

U.S.C.G. Merchant Marine Exam
Mobile Offshore Drilling Units
Q431 OIM - Unrestricted
(Sample Examination)

Choose the best answer to the following Multiple Choice Questions.

1. On the DEEP DRILLER, when using the starboard #2 ballast pump to provide water to the main deck from the sea, it is necessary to open valves _____.
- (A) 37, 36, 46, 47
 - (B) 37, 35, 36, 45
 - (C) 38, 47, 45, 46
 - (D) 38, 47

If choice B is selected set score to 1.

2. When a semisubmersible rig under tow veers from side to side on its tow line, the best way of controlling the action is to _____.
- (A) trim by the stern
 - (B) adjust the length of the towing bridle
 - (C) play out stern anchor chain
 - (D) trim by the bow

If choice A is selected set score to 1.

3. While the DEEP DRILLER is loaded as shown in Sample Form #4 (Drilling), casing is accidentally dropped over the port side. Because the sounding level and port aft inclination are slowly increasing, you decide that tank 10P has minor damage. Among the possible corrective actions is _____.
- (A) deballast from tank 9P
 - (B) counterflood into 2S
 - (C) counterflood into 10P
 - (D) dump the mud

If choice A is selected set score to 1.

4. The DEEP DRILLER is loaded as shown in Sample Load Form #4 (Drilling). What would be the new sum of vertical moments for Fuel Oil if the entire contents of Tank 4P are transferred to Tank 4S?
- (A) 1,797 foot-tons
 - (B) 1,748 foot-tons
 - (C) 3,493 foot-tons
 - (D) 100 foot-tons

If choice C is selected set score to 1.

5. The DEEP DRILLER is loaded as shown in the Sample Load Form #3 (Preparing to Drill). If the liquid mud in mud pit #1 (see table 8) is dumped, what would be the new draft?
- (A) 60 feet 9.6 inches
 - (B) 59 feet 9.3 inches
 - (C) 59 feet 2.7 inches
 - (D) 56 feet 10.9 inches

If choice C is selected set score to 1.

6. The total leg load reactions on an independent leg, self-elevating unit include static and _____.
- (A) basic loading
 - (B) fixed loading
 - (C) environmental loading
 - (D) variable loading

If choice C is selected set score to 1.

7. 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

If choice B is selected set score to 1.

8. When should the emergency position-indicating radio beacon be activated after abandoning a MODU?
- (A) After one hour
 - (B) Only after sunset
 - (C) Only when another vessel is in sight
 - (D) Immediately

If choice D is selected set score to 1.

9. What is a grooved pulley?
- (A) Block
 - (B) Sheave
 - (C) Slip
 - (D) Reeve

If choice B is selected set score to 1.

10. If a MODU takes a sudden severe list or trim from an unknown cause, you should FIRST _____.

- (A) counterflood on the side opposite the list or trim
- (B) assume the shift is due to off-center loading
- (C) determine the cause before taking countermeasures
- (D) assume the cause is environmental forces

If choice C is selected set score to 1.

11. The DEEP DRILLER has a KGL of 53.16 feet while at a draft of 58.0 feet. Although there are no environmental forces, trim is 2.0 feet by the stern. What is the value of LCG?

- (A) 2.16 feet
- (B) 2.26 feet
- (C) 2.36 feet
- (D) 2.46 feet

If choice A is selected set score to 1.

12. The DEEP DRILLER, at 58.0 feet draft in sea water, places 275.8 long tons on board. What is the new draft?

- (A) 56 feet
- (B) 58 feet
- (C) 60 feet
- (D) 62 feet

If choice C is selected set score to 1.

13. The DEEP DRILLER is loaded as shown in the Sample Load Form #4 (Drilling). According to the deck load graph, how much additional deck load could be added on the unit?

- (A) 561.87 long tons
- (B) 461.87 long tons
- (C) 281.34 long tons
- (D) 192.59 long tons

If choice B is selected set score to 1.

14. Which of the following would be the most probable location to encounter explosive and flammable gasses on a MODU?

- (A) at any location
- (B) in machinery spaces
- (C) on the drill floor and liquid mud handling areas
- (D) in bulk storage tanks

If choice C is selected set score to 1.

15. 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) use the crossover system
- (D) abandon the rig

If choice A is selected set score to 1.

16. What is the length of the catenary when the DEEP DRILLER is anchored in 600 feet of water and the anchor line tension is 170 kips?

