

U.S.C.G. Merchant Marine Exam  
Mobile Offshore Drilling Units I  
Q433 OIM Surface Units on Location  
(Sample Examination)

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

1. To determine the number of portable fire extinguishers required on a mobile offshore drilling unit, you should check the \_\_\_\_\_.
- A. Safety of Life at Sea Certificate
  - B. Operations Manual
  - C. hot work permit
  - D. Certificate of Inspection

Correct answer: D

2. In the DEEP DRILLER, VCG is obtained from the sum of the vertical moments by \_\_\_\_\_.
- A. adding displacement
  - B. dividing by displacement
  - C. subtracting displacement
  - D. multiplying by displacement

Correct answer: B

3. The emergency power system for the DEEP DRILLER should be placed in operation when the weather forecast predicts winds greater than 90 knots and when \_\_\_\_\_.
- A. evacuating the unit
  - B. unexpected list and trim exist
  - C. deballasting
  - D. ballasting

Correct answer: A

4. Survival practice in the mooring system is to slack off the tensions on the leeward side and \_\_\_\_\_.
- A. tighten the anchor buoys on the leeward side anchors
  - B. release the anchors on the windward side
  - C. adjust as evenly as practical the windward tensions
  - D. deballast the unit to transit draft

Correct answer: C

5. The DEEP DRILLER, at 60.0 feet draft in sea water, has VM = 974,441 foot-long tons, LM = 40,301 foot-long tons, TM = 3 foot-long tons, FSML = 30,572 foot-long tons, and FSMT = 18,732 foot-long tons. What is the KG corrected for longitudinal free surface effects?
- A. 53.78 feet
  - B. 54.82 feet
  - C. 55.47 feet
  - D. 56.01 feet

Correct answer: C

6. The DEEP DRILLER is moored in 600 feet of water. The tension on anchor line #8 is 190 kips. What is the vertical component of chain tension for that line?
- A. 53.6 long tons
  - B. 55.3 long tons
  - C. 84.8 long tons
  - D. 442.4 long tons

Correct answer: B

7. On all mobile offshore drilling units, the deckhead of each accommodation space must be located above \_\_\_\_\_.
- A. the survival draft
  - B. the operating draft
  - C. the transit draft
  - D. the deepest load line

Correct answer: D

8. The DEEP DRILLER is loaded as shown in the Sample Load Form Number 5 (Survival) when an unexpected slowly increasing starboard list and bow down trim occurs. A leak in 1S is found. By deballasting from ballast tanks 2S and 3S, the inclination slowly decreases. The increase in the longitudinal free surface correction is \_\_\_\_\_.
- A. 1.25 feet
  - B. 0.90 foot
  - C. 0.83 foot
  - D. 0.34 foot

Correct answer: C

9. You are aboard a vessel which is near a platform engaged in oil exploration. Under U.S. pollution regulations, you may NOT discharge garbage if you are within \_\_\_\_\_.
- A. 1650 feet (500 meters)
  - B. 1750 feet (533 meters)
  - C. 1970 feet (600 meters)
  - D. 2500 feet (762 meters)

Correct answer: A

10. For the purposes of the International Rules of the Road, a non-self-propelled mobile offshore drilling unit under tow is considered to be a \_\_\_\_\_.
- A. limited vessel
  - B. vessel
  - C. power-driven vessel
  - D. non-displacement vessel

Correct answer: B

11. The DEEP DRILLER, at 58.0 feet draft in sea water, places 200 long tons on board. What is the new draft?
- A. 56.55 feet
  - B. 59.45 feet
  - C. 60.00 feet
  - D. 75.41 feet

Correct answer: B

12. On the DEEP DRILLER, among the starboard-side valves to open when flooding through the overboard discharge into ballast tank 1S is valve \_\_\_\_\_.
- A. 2
  - B. 3
  - C. 7
  - D. 37

Correct answer: A

13. If a man falls overboard from a rig under tow, you should FIRST \_\_\_\_\_.
- A. deploy life buoys
  - B. launch a boat
  - C. notify the tug
  - D. sound the general alarm

Correct answer: A

14. Under the regulations implementing MARPOL, a mobile offshore drilling unit is required to have an International Oil Pollution Prevention (IOPP) Certificate when the unit \_\_\_\_\_.
- A. moves to a new drilling location in U.S. waters
  - B. engages in a voyage to a port of another country which is a party of MARPOL
  - C. is drilling on the Outer Continental Shelf
  - D. All of the above

Correct answer: B

15. The number of certificated able seamen and lifeboatmen required on a MODU is determined by the \_\_\_\_\_.
- A. Minerals Management Service
  - B. Coast Guard
  - C. American Bureau of Shipping
  - D. Corps of Engineers

