

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. In an emergency, if you must jump from a MODU, what is the best procedure to follow?
- A. body straight and arms held tightly at the sides for feet first entry into the water
 - B. knees bent and held close to the body with both arms around legs
 - C. 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
 - D. both hands holding the life preserver below the chin, with knees bent, and legs crossed

Correct answer: C

2. What is the shift in the longitudinal center of gravity if 200 short tons are discharged from 30 feet forward of amidships on a MODU with LCG 1.5 feet forward of amidships, and displacement 9,000 short tons?
- A. 0.62 foot aft
 - B. 0.65 foot aft
 - C. 0.68 foot aft
 - D. 0.71 foot aft

Correct answer: B

3. The COASTAL DRILLER is loaded as shown in the Sample Load Form #1 (Rig Move). What is the margin on the maximum allowable KG if winds increase to greater than 70 knots, and the TOC is changed to the recommended value?
- A. 0.0 foot
 - B. 1.0 foot
 - C. 37.0 feet
 - D. 38.0 feet

Correct answer: B

4. The DEEP DRILLER is moored in 600 feet of water. The tension on anchor line #8 is 190 kips. What is the vertical component of chain tension for that line?
- A. 53.6 long tons
 - B. 55.3 long tons
 - C. 84.8 long tons
 - D. 442.4 long tons

Correct answer: B

5. Adding the FSCL to KG yields _____.
- A. GM
 - B. KM
 - C. KGL
 - D. KGT

Correct answer: C

6. 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. starboard ballast pump and the crossover system
 - C. port drill water pump
 - D. port bilge pumps

Correct answer: B

7. 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. equalizer
 - C. compensator
 - D. tensioner

Correct answer: C

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

Correct answer: D

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

Correct answer: C

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

Correct answer: A

11. When a semisubmersible rig under tow experiences pounding on the forward transverse brace, the surest way to alleviate the condition would be to _____.
- A. adjust the length of the tow line
 - B. change course
 - C. have the tug slow down
 - D. ballast down

Correct answer: D

12. For the purposes of the International Rules of the Road, a non-self-propelled mobile offshore drilling unit under tow is considered to be a _____.
- A. limited vessel
 - B. power-driven vessel
 - C. non-displacement vessel
 - D. vessel

Correct answer: D

13. What danger is presented if a waterspout passes over a MODU?
- A. Visibility could be restricted by low clouds.
 - B. Heavy rains could cause downflooding.
 - C. Personnel may be injured by loose deck gear blown by the wind.
 - D. Large waves could cause structural damage.

Correct answer: C

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

Correct answer: C

15. 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

Correct answer: C

16. 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. desilter
- C. shale shaker
- D. desander

Correct answer: C

17. A heavy steel device that is set on the sea floor and used as a drilling template in offshore drilling operations is called a _____.

- A. permanent guide base
- B. foundation template
- C. guide frame
- D. temporary guide base

Correct answer: D

18. The best information on the nature and extent of damage on a MODU is obtained from _____.

- A. the toolpusher
- B. person in charge of the affected spaces
- C. personnel at the scene of the damage
- D. alarms and monitoring devices

Correct answer: C

19. The DEEP DRILLER is loaded as shown in Sample Load Form #3 (Preparing to Drill). What is the margin on the maximum allowable KG while drilling?

- A. 4.58 feet
- B. 5.24 feet
- C. 6.27 feet
- D. 6.94 feet

Correct answer: A

20. 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. use the crossover system
- C. abandon the rig
- D. fight a fire

Correct answer: A

21. 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

22. The COASTAL DRILLER, in ocean transit at a draft of 10 feet 6 inches with winds greater than 70 knots, has a KGT of 38.7 feet and a KGL of 38.2 feet. The margin on the maximum allowable KG is _____.

- A. 26.8 feet
- B. 26.3 feet
- C. 1.8 feet
- D. 1.3 feet

Correct answer: D

23. What is a pinion in a jacking system?

- A. Gearwheel
- B. Flexible coupling
- C. Flexible joint
- D. Flexible shaft

Correct answer: A

24. 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

25. The central longitudinal structural hull strength member of the lower hulls of semisubmersible MODU's is called the _____.

