

U.S.C.G. Merchant Marine Exam
Mobile Offshore Drilling Units
Q435 OIM Bottom Bearing Units on Location
(Sample Examination)

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

1. If a man falls overboard from a rig under tow, you should FIRST _____.
- A. sound the general alarm
 - B. launch a boat
 - C. notify the tug
 - D. deploy life buoys

Correct answer: D

2. When a wind force causes a floating MODU to heel to a static angle, the _____.
- A. deck-edge immersion occurs
 - B. downflooding point is below water
 - C. righting moment equals the wind-heeling moment
 - D. centers of buoyancy and gravity are in the same vertical line

Correct answer: C

3. The COASTAL DRILLER is drilling while weighing 15,436 kips. LM are 2,006,680 ft-kips, and TM are -7,718 ft-kips. What is the port leg reaction?
- A. 3,806 kips
 - B. 5,751 kips
 - C. 5,879 kips
 - D. 7,549 kips

Correct answer: C

4. A hydraulic accumulator aboard a MODU is designed to _____.
- A. provide overpressure relief
 - B. replenish fluid to a system
 - C. act as a fluid reservoir
 - D. store fluid under pressure

Correct answer: D

5. When hanging off drill pipe in emergency situations aboard a MODU, the preferred location of the drill bit is _____.
- A. no deeper than the shoe of the last casing set
 - B. one stand (approximately 93 feet) off bottom
 - C. as close to the surface as possible
 - D. on bottom with the full drill string in tension

Correct answer: A

6. 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

7. For a MODU with trim, a decrease in GMT will cause the angle of inclination to _____.
- A. increase
 - B. remain constant
 - C. decrease
 - D. stabilize at an angle of loll

Correct answer: A

8. If a severe storm threatens the COASTAL DRILLER while elevated, the setback in the derrick should be lowered and placed in the pipe rack. Its weight should be accounted for as _____.
- A. drilling loads
 - B. fixed weight
 - C. variable loads
 - D. environmental loads

Correct answer: C

9. 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. Bureau of Ocean Energy Management
 - C. U.S. Coast Guard
 - D. American Bureau of Shipping

Correct answer: B

10. In a storm, the leeward lines of a MODU's mooring system will _____.
- A. tend to keep the unit on its original location over the well head
 - B. pull the unit in the opposite direction that the weather is pushing it
 - C. pull the unit in the same direction that the weather is pushing it
 - D. affect the unit's draft and inclination as maximum mooring tensions are reached

Correct answer: C

11. 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

Correct answer: D

12. Considering the changes to lightweight shown in section 5 of the COASTAL DRILLER Manual, the maximum allowable combination of hook, rotary, and setback load for the COASTAL DRILLER with the rotary located 34 feet aft of the transom and two feet to port of the centerline is _____.
- A. 1000 kips
 - B. 875 kips
 - C. 854 kips
 - D. 755 kips

Correct answer: C

13. When H₂S has been encountered on a MODU, or is anticipated, monitoring devices must sound an alarm (which differs from the lower concentration alarm) or otherwise warn employees when concentration of H₂S reaches or exceeds how many parts per million?
- A. 20
 - B. 50
 - C. 100
 - D. 200

Correct answer: B

14. The helicopter deck on an offshore drilling unit is required to be fitted with perimeter lights in alternating colors of _____.
- A. yellow and blue
 - B. yellow and red
 - C. yellow and white
 - D. red and white

Correct answer: A

15. While preparing for a storm when elevated, the total weight of the COASTAL DRILLER is 14,150 kips, LM are 1,712,150 ft-kips, and TM are -9,905 ft-kips. The starboard leg reaction is _____.
- A. 4,536 kips
 - B. 4,698 kips
 - C. 4,725 kips
 - D. 4,890 kips

Correct answer: C

16. To determine the number of inflatable liferafts required on a mobile offshore drilling unit, you should check the _____.
- A. stability letter
 - B. load line certificate
 - C. Certificate of Inspection
 - D. Operations Manual

Correct answer: C

17. The International Oil Pollution Prevention (IOPP) Certificate required by MARPOL is issued to U.S. flag MODUs by the _____.
- A. International Maritime Organization
 - B. U.S. Coast Guard
 - C. Environmental Protection Agency
 - D. American Bureau of Shipping

Correct answer: B

18. 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

19. If the metacentric height is small, a floating MODU will _____.
- A. have a quick and rapid motion
 - B. yaw
 - C. be stiff
 - D. be tender

Correct answer: D

20. A small fuel spillage has occurred during helicopter refueling. After the leak has been stopped and fire-control personnel have been notified and are standing by, the next step is to _____.
- A. proceed with fueling operation
 - B. clean spilled fuel with rags
 - C. have helicopter move to a safer location
 - D. wash spilled fuel away with a flood of water

Correct answer: D

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21. 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

Correct answer: B

22. The wire ropes of the riser tensioning system are attached to the _____.
- A. ball joint
 - B. inner barrel of the telescoping joint
 - C. outer barrel of the telescoping joint
 - D. marine riser connector

Correct answer: C

23. Where is thicker plating usually found in the construction of integral tanks on a MODU?
- A. At the top of the tank
 - B. At the center of the tank
 - C. On the outside of the tank
 - D. At the bottom of the tank