Correct answer: B

16. Compared to internal structural plating, the exterior hull plating on a MODU is usually \_\_\_\_\_.
- A. stronger
  - B. thinner
  - C. more corrosion resistant
  - D. a lower grade steel

Correct answer: A

17. Temporary Certificates of Inspection for offshore drilling units are effective until the \_\_\_\_\_.
- A. Operations Manual is approved
  - B. permanent Certificate of Inspection is issued
  - C. Minerals Management Service approval is issued
  - D. classification society approval is issued

Correct answer: B

18. Before deballasting to survival draft in the event of predicted heavy weather, the DEEP DRILLER Operations Manual recommends that the mooring lines be slacked \_\_\_\_\_.
- A. 10 feet
  - B. 20 feet
  - C. 30 feet
  - D. 40 feet

Correct answer: B

19. The DEEP DRILLER is planning to operate while loaded as shown in the Sample Load Form #3 (Preparing to Drill). What is the margin between KGT and maximum allowable KG?
- A. 0.66 foot
  - B. 2.58 feet
  - C. 5.24 feet
  - D. 7.87 feet

Correct answer: C

20. What is the minimum concentration of H<sub>2</sub>S which can cause death if a person is exposed for even an instant?
- A. 200 ppm
  - B. 400 ppm
  - C. 600 ppm
  - D. 1000 ppm

Correct answer: D

21. Using high working tensions in the mooring system reduces the \_\_\_\_\_.
- A. hook load at drilling depths over 10,000 feet
  - B. possibility of dragging anchors
  - C. margin between working tension and breaking strength
  - D. allowable deck load at operating draft

Correct answer: C

22. The DEEP DRILLER in transit is level at 23.0 feet draft. Strong winds are blowing from the starboard. A careful load form calculation determines that the TCG is 2.0 feet to starboard. What is the value of the wind heeling moment?

- A. 4,339 foot-long tons
- B. 26,033 foot-long tons
- C. 39,050 foot-long tons
- D. 78,099 foot-long tons

Correct answer: B

23. The DEEP DRILLER may remain at operating draft instead of deballasting to survival draft when \_\_\_\_\_.

- A. the maximum wave height is greater than 64 feet
- B. critical motion limits have been exceeded
- C. winds are less than 70 knots
- D. waves approach within two feet of the spider deck

Correct answer: C

24. Laying down drill pipe from the derrick of a semisubmersible on location reduces the \_\_\_\_\_.

- A. natural roll period
- B. waterplane area
- C. metacentric height
- D. righting moment

Correct answer: A

25. Given the same water depth and line tension, the length of the ground cable of a 90 pound/foot mooring chain compared to the length of the ground cable of a 19 pound/ft wire rope mooring line will be \_\_\_\_\_.

- A. shorter
- B. indeterminable
- C. identical
- D. longer

Correct answer: D

26. The procedure of strengthening damaged structures on a MODU by using wood or steel is called \_\_\_\_\_.

- A. blocking
- B. bracing
- C. battening
- D. shoring

Correct answer: D

27. What are the maximum vertical moments, including free surface moments, permitted on the DEEP DRILLER at survival draft if the winds are greater than 70 knots?

- A. 912,120 foot-tons
- B. 942,120 foot-tons
- C. 996,522 foot-tons
- D. 998,927 foot-tons

Correct answer: C

28. Among the valves that must be opened on the DEEP DRILLER to pump bilge water out of the port pump room using the number 1 bilge pump is valve \_\_\_\_\_.

- A. 28
- B. 36
- C. 41
- D. 42

Correct answer: C

29. What does the term "head" mean when applied to a pump?

- A. Sum of discharge and suction pressures
- B. Length of its discharge pipe
- C. Difference between the discharge and suction pressures
- D. Height of its discharge pipe

Correct answer: C

30. The DEEP DRILLER, loaded as shown in the Sample Load Form #4 (Drilling), discharges a non-liquid load of 275.8 long tons from a position 130 feet above the keel, 40 feet forward of amidships, and 30 feet to port of the centerline. What is the improvement in KGL?

- A. 0.67 foot
- B. 0.98 foot
- C. 1.15 feet
- D. 2.06 feet

Correct answer: C

31. What is the weight of barite in P-tank #4 of the DEEP DRILLER if the ullage is 3.4 feet?

- A. 11.5 long tons
- B. 16.6 long tons
- C. 54.2 long tons
- D. 78.2 long tons

Correct answer: D

32. The DEEP DRILLER is loaded as shown in Sample Load Form #4. While the unit is deballasting, port valve 5 fails in the closed position. You may deballast from tank 2P by pumping from tank 9P by also opening valves 6 and \_\_\_\_\_.

