

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

Correct answer: D

2. If a severe storm threatens the COASTAL DRILLER while elevated as shown in the Sample Load Form #3 (Drilling), the variable loads would have to be reduced by _____.
- A. 3,282.5 kips
 - B. 2,381.0 kips
 - C. 1,000.0 kips
 - D. 901.5 kips

Correct answer: C

3. In MODU operations, hoisting and lowering pipe in and out of the drilled hole is the main function of the _____.
- A. stand pipe
 - B. drawworks
 - C. swivel
 - D. cathead spool

Correct answer: B

4. 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

5. Horizontal subdivision decks forming watertight compartments in the columns of a semisubmersible MODU increase the unit's _____.
- A. stability in the event of damage
 - B. anchor holding ratio
 - C. towing speed
 - D. tank capacities

Correct answer: A

6. To determine the number of industrial personnel allowed on a mobile offshore drilling unit, you should check the _____.
- A. Certificate of Inspection
 - B. Safety of Life at Sea Certificate
 - C. Muster List ("Station Bill")
 - D. Operations Manual

Correct answer: A

7. The rotary of the COASTAL DRILLER is located 36 feet aft of the transom and 6 feet to starboard of the centerline. The hook load is 300 kips. Considering the changes to lightweight shown in the Operating Manual, the maximum amount of setback is _____.
- A. 545 kips
 - B. 450 kips
 - C. 245 kips
 - D. 224 kips

Correct answer: D

8. 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

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

Correct answer: C

10. The number of certificated able seamen and lifeboatmen required on a MODU is stated in the _____.
- A. Minerals Management Service regulations
 - B. Safety of Life at Sea Convention
 - C. Certificate of Inspection
 - D. American Bureau of Shipping code

Correct answer: C

11. The regulations regarding Oil Record Books do not apply to MODU's that _____.
- A. are on an international voyage
 - B. have a valid National Pollutant Discharge Elimination System permit
 - C. have a valid International Oil Pollution Prevention Certificate
 - D. are on a voyage of more than 24 hours

Correct answer: B

12. The longitudinal free surface moments of a drilling mud pit aboard a MODU displacing 24,000 long tons in sea water is 1,200 ft-long tons. If the sounding level in the mud pit is reduced from 8 to 6 feet and the mud weight increases from 10 to 12 lbs/gallon, what is the new FSML for the mud pit?
- A. 750 ft-long tons
 - B. 1,000 ft-long tons
 - C. 1,440 ft-long tons
 - D. 1,920 ft-long tons

Correct answer: C

13. When should the emergency position-indicating radio beacon be activated after abandoning a MODU?
- A. After one hour
 - B. Immediately
 - C. Only after sunset
 - D. Only when another vessel is in sight

Correct answer: B

14. The prohibition against exceeding the load line draft may be considered temporarily not applicable when _____.
- A. column-stabilized units are operating in waters outside U.S. jurisdiction
 - B. column-stabilized units are operating in water depths over 600 feet
 - C. bottom supported units are being raised or lowered to the seabed
 - D. bottom supported units are being towed on a move of less than 12 hours

Correct answer: C

15. During preloading or elevating the COASTAL DRILLER, jacking-up may continue if the total weight is less than _____.
- A. 21,497 kips
 - B. 21,297 kips
 - C. 17,700 kips
 - D. 14,400 kips

Correct answer: D

16. How must each storage tank for helicopter fuel on a MODU be marked?

- A. DANGER - EXPLOSIVE VAPORS
- B. DANGER - NO SMOKING
- C. DANGER - KEEP AWAY
- D. DANGER - FLAMMABLE LIQUID

Correct answer: D

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

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

Correct answer: D

18. 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

19. A qualified person must be assigned as the second in command of a lifeboat on a MODU if the lifeboat has a capacity of more than _____.

- A. 20 persons
- B. 30 persons
- C. 40 persons
- D. 50 persons

Correct answer: C

20. Why can a person's sense of smell not be depended upon to detect H₂S?

- A. hydrogen sulfide gas is odorless
- B. the sense of smell is deadened by the gas
- C. it is better to rely on eye irritation as a detector
- D. it has a smell similar to petroleum products

Correct answer: B

21. The COASTAL DRILLER, elevated in 200 feet of water, has two knots of current and 70 knot winds. With a maximum leg reaction of 5,840 kips, the maximum wave height for drilling is _____.

