

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

Choose the best answer to the following Multiple Choice Questions.

1. In MODU operations, hoisting and lowering pipe in and out of the drilled hole is the main function of the _____.

- (A) stand pipe
- (B) drawworks
- (C) swivel
- (D) cathead spool

If choice B is selected set score to 1.

2. Beyond the area of state ownership in the U.S. outer continental shelf, the right to drill is controlled by the _____.

- (A) American Bureau of Shipping
- (B) U.S. Coast Guard
- (C) Minerals Management Service
- (D) U.S. Corps of Engineers

If choice C is selected set score to 1.

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) ballasting
- (C) deballasting
- (D) unexpected list and trim exist

If choice A is selected set score to 1.

4. A virtual rise in the center of gravity of a MODU may be caused by _____.

- (A) filling a partially filled tank
- (B) emptying a partially filled tank
- (C) transferring pipe from the setback area to the pipe rack
- (D) using an on board crane to lift a freely swinging heavy object

If choice D is selected set score to 1.

5. The lightweight longitudinal moments for the DEEP DRILLER are _____.

- (A) -6,716 ft-long tons
- (B) 9,733 ft-long tons
- (C) -5,937 ft-long tons
- (D) 680,914 ft-long tons

If choice A is selected set score to 1.

6. 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) identical
 - (B) shorter
 - (C) longer
 - (D) indeterminable

If choice C is selected set score to 1.

7. For planning purposes, the time required to place the DEEP DRILLER at survival draft from the drilling mode to counter heavy weather is _____.
- (A) 2 hours
 - (B) 4 hours
 - (C) 6 hours
 - (D) 8 hours

If choice C is selected set score to 1.

8. The DEEP DRILLER, loaded as shown in Sample Load Form #1 (Transit), suffers minor damage which results in flooding in tank 1S. You may pump from _____.
- (A) C1S
 - (B) 10P
 - (C) 1S
 - (D) 2S

If choice C is selected set score to 1.

9. On a semisubmersible MODU, reserve buoyancy is increased by the presence of void spaces above the waterline in the _____.
- (A) quarters
 - (B) submerged connecting structures
 - (C) submerged hulls
 - (D) columns and upper structure

If choice D is selected set score to 1.

10. A virtual rise in the center of gravity of a MODU may be caused by _____.
- (A) using fuel from a pressed fuel tank
 - (B) emptying a partially filled tank
 - (C) filling a partially filled tank
 - (D) transferring pipe from the setback area to the pipe rack

If choice A is selected set score to 1.

11. In a semisubmersible MODU, the columns contain void spaces above the waterline that used principally for _____.

- (A) reserve buoyancy
- (B) machinery
- (C) equipment storage
- (D) elevators

If choice A is selected set score to 1.

12. 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

If choice C is selected set score to 1.

13. The DEEP DRILLER, at a draft of 60 feet, has VM of 942,120 ft-tons, and FSML of 36,235 ft-tons. What is the KGL?

- (A) 52.0 feet
- (B) 53.0 feet
- (C) 54.0 feet
- (D) 55.0 feet

If choice C is selected set score to 1.

14. The DEEP DRILLER, at a draft of 19 feet, has a KGL of 59.91 feet and an LCG of 1.57 feet. What is the trim angle?

- (A) 0.2° by the stern
- (B) 0.3° by the stern
- (C) 0.4° by the stern
- (D) 0.5° by the stern

If choice B is selected set score to 1.

15. What is the effect of high concentrations of H₂S gas on personnel?

- (A) cause dizziness
- (B) cause eye inflammation
- (C) paralyze your breathing system
- (D) cause involuntary muscle contractions

If choice C is selected set score to 1.

16. The DEEP DRILLER is loaded as shown in Sample Load Form #4 (Drilling). What would be the new sum of transverse moments for the Stores & Supplies (Table 6) if paint weighing 3.48 tons is added to the paint locker?

- (A) 592 foot-tons
- (B) 296 foot-tons
- (C) 148 foot-tons
- (D) 000 foot-tons

If choice D is selected set score to 1.

17. How much additional solid weight could be loaded at a VCG of 189.7 feet on the DEEP DRILLER while loaded as shown in the Sample Load Form #4 (Drilling)? Assume ballast added or discharged to maintain draft is done so at 15 feet above the baseline.

- (A) 279.2 long tons
- (B) 314.2 long tons
- (C) 404.2 long tons
- (D) 461.9 long tons

If choice B is selected set score to 1.

18. For a MODU with trim, an increase in GMT will cause the inclination to _____.

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

If choice A is selected set score to 1.

19. Keeping the draft of a MODU at or below the load line mark will insure that the unit has adequate _____.

- (A) reserve buoyancy
- (B) critical motions
- (C) lightweight displacement
- (D) reserve ballast

If choice A is selected set score to 1.

20. What is the weight of cement in P-tank #1 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

If choice C is selected set score to 1.

21. 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

If choice D is selected set score to 1.

22. The DEEP DRILLER is loaded as shown in the Sample Load Form #5 (Survival) when an unexpected slowly increasing port list and bow down trim occurs. A leak in C1P is found. By deballasting from ballast tanks 2P and 3P, the inclination slowly decreases. The increase in the transverse free surface correction is _____.

- (A) 1.25 feet
- (B) 0.82 foot
- (C) 0.34 foot
- (D) 0.18 foot

If choice D is selected set score to 1.

23. The DEEP DRILLER, loaded as shown in the Sample Load Form #4 (Drilling), discharges all the cement in the P-Tanks. See Table 7. What is the change in KG?