- A. 35
- B. 21
- C. 20
- D. 8

Correct answer: C

33. What is the change in longitudinal moments for the DEEP DRILLER if 103.48 long tons of ballast is discharged from a full ballast tank 1P?

- A. 10,944 foot-tons decrease
- B. 7,761 foot-tons decrease
- C. 6,707 foot-tons decrease
- D. 155 foot-tons decrease

Correct answer: A

34. For a MODU with trim, an increase in GMT will cause the inclination to \_\_\_\_\_.

- A. decrease
- B. increase
- C. remain constant
- D. stabilize at an angle of loll

Correct answer: A

35. In storm conditions, with the wind and waves from the port bow of the DEEP DRILLER in 600 feet water depth, the tensions in mooring line 1 and 2 are 400 kips. Completely slacking the mooring lines 5 and 6 reduces the tension in mooring lines 1 and 2 to about \_\_\_\_\_.

- A. 375 kips
- B. 330 kips
- C. 275 kips
- D. 220 kips

Correct answer: B

36. A MODU crane which has been idle for a period of over six months shall be inspected to the same standards as a \_\_\_\_\_.

- A. yearly inspection
- B. quarterly inspection
- C. monthly inspection
- D. weekly inspection

Correct answer: A



37. In order to withstand fluid head pressure on a MODU, stiffeners are often attached to the bulkhead \_\_\_\_\_.

- A. framing
- B. penetrations
- C. plating
- D. brackets

Correct answer: C

38. While drilling loaded as shown in Sample Load Form #4 (Drilling), the DEEP DRILLER suffers a sudden unexpected inclination to starboard and aft. Strong wind and high waves are on the port bow. Among the possible causes, you should consider \_\_\_\_\_.

- A. ballast tanks equalizing into tank 10S
- B. failure of mooring lines 1 or 2
- C. failure of mooring lines 5 or 6
- D. leak in ballast tank 9P

Correct answer: B

39. The DEEP DRILLER as currently configured is limited to a maximum water depth of \_\_\_\_\_.

- A. 400 feet
- B. 600 feet
- C. 800 feet
- D. 1,000 feet

Correct answer: B

40. Until a change to lightweight has been approved, the weights and center of gravity locations for the changes to lightweight shown in the permanent record for the Deep Driller are treated as \_\_\_\_\_.

- A. fixed load
- B. basic load
- C. variable load
- D. gross tonnage

Correct answer: C

41. The DEEP DRILLER, loaded as shown in Sample Load Form #4 (Drilling), suffers major damage which results in flooding in tank C1P. Your best countermeasure is to \_\_\_\_\_.

- A. counterflood in 1P
- B. pump from 2P
- C. counterflood in 10S
- D. pump from C1P

Correct answer: B

42. The maximum draft to which a drilling unit may be safely loaded is called \_\_\_\_\_.

- A. load line draft
- B. calculated draft
- C. mean draft
- D. deep draft

Correct answer: A

43. What is the percentage of oxygen in a typical sample of uncontaminated air?

- A. 12 percent
- B. 15 percent
- C. 18 percent
- D. 21 percent

Correct answer: D

44. An uncontrolled flow of gas, oil, or other well fluids into the atmosphere is called a \_\_\_\_\_.

- A. kick
- B. flow
- C. breakout
- D. blowout

Correct answer: D

45. For well control, the American Petroleum Institute recommends that hydraulic units have sufficient horsepower to close the annular preventer in \_\_\_\_\_.

- A. 15 seconds
- B. 30 seconds
- C. 45 seconds
- D. 60 seconds

Correct answer: B

46. The DEEP DRILLER is operating at a draft of 60 feet. There is 11.5 feet of drill water in each of the drill water tanks (5P and 5S). What would be the improvement in KGL if 5S is filled from 5P?

- A. 0.56 foot
- B. 0.49 foot
- C. 0.18 foot
- D. 0.08 foot

Correct answer: D

47. Why is electrical power preferred over mechanical power for driving heavy machinery on drilling rigs?

- A. Lighter
- B. More fuel efficient
- C. Less maintenance
- D. More flexible

Correct answer: D

48. What type of test determines the pressure at which the formation immediately below the last set casing will take fluid?

- A. Leak-off
- B. Production
- C. Drill stem
- D. Conductor

Correct answer: A

49. Where are self-closing doors required on a MODU?

- A. To each sleeping room
- B. To the engine room
- C. In each stair tower
- D. In the galley

Correct answer: C

50. The plans, for use during emergencies aboard the DEEP DRILLER, are readily available in the \_\_\_\_\_.

- A. OIM's office
- B. wheelhouse under glass
- C. pump room
- D. ballast control room

Correct answer: D