

U.S.C.G. Merchant Marine Exam
Mobile Offshore Drilling Units
Q434 OIM - Bottom Bearing Units Underway
(Sample Examination)

Choose the best answer to the following Multiple Choice Questions.

1. The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). If the entire contents of the port pipe rack are back-loaded to an offshore supply vessel, how much drill water would have to be transferred from tank #1 to tank #26 to level the vessel in trim?
- (A) 114.9 kips
 - (B) 111.4 kips
 - (C) 64.4 kips
 - (D) 62.7 kips

If choice A is selected set score to 1.

2. When the wave period and the apparent rolling period of the MODU are the same _____.
- (A) roll period increases
 - (B) synchronous rolling occurs
 - (C) roll period decreases
 - (D) roll amplitude is dampened

If choice B is selected set score to 1.

3. The COASTAL DRILLER, while drilling, has a total weight of 15,400 kips. The LCG is 120.00 feet AF0, and the TCG is -0.5 foot to port of the centerline. What is the starboard leg reaction?
- (A) 4,956 kips
 - (B) 5,063 kips
 - (C) 5,104 kips
 - (D) 5,233 kips

If choice C is selected set score to 1.

4. A jack-up 210 feet in length is level during transit. The LCF is 140 feet aft of the bow. How much weight should be applied at the bow to level the jack-up if 150 kips are loaded at the transom?
- (A) 50 kips
 - (B) 75 kips
 - (C) 100 kips
 - (D) 200 kips

If choice B is selected set score to 1.

5. 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.

6. The COASTAL DRILLER, while in normal transit, experiences a single amplitude roll of 6 degrees. What is the minimum roll period which does not exceed design limits of the legs?
- (A) 10.5 seconds
 - (B) 8.0 seconds
 - (C) 4.5 seconds
 - (D) 1.0 second

If choice B is selected set score to 1.

7. What information must be available to use the Allowable Wind and Wave Charts for the COASTAL DRILLER?
- (A) Soil conditions
 - (B) Water depth
 - (C) Specific gravity of the sea water
 - (D) Overturning moment

If choice B is selected set score to 1.

8. For a MODU with transverse inclination, an increase in GMT causes _____.
- (A) list to decrease
 - (B) list to increase
 - (C) trim to decrease
 - (D) list to stabilize at an angle of loll

If choice A is selected set score to 1.

9. The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). What is the value of KML if the entire contents of drill water tanks 6 and 7 are discharged?
- (A) 253.90 feet
 - (B) 253.24 feet
 - (C) 252.92 feet
 - (D) 252.24 feet

If choice C is selected set score to 1.

10. Among the possible causes of unexpected rapid increasing inclination of the floating COASTAL DRILLER is _____.

- (A) miscalculation of loads
- (B) consumption of on board liquids
- (C) external environmental forces
- (D) flooding due to hull damage

If choice D is selected set score to 1.

11. Adding the longitudinal free surface correction to the uncorrected height of the center of gravity of a MODU yields _____.

- (A) KGL
- (B) GML
- (C) KG
- (D) FSCL

If choice A is selected set score to 1.

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

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

If choice B is selected set score to 1.

13. A jack-up with a calculated moment to change list one inch (MCL1") of 1,200 foot-kips intends to transfer 100 kips of weight in a transverse direction. How far should the weight be transferred to change the draft on the port side from 11.5 to 11.0 feet?

- (A) 12 feet
- (B) 48 feet
- (C) 120 feet
- (D) 144 feet

If choice D is selected set score to 1.

14. On the COASTAL DRILLER, the level of water in each of two pump bilge pits is monitored by hydrostatic alarm switches connected to a remote panel located in the _____.

- (A) OIM's quarters
- (B) OIM's office
- (C) control house
- (D) SCR room

If choice B is selected set score to 1.

15. A flooded leg on a liftboat would adversely affect the vessel's stability underway by _____.

- (A) increasing the reserve buoyancy
- (B) increasing the righting moment
- (C) shifting the CG (center of gravity) off center
- (D) decreasing the vessel's displacement

If choice C is selected set score to 1.

