

U.S.C.G. Merchant Marine Exam
Towing Vessels – Western Rivers
Q425 Navigation General
(Sample Examination)

Choose the best answer to the following Multiple-Choice Questions.

1. On which of the following does an automatic identification system (AIS) transponder transmit and receive information?
- A. VHF maritime band
 - B. UHF L-band
 - C. 3 cm, X-band radar
 - D. 10 cm, S-band radar

Correct answer: A

2. While proceeding downriver (descending) you sight a red diamond-shaped panel with small, red reflector squares in each corner on the left bank. Under the U.S. Aids to Navigation System on the Western Rivers what does this daymark indicate?
- A. It indicates a cable crossing
 - B. It is a passing daymark
 - C. It is a special purpose signal
 - D. It is a crossing daymark

Correct answer: D

3. What does the lubber's line on a magnetic compass indicate?
- A. The vessel's compass heading
 - B. Compass north
 - C. A relative bearing taken with an azimuth circle
 - D. Magnetic north

Correct answer: A

4. 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

Correct answer: A

5. Which of the following statements is TRUE regarding automatic identification systems (AIS)?
- A. AIS is always required to be operating if the vessel is in or in the vicinity of a VTS area.
 - B. AIS is always required to be operating if the vessel is within 100 nautical miles of the coastline.
 - C. The master may, at his/her discretion, turn off the AIS if he/she believes that it may compromise the safety or security of the vessel.
 - D. Under no circumstances shall AIS be turned off while underway as this could endanger the vessel and those around her.

Correct answer: C

6. While proceeding downriver, you sight a red triangular-shaped daymark on the left bank. What does this daymark represent under the U.S. Aids to Navigation System on the Western Rivers?
- A. It is a crossing daymark
 - B. It is a passing daymark
 - C. It is a special purpose signal
 - D. It has no lateral significance

Correct answer: B

7. Which is most commonly associated with fog?
- A. A cold front in the spring
 - B. A low-pressure area
 - C. An anticyclone
 - D. A warm front at night

Correct answer: D

8. Which is TRUE when using the radar for navigation?
- A. When using two radar ranges for a fix, the objects of the ranges should be close to reciprocal bearings
 - B. The best fix is obtained by using a tangent bearing and a range
 - C. When crossing a radar range of one object with the visual bearing of a second object, the two objects should be 80° to 110° apart
 - D. When using ranges, the most rapidly changing range should be measured first

Correct answer: D

9. Illustration D011NG below represents the geographic location of a vessel and the radar presentation at the same time. Which statement is TRUE?
- A. The small island is not detected due to the effect of beam width.
 - B. Ship No. 1 is not detected due to the shadow effect of the headland.
 - C. Ship No. 2 is not detected due to the reflective mass of the background mountain overpowering the ship's reflective signals.
 - D. A tangent bearing of the headland to the south-southeast should be corrected by adding one-half of the beam width.

Correct answer: D

10. Which agency maintains federal aids to navigation?
- A. Maritime Administration
 - B. National Ocean Service
 - C. Corps of Engineers
 - D. Coast Guard

Correct answer: D

11. Under the U.S. Aids to Navigation System used on the Western Rivers, which is TRUE of the aids to navigation lights on the right descending bank?
- A. They can only be green lights
 - B. They are white or green lights
 - C. They are white or red lights
 - D. They can only be white lights

Correct answer: B

12. Which of the listed properties does warm air possess?
- A. Moisture in warm air condenses as the air is heated
 - B. Atmospheric pressure rises as warm air rises
 - C. It rises above cooler air and cools as it rises
 - D. Warm air that has cooled will develop low pressure areas

Correct answer: C

13. The lock chamber is 600 feet X 110 feet. Your towboat is 150 feet X 35 feet. Which of these tows will require a double lockage?
- A. A set-over single
 - B. 4 standard barges abreast next to your boat's head and 3 jumbo abreast in the lead
 - C. 9 jumbo barges
 - D. 6 jumbo (3 abreast and 2 long) with a standard on each side of your boat

Correct answer: C

14. As a high-pressure system approaches, which is TRUE concerning the barometer reading?
- A. The reading rises
 - B. The reading stays the same
 - C. The reading falls rapidly
 - D. The reading falls

Correct answer: A

15. The following types of vessels are awaiting lockage on the upper Mississippi. Which type of vessel is normally passed through the lock first?
- A. Commercial fishing vessels
 - B. Commercial passenger vessels
 - C. Pleasure craft
 - D. Commercial towboats

Correct answer: B

16. Under the U.S. Aids to Navigation System on the Western Rivers, what color are the buoys marking the starboard side of the channel when going upstream?