- (A) 0.24 foot downward
- (B) 0.49 foot downward
- (C) 0.88 foot downward
- (D) 1.02 feet downward

If choice B is selected set score to 1.

24. 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

If choice B is selected set score to 1.

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

If choice A is selected set score to 1.

26. 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

If choice D is selected set score to 1.

27. 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

If choice B is selected set score to 1.

28. The DEEP DRILLER may remain at operating draft instead of deballasting to survival draft when _____.

- (A) waves approach within two feet of the spider deck
- (B) the maximum wave height is greater than 64 feet
- (C) critical motion limits have not been exceeded
- (D) winds are greater than 70 knots

If choice C is selected set score to 1.

29. 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

If choice A is selected set score to 1.

30. Among the valves that must be opened on the DEEP DRILLER to pump bilge water out of the port pump room using the #1 bilge pump is valve _____.

- (A) 28
- (B) 36
- (C) 41
- (D) 42

If choice C is selected set score to 1.

31. An LWT anchor often has difficulty tripping in _____.

- (A) soft soil
- (B) heterogeneous soil
- (C) stiff clay
- (D) sand

If choice A is selected set score to 1.

32. The motion that can significantly increase mooring line tension is _____.

- (A) sway
- (B) roll
- (C) yaw
- (D) pitch

If choice A is selected set score to 1.

33. The wooden plug inserted in the vent of a damaged tank of a MODU should be removed in case it is decided to _____.

- (A) pump from the damaged tank
- (B) fight a fire
- (C) abandon the rig
- (D) use the crossover system

If choice A is selected set score to 1.

34. 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

If choice D is selected set score to 1.

35. Hydrogen sulfide in explosive concentrations has been detected on the drill floor and the abandon rig signal has been sounded. Which of the following would be the safest way to evacuate?

- (A) launch only the leeward survival capsules and liferafts
- (B) launch all survival capsules and liferafts
- (C) launch only the windward survival capsules
- (D) launch only the windward liferafts

If choice C is selected set score to 1.

36. A survival craft being used to pick up a person who has fallen overboard from a MODU should approach the person _____.

- (A) at a high rate of speed
- (B) with the wind
- (C) under oars
- (D) against the wind

If choice D is selected set score to 1.

37. While the COASTAL DRILLER is elevated, the out-of-level alarm indicates that hull inclination exceeds 0.3°. What should you do?

- (A) Raise unit to proper air gap and inspect for damage.
- (B) Raise the high corner.
- (C) Confirm operation of out-of-level alarm.
- (D) Raise the low corner.

If choice C is selected set score to 1.

38. An uncontrolled flow of gas, oil, or other well fluids into the atmosphere is called a _____.

- (A) kick
- (B) blowout
- (C) flow
- (D) breakout

If choice B is selected set score to 1.

39. On offshore drilling units, the number of industrial personnel permitted to be on board during drilling operations is found on the _____.

- (A) Owner's Operation Manual
- (B) Safety of Life at Sea Certificate
- (C) Classification Certificate
- (D) U.S. Coast Guard Certificate of Inspection

If choice D is selected set score to 1.

40. Annual inspection of MODU cranes shall be conducted by _____.

- (A) U.S. Coast Guard
- (B) the person in charge
- (C) the crane operator
- (D) a qualified inspector

If choice D is selected set score to 1.

41. When pumping fuel between an offshore supply vessel (OSV) and a MODU, there must be direct VHF radio contact between the offshore supply vessel engineer and the _____.

- (A) barge superintendent
- (B) person in charge of the fuel transfer
- (C) crane operator
- (D) ballast control operator

If choice B is selected set score to 1.

42. The number of certificated able seamen and lifeboatmen required on a MODU is stated in the _____.

- (A) Minerals Management Service regulations
- (B) Safety of Life at Sea Convention
- (C) Certificate of Inspection
- (D) American Bureau of Shipping code

If choice C is selected set score to 1.

43. The stamped full weight of a 100 lb. CO₂ bottle is 314 lbs. What is the minimum weight of the bottle before it has to be recharged?

- (A) 282 lbs.
- (B) 294 lbs.
- (C) 300 lbs.
- (D) 304 lbs.

If choice D is selected set score to 1.

44. On offshore drilling units fitted with fixed CO₂ systems, the system must withstand a bursting pressure of at least _____.

- (A) 5,000 pounds per square inch
- (B) 6,000 pounds per square inch
- (C) 8,000 pounds per square inch
- (D) 10,000 pounds per square inch

If choice B is selected set score to 1.

45. A branch line valve of a fire extinguishing system on a MODU must be marked with the _____.

- (A) date of the last maintenance inspection
- (B) pressure needed to maintain an effective stream at that point
- (C) maximum pressure allowed at that branch
- (D) name of the space or spaces which it serves

If choice D is selected set score to 1.

46. The document that certifies the correctness of the load line marks on a MODU is called the _____.

- (A) Certificate of Documentation
- (B) SOLAS Certificate
- (C) Certificate of Inspection
- (D) Load line certificate

If choice D is selected set score to 1.

47. A floating MODU with an initial negative metacentric height _____.

- (A) may be initially level
- (B) may lie at an angle of loll
- (C) will capsize
- (D) will incline further

If choice B is selected set score to 1.

48. The end of the joint with the exterior threads is called the _____.

- (A) stem
- (B) stand
- (C) box
- (D) pin

If choice D is selected set score to 1.

49. A hydraulic accumulator aboard a MODU is designed to _____.

- (A) store fluid under pressure
- (B) provide overpressure relief
- (C) act as a fluid reservoir
- (D) replenish fluid to a system

If choice A is selected set score to 1.

50. 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

If choice B is selected set score to 1.