

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. Where will you find the requirements for the signals that must be sounded by a mobile offshore drilling unit that is being towed through an area of restricted visibility?

- (A) MMS Rules
- (B) COLREGS
- (C) SOLAS Convention
- (D) Coast Pilot

If choice B is selected set score to 1.

2. While preloading, the COASTAL DRILLER has a total weight of 21,401 kips. The LM are 2,560,416 ft-kips, and the TM are -6,206 ft-kips. What is the port leg reaction?

- (A) 7,099 kips
- (B) 7,134 kips
- (C) 7,151 kips
- (D) 7,203 kips

If choice D is selected set score to 1.

3. When preparing a MODU for heavy weather, fuel oil day tanks should be _____.

- (A) filled to ensure that sufficient fuel oil is available during a lengthy emergency
- (B) drained to the lower hull to reduce free surfaces
- (C) partially drained to increase free surfaces in order to reduce motions
- (D) pumped overboard to calm the seas

If choice A is selected set score to 1.

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

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

If choice D is selected set score to 1.

5. The airborne concentrations of substances (such as H₂S) under which nearly all workers may be repeatedly exposed without adverse effects defines which of the following phrases?

- (A) threshold limit values
- (B) concentration limits
- (C) exposure limits
- (D) substance limit values

If choice A is selected set score to 1.

6. Each life jacket light that has a non-replaceable power source must be replaced _____.

- (A) every 12 months after initial installation
- (B) every 6 months after initial installation
- (C) every 24 months after initial installation
- (D) on or before the expiration date of the power source

If choice D is selected set score to 1.

7. When leveling the elevated COASTAL DRILLER, you may raise the low corner instead of lowering the high corner _____.

- (A) in all cases, it is optional
- (B) if proper air gap has been exceeded
- (C) if a potential punch-through threatens
- (D) if lowering the high corner places the unit in the wave action

If choice D is selected set score to 1.

8. If the result of loading a MODU is an increase in the height of the center of gravity, there will always be an increase in the _____.

- (A) metacentric height
- (B) righting moment
- (C) righting arm
- (D) vertical moments

If choice D is selected set score to 1.

9. The series of valves used to control the return flow in well control operations is called the _____.

- (A) accumulator manifold
- (B) valve assembly
- (C) choke manifold
- (D) standpipe manifold

If choice C is selected set score to 1.

10. The COASTAL DRILLER is loaded as shown in the Sample Load Form Number 1 (Rig Move). If the contents of 6 and 7 drill water tanks are discharged, what is the new height of the center of gravity corrected for longitudinal free surface effects?

- (A) 48.41 feet
- (B) 49.16 feet
- (C) 50.79 feet
- (D) 51.40 feet

If choice C is selected set score to 1.

11. A load line is assigned to a MODU to insure adequate stability and _____.

- (A) structural strength
- (B) mooring tension
- (C) riser tension
- (D) lifesaving equipment

If choice A is selected set score to 1.

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

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

If choice D is selected set score to 1.

13. Stanchions prevent the entire deck load on a MODU from being carried by the _____.

- (A) bulkheads
- (B) stringers
- (C) frames and beam brackets
- (D) deck longitudinals

If choice C is selected set score to 1.

14. The total leg load reactions on an independent leg, self-elevating unit include static and _____.

- (A) basic loading
- (B) environmental loading
- (C) variable loading
- (D) fixed loading

If choice B is selected set score to 1.

15. An elevated jack-up weighs 14,000 kips. Its TCG is located 1.0 foot to starboard of the centerline. What would be the new TCG for the jack-up if the drill floor, weighing 700 kips, is skidded 10 feet to port?

- (A) 9.00 feet port
- (B) 0.50 foot starboard
- (C) 0.50 foot port
- (D) 1.00 foot port

If choice B is selected set score to 1.

16. The size of fire hydrant hose connections on a cargo vessel must be either 1-1/2 inches or _____.

- (A) 1 inch
- (B) 2-1/2 inches
- (C) 3 inches
- (D) 3-1/2 inches

If choice B is selected set score to 1.

17. While the DEEP DRILLER is loaded as shown in Sample Form #4 (Drilling), casing is accidentally dropped over the port side. Because the tank sounding level and port forward inclination are rapidly increasing, you decide that tank 1P is damaged. Your best countermeasure is to _____.