- (A) 891 feet
- (B) 1348 feet
- (C) 1493 feet
- (D) 1657 feet

If choice C is selected set score to 1.

17. Yawing can be described as _____.

- (A) jumping on the tow line as the rig pitches
- (B) jumping on the tow line as the rig slams into waves
- (C) veering from side to side on the end of the tow line
- (D) corkscrew motion due to wave action

If choice C is selected set score to 1.

18. The COASTAL DRILLER is elevated to an air gap of 25 feet in 250 feet of water. The current is 2 knots and the waves are 30 feet. The maximum leg reaction is 6,120 kips. What is the maximum wind for drilling operations?

- (A) 100 knots
- (B) 70 knots
- (C) 60 knots
- (D) 40 knots

If choice D is selected set score to 1.

19. The maximum draft to which a MODU can legally be submerged is indicated by the _____.

- (A) Certificate of Inspection
- (B) Tonnage mark
- (C) Load Line mark
- (D) Muster List ("Station Bill")

If choice C is selected set score to 1.

20. The DEEP DRILLER is loaded as shown in the Sample Load Form #1 (Transit). Weather conditions require ballasting to survival draft. Assume that 4087 long tons of ballast are added at an average VCG of 8.32 feet, and upon arrival at 45 feet, port and starboard ballast tanks 1, 3, and 8 are slack. What is the new KGL?

- (A) 51.65 feet
- (B) 52.67 feet
- (C) 55.16 feet
- (D) 62.24 feet

If choice C is selected set score to 1.

21. The COASTAL DRILLER is experiencing a single amplitude roll angle of 1 degree and a roll period of 7 seconds. What is the maximum recommended water depth for elevating?

- (A) 50 feet
- (B) 100 feet
- (C) 150 feet
- (D) 200 feet

If choice C is selected set score to 1.

22. For a semisubmersible moored in heavy weather conditions, the leeward lines should be paid out, and the windward lines adjusted so that _____.

- (A) the vertical component of chain tension at the lower fairlead is not excessive
- (B) the unit remains as close to the hole as possible
- (C) at least 1,000 feet of chain lie along the bottom
- (D) several weather lines carry about the same tension

If choice D is selected set score to 1.

23. What is the minimum required GMT for the DEEP DRILLER in winds less than 70 knots while at a draft of 60 feet?

- (A) 0.17 foot
- (B) 2.62 feet
- (C) 4.34 feet
- (D) 9.12 feet

If choice C is selected set score to 1.

24. While in transit, the DEEP DRILLER suffers flooding in the port pump room. Both port bilge pumps are inadequate to dewater the pump room. You may supplement the bilge pumps by using the _____.

- (A) starboard ballast pump and crossover system
- (B) port drill water pump
- (C) port saltwater service pump
- (D) starboard ballast pump

If choice B is selected set score to 1.

25. A jack-up 180 feet in length with the LCF at 120 feet AFO has a draft of 8 feet at the bow and 11 feet at the stern. What is the trim by the stern?

- (A) 2.0 feet
- (B) 2.4 feet
- (C) 3.0 feet
- (D) 6.0 feet

If choice C is selected set score to 1.

26. You are operating a liftboat. When jacking down and free of the bottom you should _____.

- (A) raise all legs simultaneously
- (B) have the crane standing upright
- (C) not be concerned about any list
- (D) raise one leg at a time

If choice A is selected set score to 1.

27. You are operating a liftboat. Before starting jacking operations you should _____.

- (A) have all personnel don life jackets
- (B) close the wheelhouse doors
- (C) put a watch in the engine room
- (D) put the crane in a vertical position

If choice A is selected set score to 1.

28. On a MODU, the deck stringer is the outboardmost deck _____.

- (A) plating
- (B) beam
- (C) stiffener
- (D) stanchion

If choice A is selected set score to 1.

29. Deck beams on a MODU are generally spaced at equal intervals and run _____.

- (A) transversely
- (B) vertically
- (C) intermittently
- (D) longitudinally

If choice A is selected set score to 1.

30. While the DEEP DRILLER is operating as shown in Sample Form #4 (Drilling), casing is accidentally dropped over the port side. If the port aft inclination is slowly increasing, which tank is probably damaged?

- (A) 10S
- (B) 1P
- (C) 10P
- (D) 9P

If choice C is selected set score to 1.

31. The rotary of the COASTAL DRILLER is located 36 feet aft of the transom and 6 feet to starboard of the centerline. The hook load is 300 kips. Considering the changes to lightweight shown in the Operating Manual, the maximum amount of setback is _____.

