

U.S.C.G. Merchant Marine Exam  
Mobile Offshore Drilling Units  
Q438 Barge Supervisor – MODU Operations  
(Sample Examination)

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

1. On the COASTAL DRILLER, the maximum aft extension of the cantilever places the rotary \_\_\_\_\_.

- A. 68.33 feet aft of the transom
- B. 40.00 feet aft of the transom
- C. 38.33 feet aft of the transom
- D. 28.33 feet aft of the transom

Correct answer: B

2. The height of the transverse metacenter of the Coastal Driller at a displacement of 13,050 kips is \_\_\_\_\_.

- A. 143.81 feet
- B. 144.61 feet
- C. 144.93 feet
- D. 145.73 feet

Correct answer: C

3. While being towed at a 19.5 foot draft, the DEEP DRILLER experiences single amplitude rolls of 10° with a period of 8 seconds. You should \_\_\_\_\_.

- A. ballast the rig to a 60 foot draft and continue towing operations
- B. alter course to bring the wind off the starboard beam
- C. ballast the rig to a 45 foot draft and check the vessel motions
- D. continue towing operations at a 19.5 foot draft

Correct answer: C

4. The COASTAL DRILLER's ability to meet the damage stability criteria depends on maintaining a watertight integrity, KGL and KGT less than maximum allowed, level attitude, and displacement less than \_\_\_\_\_.

- A. 11,777 kips
- B. 13,158 kips
- C. 14,158 kips
- D. 17,280 kips

Correct answer: C

5. The DEEP DRILLER, at 60.0 feet draft in sea water, discharges 275.8 long tons. What is the new draft?

- A. 56 feet
- B. 58 feet
- C. 60 feet
- D. 62 feet

Correct answer: B

6. Accumulations of H<sub>2</sub>S gas on a MODU can be dangerous. It is imperative that personnel know that H<sub>2</sub>S gas possesses which of the listed characteristics?
- A. a yellow gas that is easily recognized
  - B. mildly toxic
  - C. heavier than air
  - D. lighter than air

Correct answer: C

7. Fighting a rig fire in the ballast pumproom with hoses would adversely affect the stability of the rig most by \_\_\_\_\_.
- A. a reduced KG caused by water filling the compartment
  - B. increasing the permeability of the pumproom
  - C. reduction of drill water from the storage tanks
  - D. a list caused by water filling the compartment

Correct answer: D

8. What is the ullage in P-Tank #4 of the DEEP DRILLER if the weight is 75.24 long tons?
- A. 4.0 feet
  - B. 5.0 feet
  - C. 10.2 feet
  - D. 16.0 feet

Correct answer: A

9. While elevated, the COASTAL DRILLER prepares for a severe storm. When the setback is lowered and placed in the pipe racks, it is considered as part of the \_\_\_\_\_.
- A. storm loads
  - B. variable loads
  - C. fixed loads
  - D. basic loads

Correct answer: B

10. The DEEP DRILLER is loaded as shown in the Sample Load Form #4 (Drilling). What would be the weight of the mud in pit #4 if the sounding level changed from 8 to 6 feet?
- A. 80.00 long tons
  - B. 77.75 long tons
  - C. 83.34 long tons
  - D. 106.67 long tons

Correct answer: A

11. The COASTAL DRILLER is observed to be level at a draft of 10 feet 6 inches. At the same time, the calculated load form shows the displacement to be 13,445 kips, total longitudinal moments 1,613,466 foot-kips, and total transverse moments -10,000 foot-kips. What is the transverse location of the missing load?
- A. 46 feet port of the centerline
  - B. 46 feet starboard of the centerline
  - C. 84 feet port of the centerline
  - D. 84 feet starboard of the centerline

Correct answer: B

12. A semisubmersible displacing 700,000 cubic feet while floating in sea water (64 pounds per cubic foot) weighs \_\_\_\_\_.
- A. 8,929 long tons
  - B. 19,509 long tons
  - C. 20,000 long tons
  - D. 24,500 long tons