- A. Yellow
- B. Black
- C. Green
- D. Red

Correct answer: D

17. You have been observing your radar screen and notice that a contact on the screen has remained in the same position, relative to you, for several minutes. Your vessel is making 10 knots through the water. Which statement is TRUE?

- A. The contact is on a reciprocal course at the same speed as your vessel.
- B. The contact is on the same course and speed as your vessel.
- C. The contact is dead in the water.
- D. The radar is showing false echoes and is probably defective.

Correct answer: B

18. How is a navigation light identified on an Army Corps of Engineers navigation map?

- A. Name and miles from a reference point
- B. Name and light characteristic
- C. Light characteristic and miles A.H.P.
- D. None of the above

Correct answer: A

19. If your vessel were proceeding up river (ascending), how is the port side of the channel marked according to the U. S. Aids to Navigation System on the Western Rivers?

- A. Red nun buoys
- B. Red can buoys
- C. Green nun buoys
- D. Green can buoys

Correct answer: D

20. What does a Doppler log in the bottom return mode indicate?

- A. The speed over the ground
- B. The depth of the water
- C. The velocity of the current
- D. The bottom characteristics

Correct answer: A

21. A backlash below a lock is defined as _____.

- A. an eddy working along the lower guide wall
- B. a current setting your vessel on the wall
- C. a current setting into the lock chamber
- D. a current setting counter-clockwise

Correct answer: A

22. What volume of the Coast Guard Light List is used for the Mississippi River system?

- A. I
- B. V
- C. II
- D. IV

Correct answer: B

23. Which would influence a magnetic compass?

- A. Electrical wiring
- B. Iron pipe
- C. Radio
- D. All of the above

Correct answer: D

24. Under the U.S. Aids to Navigation System on the Western Rivers, which describes the daymarks on the left descending bank?

- A. Red triangles
- B. Green squares
- C. Red squares
- D. Green diamonds

Correct answer: A

25. All aids to navigation listed in the Mississippi River System Light List are shown as miles from a reference point and on the _____.

- A. east or west bank
- B. port or starboard side of the vessel
- C. left or right ascending bank
- D. left or right descending bank

Correct answer: D

26. What does the abbreviation L.W.R.P. on the navigation maps mean?

- A. Low winter runoff point
- B. Least water river plane
- C. Low water reference plane
- D. Land wall reference point

Correct answer: C

27. When observing a rapid rise in barometric pressure, what may you expect?

- A. Clear weather with no wind, but the possibility of rain or snow within 24 hours
- B. Heavy rain or severe thundershowers
- C. Deteriorating weather with rain or snow
- D. Clearing weather, possibly accompanied by high winds

Correct answer: D

28. Which condition would most likely result in fog?

- A. Warm moist air blowing over warm water
- B. Warm moist air blowing over cold water
- C. Airborne dust particles
- D. Dew point falling below the air temperature

Correct answer: B

29. With respect to failure warnings and status indications, GPS receivers should provide, at a minimum, _____.

- A. a warning of loss of position
- B. an indication of a change in satellite configuration
- C. a cross-track error alarm
- D. an alarm if engine speed is suddenly reduced

Correct answer: A

30. On a clear, warm day, you notice the approach of a tall cumulus cloud. The cloud top has hard well-defined edges and rain is falling from the dark lower edge. What should you expect if this cloud passes directly overhead?

- A. A sudden increase in wind speed
- B. A sudden decrease in wind speed
- C. The wind will back as it passes
- D. The wind speed will not change as it passes

Correct answer: A

31. In the U.S. Aids to Navigation System on the Western Rivers, a preferred channel buoy to be left to port while proceeding downstream will _____.