- (A) counterflood into C3S
- (B) counterflood into 9S
- (C) dump the mud
- (D) deballast from tank 2P

If choice D is selected set score to 1.

18. The COASTAL DRILLER has sufficient reserve stability to overcome damage due to flooding of any one watertight compartment in winds to _____.

- (A) 36 knots
- (B) 50 knots
- (C) 70 knots
- (D) 100 knots

If choice B is selected set score to 1.

19. 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) tensioner
- (B) equalizer
- (C) stabilizer
- (D) compensator

If choice D is selected set score to 1.

20. In plugging submerged holes on a MODU, rags, wedges, and other materials should be used in conjunction with plugs to _____.

- (A) prevent progressive flooding
- (B) reduce the possibility of stress fractures
- (C) reduce the water leaking around the plugs
- (D) reduce the water pressure on the hull

If choice C is selected set score to 1.

21. 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) unexpected list and trim exist
- (D) deballasting

If choice A is selected set score to 1.

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

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

If choice D is selected set score to 1.

23. When a MODU is afloat in equilibrium, the horizontal component of mooring line tensions should equal _____.

- (A) weight forces
- (B) buoyancy forces
- (C) environmental forces
- (D) drilling forces

If choice C is selected set score to 1.

24. The DEEP DRILLER is under tow at a 20 foot draft The rig motions are close to exceeding the limits for critical pitch and roll. The rig is also experiencing occasional pounding on the horizontal braces. In this situation you should _____.

- (A) wait until pitch and roll exceed the limits before ballasting down
- (B) ballast up to a 15 foot draft and check vessel motions
- (C) shorten the tow wire for a smoother tow
- (D) ballast down to a 45 foot draft and check vessel motions

If choice D is selected set score to 1.

25. Curve B in the Design Limits of Legs Chart of the Coastal Driller Operating Manual, shows the operating limits during normal transit based on _____.

- (A) leg strength
- (B) environmental load
- (C) load line
- (D) variable load

If choice A is selected set score to 1.

26. 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.

27. Among the equipment included in the DEEP DRILLER lightweight are the loading hoses, derrick, traveling block in the lowest position, anchors, all machinery with liquids to normal operating level, and _____.

- (A) normal food supplies for 79 persons
- (B) lower hull fuel
- (C) eight anchor buoys
- (D) mooring chain

If choice D is selected set score to 1.

28. The DEEP DRILLER is loaded as shown in the Sample Load Form #2 (Ballasting to Survival). What is the new draft if all the bulk materials are discharged?

- (A) 36.23 feet
- (B) 44.27 feet
- (C) 45.73 feet
- (D) 53.77 feet

If choice B is selected set score to 1.

29. The edge of a hurricane has overtaken your MODU in the Gulf of Mexico and the northwest wind of a few hours ago has shifted to the west. This is an indication that you are located in the _____.

- (A) dangerous semicircle
- (B) navigable semicircle
- (C) eye of the storm
- (D) low pressure area

If choice B is selected set score to 1.

30. Sea water remaining in the preload tanks of the COASTAL DRILLER after the preload has been dumped shall be entered in the load form as _____.

- (A) preload
- (B) liquid variable load
- (C) basic load
- (D) fixed load

If choice B is selected set score to 1.

31. What fitting should you install in the rig piping to a pump to facilitate disconnecting the pump for servicing?

- (A) Union
- (B) Flange
- (C) Coupling
- (D) Nipple

If choice A is selected set score to 1.

32. The distance from the still water level (corrected for tides and storm surge) to the bottom of the hull of a MODU is the _____.

- (A) water depth
- (B) penetration
- (C) freeboard
- (D) air gap

If choice D is selected set score to 1.

33. If you see someone fall overboard from a MODU, you should _____.

- (A) call for help and keep the individual in sight
- (B) go to the control room for the distress flares
- (C) run to the radio room to send an emergency message
- (D) immediately jump in the water to help the individual

If choice A is selected set score to 1.

34. What effect is achieved from soaking an anchor?

- (A) It allows the bottom soil to consolidate.
- (B) It lubricates the anchor for better tripping.
- (C) It gives the palms time to trip the anchor.
- (D) It stabilizes the mooring system.