16. Which type of hull damage on a floating MODU should be repaired first?

- (A) Damage at or just above the waterline
- (B) Damage to interior watertight boundaries
- (C) Damage below the waterline
- (D) Damage to/in machinery rooms

If choice A is selected set score to 1.

17. While in ocean transit, the COASTAL DRILLER has a roll period of four seconds. What would be the largest angle each side of vertical that does not exceed the design limit of the legs?

- (A) 6.3 degrees
- (B) 5.0 degrees
- (C) 3.5 degrees
- (D) 2.0 degrees

If choice D is selected set score to 1.

18. On board a mobile offshore drilling unit, the key to the most rapid and effective response to a man overboard situation is _____.

- (A) good communication
- (B) well-conducted drills
- (C) good equipment
- (D) a dedicated crew

If choice B is selected set score to 1.

19. A construction portfolio prepared for each new offshore drilling unit must be approved by the _____.

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

If choice C is selected set score to 1.

20. The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). What is the new VCG if the entire contents of drill water tanks 6 and 7 are discharged?

- (A) 38.00 feet
- (B) 48.38 feet
- (C) 49.16 feet
- (D) 65.00 feet

If choice C is selected set score to 1.

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

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

If choice D is selected set score to 1.

22. For a jack-up, the angle of maximum stability corresponds approximately to the angle of _____.

- (A) loll
- (B) deck edge immersion
- (C) the load line
- (D) downflooding

If choice B is selected set score to 1.

23. Scouring is the result of _____.

- (A) extracting legs from soils with high cohesion
- (B) interruption of the normal current flow by the footing
- (C) penetrating rapidly through a hard crust into weaker soils
- (D) elevating in mud-slide zones

If choice B is selected set score to 1.

24. Each person on the rig has a designated area to proceed to in the event of a fire. This assignment is shown clearly on which of the following documents?

- (A) Certificate of Inspection
- (B) firefighting plan
- (C) shipping articles
- (D) Muster List ("Station Bill")

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

If choice D is selected set score to 1.

26. The COASTAL DRILLER has a trim of 2.13 feet by the stern. The draft in sea water at the forward draft marks is observed to be 8.0 feet. The KMT is _____.

- (A) 153.73 feet
- (B) 160.42 feet
- (C) 179.41 feet
- (D) 203.97 feet

If choice A is selected set score to 1.

27. Who is responsible for lowering the survival craft?

- (A) First man aboard
- (B) Last man aboard
- (C) Roustabout
- (D) Helmsman

If choice D is selected set score to 1.

28. What danger is presented if a waterspout passes over a MODU?

- (A) Personnel may be injured by loose deck gear blown by the wind.
- (B) Visibility could be restricted by low clouds.
- (C) Heavy rains could cause downflooding.
- (D) Large waves could cause structural damage.

If choice A is selected set score to 1.

29. While on a normal tow, the COASTAL DRILLER is threatened with the approach of a severe storm. Including the time required to place the generators on-line, the approximate time required to lower the legs from a TOC (tip-of-can) position of 1.20 feet to 60.50 feet is _____.

- (A) 8 minutes
- (B) 32 minutes
- (C) 47 minutes
- (D) 55 minutes

If choice D is selected set score to 1.

30. To determine the number of inflatable liferafts required on a mobile offshore drilling unit, you should check the _____.

- (A) Operations Manual
- (B) Certificate of Inspection
- (C) load line certificate
- (D) stability letter

If choice B is selected set score to 1.

31. 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

If choice A is selected set score to 1.

32. 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 transverse free surface effects?

- (A) 47.49 feet
- (B) 49.16 feet
- (C) 50.82 feet
- (D) 50.93 feet

If choice C is selected set score to 1.

33. While in 150 feet water depth when the pitch angle of the COASTAL DRILLER is 1 degree, the platform pitch period for going on location should be longer than _____.

- (A) 0.2 second
- (B) 3.2 seconds
- (C) 7.0 seconds
- (D) 9.2 seconds

If choice C is selected set score to 1.

34. The International Oil Pollution Prevention (IOPP) Certificate required by MARPOL is issued to U.S. flag MODUs by the _____.