- A. have the upper band red
- B. show a red light if lighted
- C. have a characteristic of composite group flashing if lighted
- D. All of the above

Correct answer: D

32. What do clearance gauges at bridges indicate?

- A. The distance from the water to low steel of the bridge
- B. The depth of water under the bridge
- C. The height of the tide
- D. The charted vertical clearance at mean low water

Correct answer: A

33. In the U.S. Aids to Navigation System on the Western Rivers, the light characteristic of group flashing (2) is used for which purpose?

- A. To mark the right descending bank
- B. To indicate daymarks with no lateral significant
- C. To indicate the preferred channel
- D. To mark the left descending bank

Correct answer: D

34. Which is TRUE of a bluff bar?

- A. A bluff bar has a sharp drop off into deep water
- B. It is a bar extending out from a bluff alongside the river
- C. Bluff bars tend to give a false indication of its position
- D. A bluff bar is perpendicular to the current

Correct answer: A

35. All persons or vessels within the lock area, including the lock approach channels, come under the authority of which person?

- A. The dock captain
- B. The lock foreman
- C. The dockmaster
- D. The lockmaster

Correct answer: D

36. What enables you to estimate the bearing of a storm's center?

- A. The left-hand rule
- B. Buys Ballot's Law
- C. Pascal's Law
- D. An educated guess

Correct answer: B

37. When must a proper look-out be kept?

- A. Only in fog
- B. Only between the hours of sunset and sunrise
- C. Only when entering and leaving port
- D. At all times

Correct answer: D

38. Which term defines a submerged dike extending from the bank of the river used to train the channel?

- A. A cutoff
- B. A wingdam
- C. A landwall
- D. A towhead

Correct answer: B

39. A section of the river that is narrower than usual and is often navigable from bank to bank is a _____.

- A. stabilized channel
- B. slough
- C. navigable pass
- D. chute

Correct answer: D

40. In which situation is the light characteristic of composite group flashing (2 + 1) used in the Aids to Navigation System on the Western Rivers?

- A. Only to identify the right descending bank
- B. Only to identify the left descending bank
- C. On daymarks with no lateral significance
- D. On preferred-channel buoys

Correct answer: D

41. Which condition(s) is(are) necessary for the formation of dew?

- A. Clear skies
- B. Available nuclei in the air
- C. Moderate winds
- D. A surface warmer than the dew point of the air

Correct answer: A

42. Which level of accuracy can be obtained utilizing the U.S. Coast Guard's Maritime Differential GPS in an established coverage area?

- A. 10 meters
- B. 20 meters
- C. 50 meters
- D. 92 meters

Correct answer: A

43. If your vessel were proceeding down river (descending), what would a green square marker with a green reflector border on the right bank indicate?

- A. A crossing daymark
- B. A passing daybeacon
- C. It is a mile board
- D. A dredging mark

Correct answer: B

44. What is published by the U.S. Coast Guard?

- A. Nautical Charts
- B. Light List
- C. U.S. Coast Pilot
- D. Tide Tables

Correct answer: B

45. Your vessel is moored portside to and you are taking over the Deck Watch. Which item has the most impact on the safety of the vessel and crew?

- A. The uncorrected local variation on the chart
- B. The names of the visitors that have departed the vessel
- C. The operational state of the main engine
- D. The API and Flash Point of the bunker fuel

Correct answer: C

46. When changing from a compass course to a true course, which should you apply?

- A. Deviation only
- B. Both variation and deviation
- C. A correction for the direction of current set
- D. Variation only

Correct answer: B

47. If an observer in the Northern Hemisphere faces the surface wind, where is the center of low pressure located?

- A. To the left, and slightly behind
- B. To the left, and slightly in front
- C. To the right, and slightly behind
- D. To the right, and slightly in front

Correct answer: C

48. In which source could you find the vertical clearance of a bridge on the Ohio River?

- A. Coast Pilot of the Gulf of America
- B. Great Lakes Pilot
- C. Light List of the Mississippi River System
- D. Notice to Mariners

Correct answer: C

49. You are ascending a river and exchanging navigational information via radiotelephone with a descending vessel. If the descending vessel advises you to "watch for the set" above point X, what would you expect to encounter above point X?