Correct answer: C

13. A weight of 1,000 kips is equivalent to \_\_\_\_\_.
- A. 1,000 pounds
  - B. 2,000 short tons
  - C. 2,240 pounds
  - D. 500 short tons

Correct answer: D

14. Subtracting the height of the center of gravity corrected for transverse free surface effects from the height of the transverse metacenter of a MODU yields \_\_\_\_\_.
- A. KMT
  - B. KGT
  - C. GM
  - D. GMT

Correct answer: D

15. Aboard the DEEP DRILLER, to use the drill water pump to supplement the bilge pumps, it is necessary to open valves 26 and \_\_\_\_\_.
- A. 41
  - B. 29
  - C. 28
  - D. 25

Correct answer: C

16. Survival practice in the mooring system is to slack off the tensions on the leeward side and \_\_\_\_\_.

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

Correct answer: A

17. A tropical storm is building strength some distance from your MODU. Waves are coming from the east, with periods increasing from 5 seconds to 15 seconds. The swell is from the east. Where was the storm when these new swells were generated?

- A. To the west of you
- B. To the east of you
- C. To the south of you
- D. To the north of you

Correct answer: B

18. It is vital to the safety of the elevated COASTAL DRILLER that the hull be kept above \_\_\_\_\_.

- A. wave action
- B. the charted water depth
- C. the charted water depth plus tidal corrections
- D. the still water level

Correct answer: A

19. The COASTAL DRILLER, loaded as shown in the Sample Load Form #2 (Preload), dumps the preload. However, 138.4 kips remained on board. The LM for the remaining preload is 17,992 ft-kips. What is the new LCG?

- A. 119.33 feet AFO
- B. 119.44 feet AFO
- C. 119.54 feet AFO
- D. 119.66 feet AFO

Correct answer: C

20. 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

Correct answer: C

21. Lighter longitudinal stiffening frames on the MODU side plating are called \_\_\_\_\_.

- A. side frames
- B. stringers
- C. intercostals
- D. side stiffeners

Correct answer: B

22. 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. in bulk storage tanks
- D. on the drill floor and liquid mud handling areas

Correct answer: D

23. 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. equalizer
- B. tensioner
- C. compensator
- D. stabilizer

Correct answer: C

24. When may a fire pump installed on a MODU be used for other purposes?

- A. When one of the required pumps is kept available for use on the fire main system at all times
- B. Only when the other services are run off a reducing station with a pressure gage
- C. Only when no relief valves are installed in the system
- D. When all of the above conditions are met

Correct answer: A

25. 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. 1S
- B. 10P
- C. 2S
- D. C1S

Correct answer: A

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

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

Correct answer: D

27. Given the same water depth and mooring tension, the holding power of a 90 pound/foot chain mooring system in comparison to the holding power of a 19 pound/foot wire rope mooring line will be \_\_\_\_\_.

- A. weaker
- B. indeterminable
- C. greater
- D. equal

Correct answer: C

28. Among the possible causes of unexpected rapidly increasing inclination of the DEEP DRILLER while in transit is \_\_\_\_\_.

- A. external environmental forces
- B. miscalculation of loads
- C. consumption of on-board variables
- D. flooding due to lower-hull damage

Correct answer: D

29. The effect of ocean currents is usually more evident on a rig being towed than on a tug navigating independently because the \_\_\_\_\_.

- A. current causes yawing
- B. current will offset the rig
- C. tow line catches the current
- D. speed of the tow is less

Correct answer: D

30. 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

31. 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

32. The platform that supports the derrickman when tripping pipe is called the \_\_\_\_\_.

- A. Texas deck
- B. stabbing board
- C. monkey board
- D. water table

Correct answer: C

33. The DEEP DRILLER is loaded as shown in Sample Load Form #4 (Drilling). While the unit is deballasting, starboard valve 17 fails in the closed position. You may deballast from tank 8S by pumping from tank 9S and opening valves 18 and \_\_\_\_\_.

- A. 35
- B. 21
- C. 20
- D. 17

Correct answer: C

34. While loaded as shown in the DEEP DRILLER Sample Load Form #3 (Preparing to Drill), all of the casing is discharged. What is the change in LCG?