- A. main beam
- B. keel
- C. stress plate
- D. rider plate

Correct answer: B

26. The DEEP DRILLER, at 60.0 feet draft in sea water, has VM = 974,441 foot-long tons, LM = 3 foot-long tons, FSML = 30,572 foot-long tons, and FSMT = 18,732 foot-long tons. What is the transverse free surface correction to KG?

- A. 0.00 feet
- B. 1.03 feet
- C. 1.69 feet
- D. 2.22 feet

Correct answer: B

27. 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

Correct answer: C

28. The overturning forces acting on a floating jack-up are generally dominated by _____.

- A. wind
- B. waves
- C. current
- D. tide

Correct answer: A

29. Port ballast pump #1 on the DEEP DRILLER has failed. If you want to deballast the forward-port column using port ballast pump #2, it is necessary to open valves _____.

- A. 3, 34, 36, 46, and 48
- B. 3, 34, 35, 36, 46, and 48
- C. 4, 34, 35, 36, 46, and 48
- D. 4, 34, 36, 46, and 48

Correct answer: B

30. A floating MODU with an initial negative metacentric height _____.

- A. may lie at an angle of loll
- B. will capsize
- C. will incline further
- D. may be initially level

Correct answer: A

- 31.** 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

Correct answer: C

- 32.** Among the possible causes of unexpected rapidly increasing inclination of the DEEP DRILLER while on location is _____.
- A. miscalculation of loads
 - B. external environmental forces
 - C. consumption of on board variables
 - D. flooding due to column damage

Correct answer: D

- 33.** The longitudinal location of the center of flotation for the COASTAL DRILLER has a value of _____.
- A. 207.33 feet AF0
 - B. 160.33 feet AF0
 - C. 119.44 feet AF0
 - D. 38.33 feet AF0

Correct answer: C

- 34.** The DEEP DRILLER's lightweight is the condition prior to loading _____.
- A. deck load and lower-hull liquids
 - B. deck load, lower-hull liquids, and external loads
 - C. deck load
 - D. deck load, lower-hull liquids, external loads, and deploying anchors

Correct answer: D

- 35.** If H₂S exposure is anticipated, fixed monitoring devices aboard a MODU should have a low level concentration alarm to alert personnel. at what concentration level will the alarm activate?
- A. 10 PPM
 - B. 20 PPM
 - C. 30 PPM
 - D. 40 PPM

Correct answer: A

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

Correct answer: D

37. Each emergency light must be marked with _____.

- A. the letter "E"
- B. a no-smoking symbol
- C. the word "DANGER"
- D. an arrow pointing to the nearest exit

Correct answer: A

38. You are operating a liftboat. When beginning to jack down you should _____.

- A. jack up first, then down
- B. undog doors to the engine room
- C. assemble all personnel on the main deck
- D. jack down one leg at a time

Correct answer: A

39. 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 radio room, bridge, or protected location
- D. the Master's quarters

Correct answer: C

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

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

Correct answer: C

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

- A. stiffener
- B. beam
- C. stanchion
- D. plating

Correct answer: D

42. 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 bulk storage tanks
- C. in machinery spaces
- D. on the drill floor and liquid mud handling areas

Correct answer: D

43. 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

Correct answer: B

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

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

Correct answer: D

45. 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

Correct answer: C

46. 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. mildly toxic
- B. a yellow gas that is easily recognized
- C. heavier than air
- D. lighter than air

Correct answer: C

47. 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

Correct answer: C

48. Apparent wind speed blowing across a MODU under tow can be measured by a(n) _____.

- A. barometer
- B. anemometer
- C. thermometer
- D. wind vane

Correct answer: B

49. While the COASTAL DRILLER is elevated, the out-of-level alarm indicates that hull inclination exceeds 0.3° . What should you do?

- A. Raise the low corner.
- B. Confirm operation of out-of-level alarm.
- C. Raise the high corner.
- D. Raise unit to proper air gap and inspect for damage.

Correct answer: B

50. 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

Correct answer: D