Correct answer: D

24. The COASTAL DRILLER is elevated in 192 feet of water. Leg penetration is 83 feet. The maximum leg reaction is 5,940 kips. The waves are 30 feet and the current is 2 knots. What is the maximum wind for drilling?
- A. 45 knots
 - B. 50 knots
 - C. 57 knots
 - D. 62 knots

Correct answer: B

25. During a storm, the mooring line on a MODU should be long enough so that the angle between the anchor shank and the ocean floor is _____.
- A. 0°
 - B. 30°
 - C. 60°
 - D. 90°

Correct answer: A

26. In evacuation from a MODU, an individual without the option of a survival craft or liferaft should enter the water on the leeward side. This procedure is valid except when which of the following circumstances applies?

- A. a rigid survival craft is in the area
- B. there is burning oil on the water
- C. water temperature is below 40°F
- D. there is a rescue craft in the area

Correct answer: B

27. 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 to 6 feet and the mud weight decreased from 16 to 14 pounds/gallon?

- A. 70.00 long tons
- B. 84.17 long tons
- C. 93.34 long tons
- D. 106.67 long tons

Correct answer: A

28. Load line regulations are designed to ensure that a MODU has adequate structural strength and sufficient _____.

- A. lifesaving equipment
- B. stability
- C. mooring tension
- D. riser tension

Correct answer: B

29. The COASTAL DRILLER is loaded as shown in the sample load from #2 (preload). All of the preload is dumped with the exception of 50 kips in preload tank #28. What is the new LCG?

- A. 119.11 feet AF0
- B. 119.44 feet AF0
- C. 119.68 feet AF0
- D. 120.11 feet AF0

Correct answer: C

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

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

Correct answer: C

31. The free surface corrections depend upon the dimensions of the surface of the free liquids and the _____.

- A. location of the tank in the MODU
- B. height of the center of gravity of the MODU
- C. displacement of the MODU
- D. volume of liquid in the tank

Correct answer: C

32. Prior to entering a davit-launched liferaft, which of the following checks should make first?

- A. all personnel have removed their life preservers to facilitate boarding
- B. the liferaft is well ventilated of excess carbon dioxide
- C. the door flap has been cut away and stowed inside the raft
- D. All of the above

Correct answer: B

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

Correct answer: D

34. The COASTAL DRILLER, loaded as shown in the Sample Load Form #4 (Storm), discharges all the bulk in the four bulk tanks. What is the new TCG?

- A. -1.11 feet
- B. -0.47 foot
- C. 1.07 feet
- D. 1.11 feet

Correct answer: D

35. Buoyancy associated with empty or partly empty ballast tanks in the mat of a mat supported jack-up MODU during jacking operations can cause _____.

- A. progressive flooding
- B. capsizing
- C. delays
- D. negative buoyancy

Correct answer: B

36. To assure safe boarding and launching of a davit-launched liferaft from a MODU, preparation should include which of the following choices?
- A. load testing the davit arm and the painter system
 - B. testing the spring-loaded drum to assure it will retract the fall release hook
 - C. removing any side protective rails and checking that the overside and surface level are clear
 - D. testing to assure that the required lamps are functioning properly

Correct answer: C

37. A mat-type jack-up drilling unit is the best selection for _____.
- A. deep water
 - B. uneven bottoms
 - C. soft mud bottoms
 - D. hard bottoms

Correct answer: C

38. 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

Correct answer: D

39. On offshore drilling units, notification shall be given to the Coast Guard of a casualty if a person is injured and unable to perform routine duties for _____.
- A. any amount of time
 - B. more than 24 hours
 - C. more than 36 hours
 - D. more than 72 hours

Correct answer: A

40. 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

Correct answer: D

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

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

Correct answer: B

42. 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

Correct answer: D

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

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

Correct answer: D

44. Structural stress levels in a MODU are the sum of loading stresses and stresses due to _____.

- A. variable loads
- B. ballast loading
- C. environmental loads
- D. mooring loads

Correct answer: C

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

- A. Butterfly valve
- B. Gate valve
- C. Packless valve
- D. Globe valve

Correct answer: B

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

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

Correct answer: D

47. A series of trays with sieves that vibrate to remove cuttings from the circulating fluid in rotary drilling operations is called the _____.
- A. settling pit
 - B. desander
 - C. shale shaker
 - D. desilter

Correct answer: C

48. If you see someone fall overboard from a MODU, you should _____.
- A. go to the control room for the distress flares
 - B. immediately jump in the water to help the individual
 - C. call for help and keep the individual in sight
 - D. run to the radio room to send an emergency message

Correct answer: C

49. What is the weight in drill water tank #1 for the COASTAL DRILLER, if the sounding in the tank is 8 feet 2 inches?
- A. 202.16 kips
 - B. 204.60 kips
 - C. 206.87 kips
 - D. 209.34 kips

Correct answer: B

50. You are operating a liftboat. When jacking down and a leg becomes stuck on the bottom, you should _____.
- A. raise the free legs all the way
 - B. use the engines to rotate about the leg that is stuck
 - C. jack the barge down part way to pull the leg free
 - D. submerge the barge completely to give added pull

Correct answer: C