- A. 20 feet
- B. 30 feet
- C. 35 feet
- D. 40 feet

Correct answer: A

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

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

Correct answer: C

23. In a storm, the leeward lines of a MODU's mooring system will _____.

- A. pull the unit in the opposite direction that the weather is pushing it
- B. pull the unit in the same direction that the weather is pushing it
- C. tend to keep the unit on its original location over the well head
- D. affect the unit's draft and inclination as maximum mooring tensions are reached

Correct answer: B

24. 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

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

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

Correct answer: C

26. A slow and easy motion of a MODU in a seaway is an indication of a _____.

- A. large GZ
- B. stiff vessel
- C. small GM
- D. low center of gravity

Correct answer: C

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

Correct answer: A

- 28.** On board a mobile offshore drilling unit, the key to the most rapid and effective response to a man overboard situation is _____.
- A. good equipment
 - B. a dedicated crew
 - C. well-conducted drills
 - D. good communication

Correct answer: C

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

Correct answer: B

- 30.** 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

- 31.** Which type of respiratory protection is preferable for repair/investigation personnel on a MODU in a hydrogen sulfide (H₂S) environment?
- A. U.S. Navy Oxygen Breathing Apparatus (OBA)
 - B. Emergency Escape Breathing Apparatus (EEBA)
 - C. Pressure-Demand Self-Contained Breathing Apparatus (SCBA)
 - D. Demand Self-Contained Breathing Apparatus (SCBA)

Correct answer: C

- 32.** Annual inspection of MODU cranes shall be conducted by _____.
- A. the crane operator
 - B. a qualified inspector
 - C. U.S. Coast Guard
 - D. the person in charge

Correct answer: B

33. 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

34. 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 feet to port of the centerline. What is the bow leg reaction?

- A. 4,737 kips
- B. 4,916 kips
- C. 5,063 kips
- D. 5,145 kips

Correct answer: C

35. To what distance below the hull must the legs of the COASTAL DRILLER be lowered in order to meet the stability and leg strength requirements during the wind speeds greater than 70 knots?

- A. 0.0 feet
- B. 1.2 feet
- C. 25.0 feet
- D. 60.5 feet

Correct answer: D

36. 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

37. A series of trays with sieves that vibrate to remove cuttings from the circulating fluid in rotary drilling operations is called the _____.

- A. shale shaker
- B. settling pit
- C. desander
- D. desilter

Correct answer: A

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

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

Correct answer: B

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

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

Correct answer: B

40. Air gap is the vertical distance between the bottom of the hull and the _____.

- A. wave crest
- B. wave crest plus the charted water depth and tidal corrections
- C. still water level
- D. wave crest plus the charted water depth and tidal correction and storm surge

Correct answer: C

41. If help has not arrived in 10-12 hours after you abandon a remotely-located MODU in a survival craft, which of the following would be the best course of action?

- A. take a vote on which direction you should go
- B. shut down the engine(s) and set the sea anchor
- C. plot a course for the nearest land
- D. go in one direction until the fuel runs out

Correct answer: B

42. What maximum wind velocity is assumed when determining the limits of elevated service for the COASTAL DRILLER?

- A. 50 knots
- B. 100 knots
- C. 70 knots
- D. It varies with the Allowable Wind and Wave charts.

Correct answer: B

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

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

Correct answer: B

44. You are operating a liftboat. Before starting jacking operations, you should _____.

- A. put a watch in the engine room
- B. put the crane in a vertical position
- C. close the wheelhouse doors
- D. have all personnel don life jackets

Correct answer: D

45. A survival craft being used to pick up a person who has fallen overboard from a MODU should approach the person _____.

- A. with the wind
- B. against the wind
- C. under oars
- D. at a high rate of speed

Correct answer: B

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

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

Correct answer: D

47. When a wind force causes a floating MODU to heel to a static angle, the _____.

- A. righting moment equals the wind-heeling moment
- B. downflooding point is below water
- C. centers of buoyancy and gravity are in the same vertical line
- D. deck-edge immersion occurs

Correct answer: A

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

- A. American Bureau of Shipping
- B. U.S. Coast Guard
- C. Bureau of Ocean Energy Management
- D. U.S. Corps of Engineers

Correct answer: C

49. 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

50. A hurricane has recurved to the northeast and its forward speed is 20 knots. Your MODU is located 600 miles northeast of the hurricane's center. How long will it take for the hurricane center to reach your position if it holds its present course and speed?

- A. 10 hours
- B. 30 hours
- C. 50 hours
- D. 80 hours

Correct answer: B