- A. An increase in current velocity
- B. Slack water
- C. A sideways movement of your vessel
- D. Shallow water

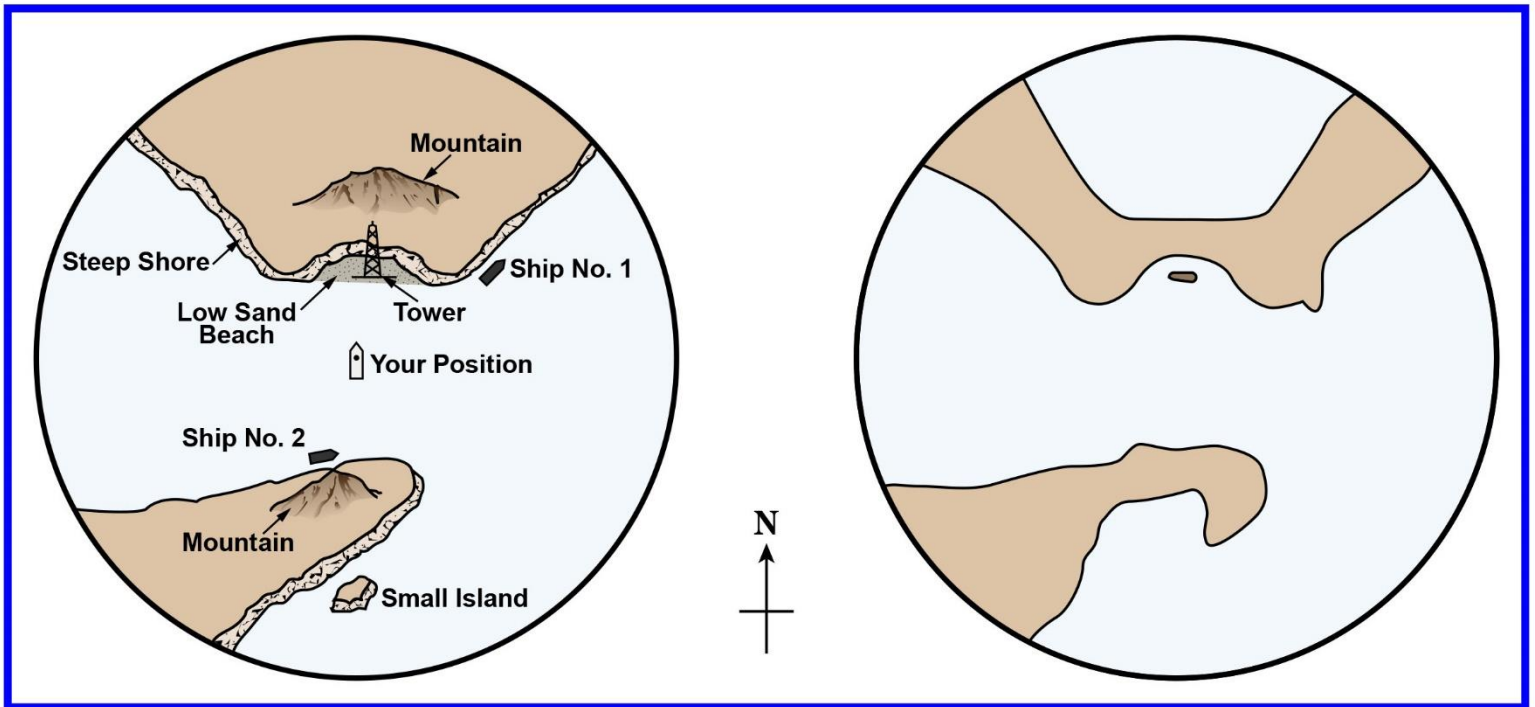
Correct answer: C

50. On the Mississippi and Ohio Rivers, there is a special type of fog known as steam fog. What conditions cause this fog?

- A. A rapid cooling of the ground on a clear night
- B. Warm air passing over much colder water
- C. Rain coming out of a warm air mass aloft
- D. Cold air passing over much warmer water

Correct answer: D

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