- A. 0.45 foot
- B. -0.45 foot
- C. -1.78 feet
- D. -2.68 feet

Correct answer: B

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

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

Correct answer: D



36. Which record must be retained on board after a report of casualty to a MODU?

- A. Preventive maintenance log
- B. Oil Record Book
- C. Repair record book
- D. Storage plans

Correct answer: D

37. The regulations regarding Oil Record Books do not apply to MODU's that \_\_\_\_\_.

- A. have a valid National Pollutant Discharge Elimination System permit
- B. are on a voyage of more than 24 hours
- C. have a valid International Oil Pollution Prevention Certificate
- D. are on an international voyage

Correct answer: A

38. When extracting the legs from the soil, the hull of the COASTAL DRILLER may be pulled down until the draft is \_\_\_\_\_.

- A. one foot deeper than calculated afloat draft
- B. one foot deeper than maximum load line draft
- C. one foot less than maximum load line draft
- D. at the maximum load line draft

Correct answer: A

39. While the COASTAL DRILLER is in transit, stability is acceptable provided that neither the KGL nor the KGT exceed \_\_\_\_\_.

- A. KML or KMT
- B. maximum allowable KG
- C. GML or GMT
- D. the height of the righting arm

Correct answer: B

40. What is the change in longitudinal moments for the Coastal Driller if 2.5 feet of drill water is discharged from drill water tank 23?

- A. 1,671 ft-kips
- B. -161 ft-kips
- C. -4,708 ft-kips
- D. -20,052 ft-kips

Correct answer: D

41. A jack-up displacing 350,000 cubic feet while floating in sea water (64 pounds per cubic foot) weighs \_\_\_\_\_.

- A. 18,169 kips
- B. 10,000 kips
- C. 22,400 kips
- D. 21,841 kips

Correct answer: C

42. In case of damage to the DEEP DRILLER on location, the immediate objective is to reduce the unexpected inclination and return the unit to \_\_\_\_\_.

- A. survival draft
- B. drilling
- C. near its original draft
- D. nearest sheltered port

Correct answer: C

43. A virtual rise in the center of gravity of a MODU may be caused by \_\_\_\_\_.

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

Correct answer: A

44. In an emergency, if you must jump from a MODU, what is the best procedure to follow?

- A. knees bent and held close to the body with both arms around legs
- B. both hands holding the life preserver below the chin, with knees bent, and legs crossed
- C. body straight and arms held tightly at the sides for feet first entry into the water
- D. holding down the life preserver against the chest with one arm crossing the other, covering the mouth and nose with a hand, and feet together

Correct answer: D

45. If the maximum amount of weight is stored in the pipe racks of the DEEP DRILLER, what is the weight per square foot?

- A. 250.0 pounds per square foot
- B. 312.5 pounds per square foot
- C. 350.0 pounds per square foot
- D. 400.0 pounds per square foot

Correct answer: C

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

- A. 5,996 foot-tons
- B. 1,688 foot-tons
- C. 495 foot-tons
- D. 115 foot-tons

Correct answer: B

47. When the COASTAL DRILLER is loaded as shown in the sample load form Number 3 (drilling), the hook load is placed in the pipe racks. What would be the new variable load?

- A. 2,381.0 kips
- B. 3,381.0 kips
- C. 3,658.8 kips
- D. 4,381.0 kips

Correct answer: C

48. 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 longitudinal free surface correction is \_\_\_\_\_.

- A. 0.90 foot
- B. 0.83 foot
- C. 0.57 foot
- D. 0.49 foot

Correct answer: D

49. The two factors which make underwater hull repair of a MODU difficult are accessibility and the \_\_\_\_\_.

- A. threat of progressive flooding
- B. shape of the hull
- C. availability of tools
- D. pressure exerted by the water

Correct answer: D

50. With a rig in tow, there is immediate danger to the tug in the event of the \_\_\_\_\_.

- A. bridle twisting
- B. tow line parting
- C. tug losing power
- D. rig broaching

Correct answer: C