- (A) International Maritime Organization
- (B) Environmental Protection Agency
- (C) American Bureau of Shipping
- (D) U.S. Coast Guard

If choice D is selected set score to 1.

35. On the machinery deck of the COASTAL DRILLER, each watertight compartment has at least one sump valve that can be remotely operated from the _____.

- (A) bilge pit
- (B) OIM's office
- (C) OIM's quarters
- (D) control house

If choice A is selected set score to 1.

36. The number of certificated able seamen and lifeboatmen required on a MODU is determined by the _____.

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

If choice D is selected set score to 1.

37. The COASTAL DRILLER, when underway was loaded as shown in Sample Load Form #1 (Rig Move). It is now preloaded at minimum air gap waiting for all settling to take place. The preload, weighing 7,191.7 kips, has LM 870,196 ft-kips and TM 2,158 ft-kips. What is the starboard leg reaction?

- (A) 7,026 kips
- (B) 7,099 kips
- (C) 7,144 kips
- (D) 7,180 kips

If choice D is selected set score to 1.

38. In MODU construction, beams are transverse girders which provide support to _____.

- (A) decks
- (B) bulkheads
- (C) vertical frames
- (D) deckhouse structures

If choice A is selected set score to 1.

39. The COASTAL DRILLER is in transit at a draft of 10.0 feet. It loads 216.43 kips of weight aboard. What is the new draft?

- (A) 10.2 feet
- (B) 10 feet 2 inches
- (C) 10 feet 3 inches
- (D) 10 feet 4 inches

If choice B is selected set score to 1.

40. The COASTAL DRILLER, with a draft of 10 feet 3 inches in seawater, has a displacement of _____.

- (A) 13,011 kips
- (B) 13,336 kips
- (C) 13,445 kips
- (D) 14,637 kips

If choice B is selected set score to 1.

41. An integral part of a blowout preventer that serves as the closing element on an open hole, and whose ends do not fit around the drill pipe but seal against each other and shut off the space below completely is the _____.

- (A) shear ram
- (B) blind ram
- (C) pipe ram
- (D) annular ram

If choice B is selected set score to 1.

42. The person in charge of a mobile offshore drilling unit must insure that _____.

- (A) the date and hour of each fire drill is recorded in the log
- (B) each bilge pump is operated at least once a week
- (C) whistles and general alarm bells are tested once each day
- (D) all personnel are provided with work vests

If choice A is selected set score to 1.

43. What is the VCG of the drill water in the COASTAL DRILLER's #1 Drill Water Tank, if the weight in the tank is 388.32 kips?

- (A) 7.25 feet
- (B) 7.50 feet
- (C) 7.75 feet
- (D) 8.00 feet

If choice C is selected set score to 1.

44. The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). While in field transit, the wind speeds are predicted to increase above 70 knots. What would be the new KGL if the legs are lowered to the recommended value?

- (A) 50.65 feet
- (B) 37.00 feet
- (C) 36.53 feet
- (D) 13.65 feet

If choice B is selected set score to 1.

45. The maximum draft to which a drilling unit may be safely loaded is called _____.

- (A) calculated draft
- (B) load line draft
- (C) deep draft
- (D) mean draft

If choice B is selected set score to 1.

46. 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) Master or Offshore Installation Manager
- (D) Barge Supervisor

If choice C is selected set score to 1.

47. What is the sounding in drill water tank #1 for the COASTAL DRILLER, if the weight of drill water in the tank is 388.32 kips?

- (A) 14.5 feet
- (B) 15.0 feet
- (C) 15.5 feet
- (D) 16.0 feet

If choice C is selected set score to 1.

48. Among the possible causes of unexpected constant inclination of the floating COASTAL DRILLER is _____.

- (A) liquid transfer through open valves
- (B) flooding due to hull damage
- (C) miscalculation of loads
- (D) consumption of on board liquids

If choice C is selected set score to 1.

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

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

If choice C is selected set score to 1.

50. When cargo aboard a jack-up in transit becomes adrift, the tow vessel should be asked to _____.

- (A) turn to be parallel to the seas
- (B) reduce speed
- (C) turn into the seas
- (D) increase speed

If choice C is selected set score to 1.