is selected set score to 1.

43. The Brazil Current flows in which general direction?

- (A) Northwesterly
- (B) Southeasterly
- (C) Southwesterly
- (D) Northerly

If choice C is selected set score to 1.

44. The standard meridian for the time zone +1 is _____.

- (A) 7 1/2°W
- (B) 7 1/2°E
- (C) 0°
- (D) 15°W

If choice D is selected set score to 1.

45. The measurement of local time is based on the passage of the Sun over the _____.

- (A) lower branch of the Greenwich meridian
- (B) upper branch of the observer's meridian
- (C) upper branch of the Greenwich meridian
- (D) lower branch of the observer's meridian

If choice D is selected set score to 1.

46. At upper transit, if the zenith distance is 34°, the geographical distance from the observer to a body's GP is _____.

- (A) 510 miles
- (B) 1220 miles
- (C) 2040 miles
- (D) 2260 miles

If choice C is selected set score to 1.

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

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

If choice D is selected set score to 1.

48. The abbreviation L.W.R.P. on the navigation maps means _____.

- (A) low winter runoff point
- (B) low water reference plane
- (C) land wall reference point
- (D) least water river plane

If choice B is selected set score to 1.

49. 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) 12 feet
- (B) 18 feet
- (C) 24 feet
- (D) 30 feet

If choice B is selected set score to 1.

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

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

If choice A is selected set score to 1.

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