- (A) 545 kips
- (B) 450 kips
- (C) 245 kips
- (D) 224 kips

If choice D is selected set score to 1.

32. If a man falls overboard from a rig under tow, you should FIRST _____.

- (A) sound the general alarm
- (B) deploy life buoys
- (C) notify the tug
- (D) launch a boat

If choice B is selected set score to 1.

33. When hanging off drill pipe in emergency situations aboard a MODU, the preferred location of the drill bit is _____.

- (A) as close to the surface as possible
- (B) one stand (approximately 93 feet) off bottom
- (C) no deeper than the shoe of the last casing set
- (D) on bottom with the full drill string in tension

If choice C is selected set score to 1.

34. During severe storms when survival becomes a major concern, it may become necessary to relieve high anchor tensions on the windward side of the unit by _____.

- (A) ballasting the rig
- (B) paying out cable on the leeward side
- (C) paying out cable on the windward side
- (D) deballasting the rig

If choice B is selected set score to 1.

35. Failure of both port ballast pumps on the DEEP DRILLER prevents their use. To deballast from tank 1P, you may use the _____.

- (A) port saltwater service pump
- (B) port drill water pump
- (C) starboard ballast pump and the crossover system
- (D) port bilge pumps

If choice C is selected set score to 1.

36. Survival practice in the mooring system is to slack off the tensions on the leeward side and _____.

- (A) deballast the unit to transit draft
- (B) release the anchors on the windward side
- (C) tighten the anchor buoys on the leeward side anchors
- (D) adjust as evenly as practical the windward tensions

If choice D is selected set score to 1.

37. Individuals who have consumed alcohol within 24 hours prior to exposure to H₂S can tolerate which of the following?

- (A) smaller than normal concentrations of H₂S
- (B) unusually large concentrations of H₂S
- (C) moderate concentrations of H₂S without the usual reactions
- (D) longer exposure to H₂S concentrations

If choice A is selected set score to 1.

38. Accumulations of H₂S gas on a MODU can be dangerous. It is imperative that personnel know that H₂S gas possesses which of the listed characteristics?

- (A) a yellow gas that is easily recognized
- (B) heavier than air
- (C) mildly toxic
- (D) lighter than air

If choice B is selected set score to 1.

39. A series of trays with sieves that vibrate to remove cuttings from the circulating fluid in rotary drilling operations is called the _____.

- (A) desilter
- (B) desander
- (C) shale shaker
- (D) settling pit

If choice C is selected set score to 1.

40. The wire ropes of the riser tensioning system are attached to the _____.

- (A) ball joint
- (B) outer barrel of the telescoping joint
- (C) marine riser connector
- (D) inner barrel of the telescoping joint

If choice B is selected set score to 1.

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

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

If choice D is selected set score to 1.

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

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

If choice A is selected set score to 1.

43. The element used to keep weight on the bit at a constant value in spite of up-and-down movement of a MODU during floating drilling operations is the heave or drill string _____.

- (A) stabilizer
- (B) tensioner
- (C) compensator
- (D) equalizer

If choice C is selected set score to 1.

44. A casing string that is run below the previous casing string, but does not extend to the wellhead is called a _____.

- (A) squnch joint
- (B) liner
- (C) packer
- (D) production string

If choice B is selected set score to 1.

45. Compliance with the terms of the load line certificate on a MODU is the responsibility of the _____.

- (A) Operators representative
- (B) Ballast Control Operator
- (C) Barge Supervisor
- (D) Master or Offshore Installation Manager

If choice D is selected set score to 1.

46. Periodic surveys to renew the load line assignment for a MODU must be made at intervals not exceeding _____.

- (A) 18 months
- (B) 2 years
- (C) 3 years
- (D) 5 years

If choice D is selected set score to 1.

47. Each EPIRB shall be tested using the integrated test circuit and output indicator every _____.

- (A) week
- (B) month
- (C) two weeks
- (D) quarter

If choice B is selected set score to 1.

48. The required portable radio apparatus on an international voyage must be stowed in _____.

- (A) the ship's office
- (B) an unlocked cabinet next to the Muster List ("Station Bill")
- (C) the Master's quarters
- (D) the radio room, bridge, or protected location

If choice D is selected set score to 1.

49. On a MODU, where Must the fire control plan be posted?

- (A) Mess Area
- (B) Crew Lounge
- (C) Pilot house
- (D) None of the above

If choice C is selected set score to 1.

50. 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)

If choice A is selected set score to 1.