If choice A is selected set score to 1.

35. What additional precautions should be taken when making temporary repairs to a MODU that is operating when hydrogen sulfide is present?

- (A) Remove all bulk materials from the P-tanks.
- (B) Seal off all tank and compartment ventilation.
- (C) Provide respiratory protection and monitoring.
- (D) All of the above

If choice C is selected set score to 1.

36. In the piping systems of a MODU, what type of valve gives the least resistance to fluid flow when fully open?

- (A) Globe valve
- (B) Packless valve
- (C) Butterfly valve
- (D) Gate valve

If choice D is selected set score to 1.

37. What is the chief advantage of an SCR or AC-DC system over a straight DC system for powering drilling rig machinery?

- (A) Several machines can be operated from a DC bus.
- (B) Commutators are eliminated.
- (C) Required power can be drawn from a common AC bus.
- (D) SCR systems are simpler.

If choice C is selected set score to 1.

38. 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 new TCG?

- (A) -0.26 foot
- (B) -0.46 foot
- (C) 0.46 foot
- (D) 0.61 foot

If choice C is selected set score to 1.

39. What is the lightweight of the DEEP DRILLER?

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

If choice B is selected set score to 1.

40. The sounding in fuel oil tank 4P on the DEEP DRILLER is 8.75 feet. What are the longitudinal moments for this amount of fuel?

- (A) -17,416 ft-long tons
- (B) -874 ft-long tons
- (C) 3,992 ft-long tons
- (D) 17,416 ft-long tons

If choice C is selected set score to 1.

41. A continuous watertight bulkhead on a MODU is normally also a(n) _____.

- (A) centerline bulkhead
- (B) exterior bulkhead
- (C) structural bulkhead
- (D) joiner bulkhead

If choice C is selected set score to 1.

42. 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.

43. 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) gross tonnage
- (B) fixed load
- (C) variable load
- (D) basic load

If choice C is selected set score to 1.

44. To assure safe boarding and launching of a davit-launched liferaft from a MODU, preparation should include which of the following choices?

- (A) testing to assure that the required lamps are functioning properly
- (B) load testing the davit arm and the painter system
- (C) removing any side protective rails and checking that the overside and surface level are clear
- (D) testing the spring loaded drum to assure it will retract the fall release hook

If choice C is selected set score to 1.

45. Aboard the DEEP DRILLER, the drill water pump may be used to provide drill water to the deck and _____.

- (A) supplement the bilge pumps
- (B) provide saltwater service to the deck
- (C) emergency fuel-oil recovery
- (D) supplement the ballast pumps

If choice A is selected set score to 1.

46. On a MODU, the possibility of a blowout makes which type of diesel engine shutdown desirable?

- (A) Air inlet shut-off valve
- (B) Overspeed trip
- (C) Water injector
- (D) Fuel cutoff valve

If choice A is selected set score to 1.

47. The person in charge shall insure that each lifeboat on a MODU is lowered to the water, launched, and operated at least once every _____.

- (A) month
- (B) 2 months
- (C) 3 months
- (D) 6 months

If choice C is selected set score to 1.

48. When removing the cap from a sounding tube on a MODU, the sound of air escaping indicates the tank _____.

- (A) may be partially flooded
- (B) is full
- (C) level has dropped
- (D) is completely flooded

If choice A is selected set score to 1.

49. During the passage of a severe storm, the DEEP DRILLER is at survival draft. Strong winds are blowing from the starboard. A careful load form calculation determined that, although the unit is level, the TCG is 2.0 feet to starboard. The value of the wind heeling moment is _____.

- (A) 40,402 ft-long tons
- (B) 32,099 ft-long tons
- (C) 21,343 ft-long tons
- (D) 19,982 ft-long tons

If choice B is selected set score to 1.

50. While drilling loaded as shown in Sample Load Form Number 4 (Drilling), the DEEP DRILLER suffers an unexpected but slowly increasing starboard and aft inclination. The wind and waves are light. This inclination could have been caused by _____.

- (A) the drill string breaking
- (B) ballast tanks equalizing into tank 10S
- (C) the drilling crew dumping the mud
- (D) the failure of mooring lines 6 and 7

If choice B is selected set score to 1.